Coal Energy Group 3
CEG
Kinney Mine

**Coal Energy Group 3**
6602 Ilex Circle
Naples, Florida 34109

April 22, 2019

C/007/0047
Received 4/23/19
Task #5779

Steve Christensen
Coal Program Manager
Oil, Gas & Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114-5801

Re: **Kinney Mine Permit Application, Coal Energy Group 3, LLC, Kinney #2 Mine, Carbon County, Utah, Task ID 5779**

Dear Mr. Christensen:

Coal Energy Group 3, LLC (CEG3) is submitting a permit application for the Kinney Mine in Carbon County in response to deficiencies received on Task ID 5779. Responses to how the deficiency was addressed are attached to this cover letter.

PDF versions of the drawings are not certified. Upon approval, 2 (two) clean hard copies of the text and certified drawings for insertion into the MRP will be submitted. Please do not hesitate to contact me if you have any questions 435-691-2983.

Very truly yours,

Larry W. Johnson
Manager

1. R645-301-112, -112.230: The Permittee must revise the information in Section 112.200 to provide the tax payer identification/employer identification number for CEG3, LLC. The information is not considered confidential per R645-300-124.300 thru 124.330.

*Done. Removed from Confidential File*

2. R645-301-112.310, the Permittee must provide the phone number for Mr. Jim Wayland in Section 112.310 of the application and in Section 112.330.

*Done*

3. R645-301-112.300: The Permittee must provide additional information and/or clarification for Western Reserve Coal Company, Incorporated. Western Reserve Coal Company, Incorporated is identified in Chapter 1, Right of Entry information in the confidential binder as the company that entered into a lease agreement with the Telonis Family ET AL. Based on the information provided, it's unclear as to what the relationship is between Western Reserve Coal Company, Inc. and Carbon Resources, LLC.

*Done. Addressed in Chapter 1 under R645-301-114, Right of Entry. Add Foreclosure document to confidential file.*

4. R645-301-112.340, -112.400, -112.410, -112.420 The Permittee must provide additional information for both the Coal Hollow Mine and Wildcat Loadout operations. The information includes; the employer identification number (EIN), MSHA number, State permit number, Permittee's and operators name and address as well as the ownership and control relationship to the applicant and the operator, including percentage of ownership and location in the organizational structure for both the Coal Hollow Mine and Wildcat Loadout. As the information is not considered confidential per R645-300-124.300 – 124.330 please include it within the main text of Chapter 1 beginning in Section 112.340.

*Done Removed from the Confidential Binder*

5. R645-301-112, -120, -121.200: The Permittee must resolve/clarify discrepancies for the identified mailing address of Carbon Resources, LLC as three different addresses are provided in the application. Two different addresses are provided in Section 112.500-600 with a third provided in the Chapter 1 Right of Entry information in the confidential binder.

*Address are all the same now, Done*

6. R645-301-112.500: In section 112.500-600, the Permittee must either provide the date in November 2018 in which CEG3, LLC sub-leased the coal from Carbon Resources, LLC or remove the statement as it is not required per R645-301-112.500. The application currently displays a question mark rather than the date in November 2018 in which CEG3 LLC sub-leased the coal mineral from Carbon Resources, LLC.

7. R645-301-112.700: The Permittee must provide the MSHA number in Section 112.700 per R645-301-112.700.

*The Statement has been removed*

8. R645-301-113.320: The Permittee must provide additional information for the violation history at the Coal Hollow Mine including: a brief description of the violation. Exhibit 4, Environmental Citations does not provide this information. The information is not considered confidential and should be submitted to the Division accordingly.

*Violation history has been revised to include a brief description of the violation in Exhibit 4. Exhibit 4 is not marked as confidential.*

9. R645-301-114: The Permittee must provide a copy of the Lease and Sublease of Coal Estate and Option Agreement between Carbon Resources, LLC and Coal Energy Group 3, LLC that has been signed by authorized representatives from both entities (See Confidential Binder, Chapter 1, Right of Entry).

*Signed copy put into the MRP*

10. R645-301-114: The Permittee must remove Exhibit 5 from the Confidential Binder, Chapter 1, Right of Entry. It appears that Exhibit 5 is a placeholder and thus superfluous to the application.

*Exhibit 5 contains the Proof of Publication and remains in the permit*

11. R645-301-114: The Permittee must provide the Carbon County Conditional Use Permit and Scofield Town Building permit.

*Response on Deficiency list: A building permit will be applied for prior to any construction.*

*From Carbon County: "We will need a copy of the applicable permits from DOGM, and Utah DEQ before we issue any building permits. Scofield Town has contracted with the County for all the building permits and inspections, so we will work with you on those as well."*

*"The Existing conditional use permit is valid and is attached to the Kinney Mine Property. There is no need for an additional permit."*

*Todd Thorne*

*Carbon County*

*Director of Planning*

*Building Official*

*Office: 435-636-3261*

12. R645-301-115, 103-235: The Permittee must provide the UDOT access permit in order to allow coal mining and reclamation operations to occur within 100' of a public road. The permit was previously provided in Exhibit 4.

*The UDOT Access permit is accepted and has been added into Exhibit 4*

13. R645-301-115,-103-234: The Permittee must provide an updated waiver for L2H Enterprises, Inc. The document provided in Exhibit 4 is over 10 years old and does not identify a time-frame that would potentially allow the Division to accept this document (e.g. waiving of objections for 30 years).

*The new letter is signed and has been added into Exhibit 4*

14. R645-301-724.400: The climatic data and associated tables must be updated through to the present. The precipitation and temperature data shown in Table 13 and Table 14 is compiled with an outdated data set. The average precipitation and temperature tables must data that is continuous up to the present.

*Tables 13 and 14 have been update with the most recent data set available,*

15. R645-301-121: The Permittee must provide information regarding the net depletion/discharge of water into the Colorado River Basin system from the proposed mining-related activities.

*Chapter 7 provides comprehensive information regarding the net depletion/ discharge of water into the Colorado River Basin system from the proposed mining-related activities. Here again summarized "Ground water impacts resulting from the planned mining and related activities will be minimal due to limited ground water occurrence, low overall permeabilities and consequent limitations on the effective area of influence, and the lack of beneficial ground water use in the area. Similarly, surface disturbance associated with the Kinney mining and related operations will involve such a small area that potential mining related surface water impacts will be negligible. Any potential surface water impacts will be effectively mitigated through effective control of mine water supply withdrawals, operation of a comprehensive drainage and sediment control system, compliance with applicable monitoring requirements and discharge effluent standards under the required UPDES permits, and reclamation of surface disturbance areas and restoration of surface drainage characteristics."*

16. R645-301-322: The Permittee must provide information regarding the description and rationale for potential effect to the Mexican spotted owl in the TE&S discussion.

*In Revisions see: R645-301.100 "Sources of Information" and "Additional TES Information"*

17. R645-301-322: Information regarding raptors, including updated surveys and maps, must be included in the application.

*I had a conversation with Todd Miller & Kirk. I sent 2007/2010 map and response from UNHP to Todd. He consulted with his colleagues at UDWR and UNHP to see what they suggest. Their recommendation was to follow up with a ground survey for raptors and nests in the area. I made this commitment in Chapter 3. See Species of Concern - "Raptors".*

18. R645-301-322: Additional information regarding wetlands must be included to clarify the potential for impacts to wetlands resulting from the proposed undertaking.

Same as Deficiency #34 below. In Revisions . See R645-301.330, OPERATION PLAN "Biological Resources Protection Plan".

19. R645-301-322.360: The Permittee must update Alluvial Valley Floor Map 32 with current ownership information.

Map 32 updated and resubmitted as requested.

20. Multiple charts, tables and graphs are out of date and must be updated to reflect current baseline monitoring data. Exhibit 10 contains outdated field measurements for both ground and surface water resources in the permit and adjacent area. These data and all associated tables must be updated accordingly. Exhibit 12 contains outdated analytical lab reports generated from the baseline data collection. These outdated reports must be updated in concurrence with updated data in Exhibit 10. Table 6, Kinney #2 Baseline Monitoring Stations, provides an outdated list of the ground and surface

water resources monitored from 2005 to 2011. The baseline monitoring data must be updated to the present. Map 10, Regional Water Quality, provides a depiction of the permit and adjacent area with Stiff Diagrams corresponding to various water monitoring points. Map 10 must be updated to reflect current Stiff Diagram baseline values for the most recent year of baseline data. Figure 18, Basic Water Quality, provides outdated charts of total dissolved solids (TDS), total manganese (T-Mn) and total iron (T-Fe) for baseline water monitoring stations. Figure 18 must be updated to include current baseline water monitoring data. Additionally, Figure 19 shows outdated charts of water quality versus flow for the baseline water monitoring stations. Table 10 provides outdated water quality summaries for both ground and surface water. All of the tables, charts, figures, etc. must be updated to reflect up-to-date and current baseline monitoring data.

*Chapter 7 text along with all included charts, tables & graphs, Map 7, 8, 9, 10, & 28 and Exhibits 10, 11, & 12 have been updated with current hydrology information including new monitor wells and the most recent monitoring data available.*

21. R645-301-728: The Permittee must revise the PHC narrative to reflect the more recently obtained baseline data. The PHC analysis and narrative must take into account the most recently measured water depths in monitored baseline wells to ensure water levels have not changed since the mine was initially permitted in the late 2000's. The PHC must also update the discussion on the potential impacts to springs using the most up-to-date baseline spring monitoring data.

The PHC has been updated with new relevant information

22. The Permittee must update maps displaying water monitoring wells, including Map 7 and Map 28, to clearly identify actively monitored wells and abandoned/sealed monitoring wells. The location of springs and surface water monitoring sites have not changed since the initial permitting of the mine over a decade ago. However, it is understood well(s) have been sealed and abandoned since the initial permitting.

*Map 7 and 28 have been updated with new monitor wells added since initial permitting. CR-06-03ABV is the only monitor well that has been plugged and abandoned and has been so noted on the maps. It remains on the maps as the location and data are still relevant.*

23. R645-301-521.131: The Permittee must revise Map 11, Regional Surface Ownership Map with the most recent ownership information.

Map 11 updated and resubmitted as requested.

24. The Permittee must update Maps 7A and 7B to display the piezometric surface in the wells using the most current baseline well monitoring data. Maps 7A, W-E X-Section A-A' and Map 7B, N-S X-Section C-C' provide cross-sectionals view of the permit and adjacent area. The cross-sections depict the outdated piezometric surface of the regional water table from old baseline data.

*Currant baseline data has been added and reviewed. The current water level data does not change the piezometric surface, thus Maps 7A and 7B remain unchanged.*

25. The Permittee must update Map 7, Regional Hydrology to clearly identify actively monitored wells and abandoned/sealed wells. Map 7, Regional Hydrology depicts the locations of all monitoring wells that were constructed over a decade ago. Well(s) have since been sealed since the mine was originally permitted. This map showing the locations of the monitoring wells for on-going water monitoring activity must be updated to show actively monitored wells and abandoned/sealed wells.

*See response to Deficiency 22*

26. R645-301-411.144: The Permittee must commit to install fencing along the disturbance boundary closest to the fan house feature of site 42cb477. The Permittee must also commit to install fencing, so long as it is practicable for the protection of the resource, along the border of the disturbed area and feature 12 of site 42cb479.

*A commitment to install fencing as recommended in the SHOPO letter in Exhibit 21*

27. R645-301-121.200: The Permittee must revise the statement on page 5-38 that incorrectly discusses two public notices and no comments/objections received.

*The Skyline mine concern over road safety of their trucks has been added to Exhibit 5 along with the Proof of Publication. The 2 public notices happened, with no comments from those notices. However, On February 11, 2019, Skyline Coal mine generated and submitted a letter of concern to DOGM.*

1. *UDOT has approved a road design to facilitate a safe access and egress to the Kinney No. 2 Coal Mine.*
2. *The Skyline Waste Rock facility is almost 1 mile south of the proposed Mine site. This facility will not be affected by the Kinney No. 2 mine opening and operation.*

28. R645-103-224.400 and -234.200, R645-301-512.250, -521, -526.116-, -526.116.1, -534.200: The Permittee must provide documentation that the Utah Department of Transportation (UDOT) has reviewed and approved the proposed coal mining activity that will occur within 100 feet from the outside right-of-way of a public road (i.e. State Route 96).

*UDOT has granted a Conditional Access Permit, this is located in Exhibit 4*

29. Condition of permit: In accordance with R645-301-421, The Permittee must provide confirmation of the Air Quality Approval Order prior to construction of the site.

*The Engineers review has been completed and the draft permit is under review by management at UDAQ. A draft for CEG3's review is expected the week of April 21st.*

30. R645-301-515: The Permittee must provide a specific description of emergency reporting procedures for anytime a slide occurs which may have a potential adverse effect on public health, safety, or the environment as outlined in R645-301-515.100. Similarly, Permittee must provide a description of notification for instances where potential impoundment hazards exist as outlined in R645-301-515.200.

Text in Sections 301-515.100 and -515.200 has been updated as requested.

31. R645-301-322: The Permittee must update and include information regarding raptors, including surveys, maps, and coordination with U.S. FWS regarding potential raptor deterrence. Additional information regarding wetlands must be included to clarify the potential for impacts to wetlands resulting from the proposed undertaking.

I had a conversation with Todd Miller & Kirk. I sent 2007/2010 map and response from UNHP to Todd. He consulted with his colleagues at UDWR and UNHP to see what they suggest. Their recommendation was to follow up with a ground survey for raptors and nests in the area. I made this commitment in Chapter 3. See Species of Concern - "Raptors".

32. R645-301-333: The Permittee must provide a commitment for mitigation of four acres of habitat improvement for every one acre of disturbance within sage grouse crucial habitat in order to fully minimize the disturbance and adverse impact of the proposal on sage grouse occupied and crucial habitat. Information regarding raptors, including surveys, maps, and coordination with U.S. FWS regarding potential raptor deterrence, must be updated and included in the application.

For Sage-Grouse Revisions see: R645-301-322.220 "High-Value Habitats" and R645-301.322.333 "Protection Plan and Enhancement Plan".

In Revisions also see ALL of the revised wildlife habitat maps.

(For Raptors see also #17 above).

33. R645-301-342: The Permittee must provide an update to the Temporary and Final seed mixes to remove Kentucky bluegrass from both mixtures and thickspike wheatgrass species from the Temporary mixture. Suggestions to replace these species are orchard grass and mountain brome. Additionally, an increase in forb seed in the Temporary seed mixture is recommended. Species suggestions include yarrow, Lewis flax, sainfoin, and/or small burnet. Finally, an addition of sainfoin and/or small burnet to the Final seed mixture is recommended to improve wildlife forage quality in reclaimed areas.

In Revisions see Table 21 and Table 22.

34. R645-301-322: The Permittee must include information regarding wetlands to clarify the potential for impacts to wetlands resulting from the proposed undertaking.

Same as Deficiency #18 above. See R645-301.330, OPERATION PLAN "Biological Resources Protection Plan".

35. R645-301-358: The Permittee must provide a commitment to a protection and enhancement plan that will avoid disturbances to, enhance where practicable, restore, or replace, wetlands and habitats of unusually high value for sage grouse, raptors, and any other state or federally protected species that may occur in the project as previously outlined. This commitment must include mitigation of four acres of habitat improvement for every one acre of disturbance within sage grouse crucial habitat in order to fully minimize the disturbance and adverse impact of the proposal on sage grouse occupied and crucial habitat. Information regarding raptors, including surveys, maps, and coordination with U.S. FWS regarding potential raptor deterrence, must also be updated and included in the application.

*Same as Deficiencies 32 & 34 above*

36. R645-103-224.400 and -234.200, R645-301-512.250, -521, -526.116, -526.116.1, -527.200, and -534.200: The Permittee must provide: Figure 25 Typical Primary Road Configuration, and UDOT approved plans to access the mine from SR96. The application proposes to describe various roads and road systems within the permit area, and while most are intact, there are several that are notably absent. The UDOT approved plans were previously provided in Exhibit 4.

*UDOT Access Approval is in Exhibit 4*

*Figure 25, Typical Primary Road configuration, is located within Chapter 5 page 5-83*

37. R645-301-527.200: The Permittee must restore missing Figure 25 to the narrative. There are several different locations within the permit that reference Figure 25 to describe the dimension and configuration of Primary Roads within the Permit Area, although Figure 25 is not found within the application.

Figure 25 has been restored and inserted on pg 5-83 of the Chapter 5 text. Figure 25A is now on pg 5-84.

38. R645-301-512.200, -527.200 – The Permittee must provide Figure 25. There are several different locations within the application that reference Figure 25 to describe the dimension and configuration of Primary Roads within the Permit Area, although Figure 25 cannot be located anywhere within the permit.

Figure 25 has been restored and inserted on pg 5-83 of the Chapter 5 text. Figure 25A is now on pg 5-84.

39. R645-301-536: The Permittee must revise the application narrative to address commitments on Page 5-66 which state: "When sufficient volume of coal processing waste is accumulated on this temporary pad, it will then be sold, as "distressed coal", to the Arch Coal Washing Facility on Ridge Road south of Price, UT." The Permittee further commits to providing a Distressed Coal Letter of Intent with the Arch Coal Washing Facility. The commitments in this section are predicated on outdated information as Arch Coal, LLC no longer has any operations in the State of Utah.

Section 528.320 (which is referenced in Section 536) has been updated to show the new delivery location of the Wildcat Loadout in Spring Glen, Utah for coal processing waste.

40. R645-301-536.200, -536.300: The Permittee must provide The Division with a name of a facility that will commit to receiving coal mine waste. Since there are no long term plans to store coal mine waste on site, there needs to be an alternative offered in the unlikely event that no third party purchaser of distressed coal may be secured.

Section 528.320 (which is referenced in Section 536) has been updated to show the new delivery location of the Wildcat Loadout in Spring Glen, Utah for coal processing waste.

41. The application must update the name of the coal washing facility that will be accepting the mine's high ash coal. Under Coal Mine Waste, Section 528.320, the application states, "When sufficient volume of coal processing waste is accumulated on this temporary pad, it will then be sold, as "distressed coal", to the Arch Coal Washing Facility on Ridge Road south of Price, UT." However, Arch Coal Washing Facility is no longer an operator in the area. The application must provide a copy of the contract referenced in the application under Distressed Coal Letter of Intent Exhibit 3 Confidential Information between the mine and the coal washing facility(/ies).

Section 528.320 (which is referenced in Section 536) has been updated to show the new delivery location of the Wildcat Loadout in Spring Glen, Utah for coal processing waste. As the Wildcat Loadout is controlled by the same ownership group as the Kinney No. 2 mine, Exhibit 3 is no longer necessary.

42. R645-301-536: The Permittee must revise the application narrative to address commitments on Page 5-66 which state: "When sufficient volume of coal processing waste is accumulated on this temporary pad, it will then be sold, as "distressed coal", to the Arch Coal Washing Facility on Ridge Road south of Price, UT." The Permittee further commits to providing a Distressed Coal Letter of Intent with

the Arch Coal Washing Facility. The commitments in this section are predicated on outdated information as Arch Coal, LLC no longer has any operations in the State of Utah.

Section 528.320 (which is referenced in Section 536) has been updated to show the new delivery location of the Wildcat Loadout in Spring Glen, Utah for coal processing waste.

43. R645-301-536.200, -536.300: The Permittee must provide The Division with a name of a facility that will commit to receiving coal mine waste. Since there are no long term plans to store coal mine waste on site, there needs to be an alternative offered in the unlikely event that no third party purchaser of distressed coal may be secured.

Section 528.320 (which is referenced in Section 536) has been updated to show the new delivery location of the Wildcat Loadout in Spring Glen, Utah for coal processing waste.

44. The application must update the name of the coal washing facility that will be accepting the mine's high ash coal. Under Coal Mine Waste, Section 528.320, the application states, "When sufficient volume of coal processing waste is accumulated on this temporary pad, it will then be sold, as "distressed coal", to the Arch Coal Washing Facility on Ridge Road south of Price, UT." However, Arch Coal Washing Facility is no longer an operator in the area. The application must provide a copy of the contract referenced in the application under Distressed Coal Letter of Intent Exhibit 3 Confidential Information between the mine and the coal washing facility(/ies).

Section 528.320 (which is referenced in Section 536) has been updated to show the new delivery location of the Wildcat Loadout in Spring Glen, Utah for coal processing waste. As the Wildcat Loadout is controlled by the same ownership group as the Kinney No. 2 mine, Exhibit 3 is no longer necessary.

45. R645-301-730, R645-301-740, R645-301-750: Chapter 7 of the application provides outdated narratives and maps on groundwater and surface water resources within and adjacent to the permit area. The narratives and maps referenced in the following sections must be updated.

*Chapter 7 text along with all included charts, tables & graphs, Map 7, 8, 9, 10, & 28 and Exhibits 10, 11, & 12 have been updated with current hydrology information including new monitor wells and the most recent monitoring data available*

46. The Permittee must update the Ground Water Monitoring Plan in order to accurately monitor the hydrologic balance with respect to mining activities. The plan is described in Section R645-301-731.200 of the MRP. Table 6, Kinney Mine Baseline Monitoring Stations and Table 7, Kinney Mine Operational Monitoring Stations provides an outdated list of the baseline and operational ground water monitoring stations. Well(s) have been sealed and abandoned within the last decade. Tables 6 and Table 7 must be updated to show the current list of ground water monitoring wells that are actively monitored and wells that have been sealed/abandoned. Table 20, Hydrologic Monitoring Schedule provides a list of the water quality parameters that will be analyzed for during the operational and post-mining phases of the project. Map 28, Surface and Ground Water Monitoring Sites depicts the locations of the surface ground water monitoring sites. The actively monitored and sealed/abandoned well(s) must be updated on Map 28.

*Chapter 7 text along with all included charts, tables & graphs, Map 7, 8, 9, 10, & 28 and Exhibits 10, 11, & 12 have been updated with current hydrology information including new monitor wells and the most recent monitoring data available*

47. R645-301-731.300: The Permittee must revise the statements in R645-301-621 to acknowledge that roof and floor waste may be acid forming as shown in Chapter 6, Table 4.

*Acknowledgment has been added to R645-301-621*

48. The application must update the name of the coal washing facility that will be accepting the mine's high ash coal. Under Coal Mine Waste, Section 528.320, the application states, "When sufficient volume of coal processing waste is accumulated on this temporary pad, it will then be sold, as "distressed coal", to the Arch Coal Washing Facility on Ridge Road south of Price, UT." However, Arch Coal Washing Facility is no longer an operator in the area. The application must provide a copy of the contract referenced in the application under Distressed Coal Letter of Intent Exhibit 3 Confidential Information between the mine and the coal washing facility(/ies).

Section 528.320 (which is referenced in Section 536) has been updated to show the new delivery location of the Wildcat Loadout in Spring Glen, Utah for coal processing waste. As the Wildcat Loadout is controlled by the same ownership group as the Kinney No. 2 mine, Exhibit 3 is no longer necessary.

49. R645-301-731: The Permittee must revise Map 28, Surface & Ground Water Monitoring Sites. This map must be updated to show the actively monitored wells and abandoned/sealed monitoring wells.

*Map 28 has been revised to show actively monitored and abandoned/sealed wells.*

50. R645-301-333: The Permittee must provide a commitment for mitigation of four acres of habitat improvement for every one acre of disturbance within sage grouse crucial habitat in order to fully minimize the disturbance and adverse impact of the proposal on sage grouse occupied and crucial habitat. Information regarding raptors, including surveys, maps, and coordination with U.S. FWS regarding potential raptor deterrence, must be updated and included in the application.

For Sage-Grouse Revisions see: R645-301-322.220 "High-Value Habitats" and R645-301.322.333 "Protection Plan and Enhancement Plan".

In Revisions also see ALL of the revised wildlife habitat maps.

(For Raptors see also #17 above).

51. R645-301-342: The Permittee must provide an update to the Temporary and Final seed mixes to remove Kentucky bluegrass from both mixtures and thickspike wheatgrass species from the Temporary mixture. Suggestions to replace these species are orchard grass and mountain brome. Additionally, an increase in forb seed in the Temporary seed mixture is recommended. Species suggestions include yarrow, Lewis flax, sainfoin, and/or small burnet. Finally, an addition of sainfoin and/or small burnet to the Final seed mixture is recommended to improve wildlife forage quality in reclaimed areas.

(Same and #33 above -- In Revisions see Table 21 and Table 22).

52. R645-301-358: The Permittee must provide a description of the operator's protection and enhancement plan that will avoid disturbances to, enhance where practicable, restore, or replace, wetlands and habitats of unusually high value for sage grouse, raptors, and any other state or federally protected species that may occur in the project area must be included in the application as previously outlined.

*Same as previous Deficiencies*

53. R645-301-356: The Permittee must provide clarification regarding the sampling procedures for final revegetation success standards and indicate that rabbitbrush is not to be considered as part of the final woody species success standard of 1,700 woody plants per acre.

In Revisions see: "645-301-356 Revegetation: Standards for Success"

# APPLICATION FOR COAL PERMIT PROCESSING

Permit Change ☐ New Permit ☒ Renewal ☐ Exploration ☐ Bond Release ☐ Transfer ☐

**Permittee:** Coal Energy Group 3, LLC
**Mine:** Kinney Mine **Permit Number:**
**Title:** Permit Application

**Description,** Include reason for application and timing required to implement:
Initial permitting of Kinney Mine by Coal Energy Group 3, LLC

**Instructions:** If you answer yes to any of the first eight questions, this application may require Public Notice publication.

☐ Yes ☒ No 1. Change in the size of the Permit Area? Acres: _____ Disturbed Area: _____ ☐ increase ☐ decrease.
☐ Yes ☒ No 2. Is the application submitted as a result of a Division Order? DO# _____
☐ Yes ☒ No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
☐ Yes ☒ No 4. Does the application include operations in hydrologic basins other than as currently approved?
☐ Yes ☒ No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
☒ Yes ☐ No 6. Does the application require or include public notice publication?
☒ Yes ☐ No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
☒ Yes ☐ No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
☐ Yes ☒ No 9. Is the application submitted as a result of a Violation? NOV # _____
☐ Yes ☒ No 10. Is the application submitted as a result of other laws or regulations or policies?
*Explain*: _____
☐ Yes ☒ No 11. Does the application affect the surface landowner or change the post mining land use?
☐ Yes ☒ No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
☒ Yes ☐ No 13. Does the application require or include collection and reporting of any baseline information?
☒ Yes ☐ No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
☒ Yes ☐ No 15. Does the application require or include soil removal, storage or placement?
☒ Yes ☐ No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
☒ Yes ☐ No 17. Does the application require or include construction, modification, or removal of surface facilities?
☒ Yes ☐ No 18. Does the application require or include water monitoring, sediment or drainage control measures?
☒ Yes ☐ No 19. Does the application require or include certified designs, maps or calculation?
☐ Yes ☒ No 20. Does the application require or include subsidence control or monitoring?
☒ Yes ☐ No 21. Have reclamation costs for bonding been provided?
☐ Yes ☒ No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
☒ Yes ☐ No 23. Does the application affect permits issued by other agencies or permits issued to other entities?
☐ Yes ☐ No 24. Does the application include confidential information and is it clearly marked and separated in the plan?

**Please attach three (3) review copies of the application. If the mine is on or adjacent to Forest Service land please submit four (4) copies, thank you.** (These numbers include a copy for the Price Field Office)

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

| Larry W. Johnson | Manager | 11/20/2018 | |
|---|---|---|---|
| Print Name | Position | Date | Signature (Right-click above choose certify then have notary sign below) |

Subscribed and sworn to before me this 20th day of November, 2018

Notary Public: _____, state of Utah.

My commission Expires: July 17, 2022
Commission Number: 701336
Address: 410 N Main St
City: Cedar City State: UT Zip: 84721

SEBASTIAN WAGNER
Notary Public - State of Utah
Comm. No. 701336
My Commission Expires on
Jul 17, 2022

| For Office Use Only: | Assigned Tracking Number: | Received by Oil, Gas & Mining |
|---|---|---|
| | | |

# APPLICATION FOR COAL PERMIT PROCESSING
## Detailed Schedule Of Changes to the Mining And Reclamation Plan

**Permittee:** Coal Energy Group 3, LLC
**Mine:** Kinney Mine **Permit Number:**
**Title:** Permit Application

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

| | | | DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED |
|---|---|---|---|
| ☒ Add | ☐ Replace | ☐ Remove | Chapter 1, TOC & Text |
| ☒ Add | ☐ Replace | ☐ Remove | Chapter 2, TOC & Text |
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| **Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.** | **Received by Oil, Gas & Mining** |
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# APPLICATION FOR COAL PERMIT PROCESSING
## Detailed Schedule Of Changes to the Mining And Reclamation Plan

**Permittee:** Coal Energy Group 3, LLC
**Mine:** Kinney Mine **Permit Number:**
**Title:** Permit Application

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

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# Chapter 1

# R645-301-100 General Contents

# Kinney No 2 Mine

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## R645-301-100 General Contents

This permit application has been prepared to provide all required information consistent with applicable regulatory provisions of the Utah Coal Mining Rules. In order to facilitate both initial agency review and future use and revision of this permit application document, CEG3 met with UDOGM representatives early in the permit preparation process. The permit format is designed to provide a clearly organized comprehensive permit document for initial review and approval which can, subsequent to initial review, be broken into; 1) An active working document containing all ownership and compliance information, and operation, reclamation, and monitoring plans and designs; and 2) An archival document containing baseline information, supporting exhibits, and other materials which will not be utilized or referenced on a regular ongoing basis. This permit application has been organized consistent with the accepted format and presents required permitting information.

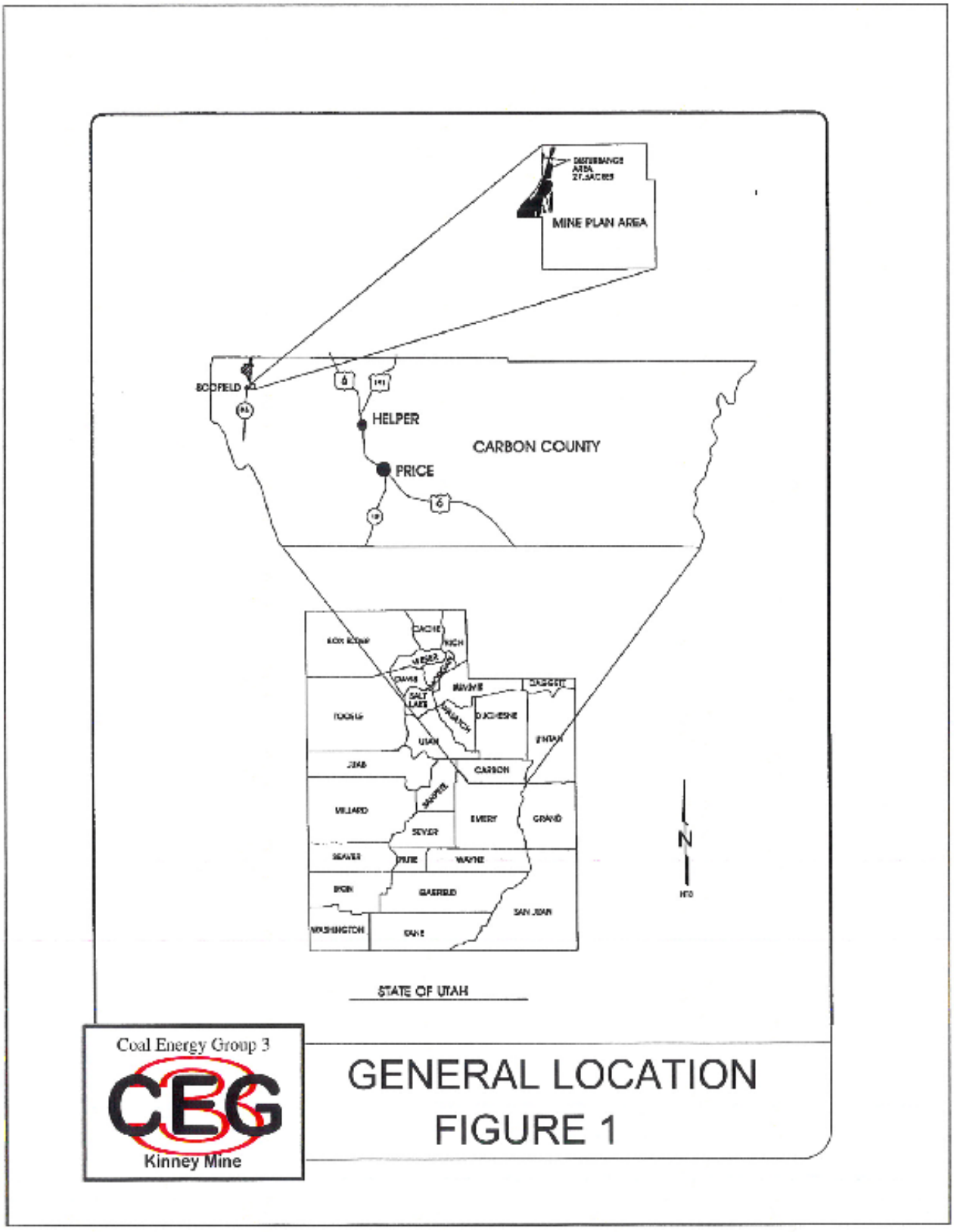
The proposed Kinney No. 2 Mine is located one half mile north of Scofield, Utah and east of Utah State Highway 96. Surface facilities will be located at the coal outcrop, and adjacent to the highway. The Kinney Mine permit area covers an area of approximately 452 acres as shown on Figure 1, General Location Map. Mining is planned in the Hiawatha coal seam from the outcrop at the edge of Pleasant Valley.

Entry will be achieved via an approximately 600 foot wide corridor between old abandoned mine workings and extract coal from multiple fault bounded reserve blocks. Maximum currently anticipated production is 800,000 tons annually utilizing continuous mining methods. Surface facilities are proposed to be located at the site of past mining in Sections 32 and 33 of Township 12 South, Range 7 East northeast of Scofield, Carbon County, Utah.

The Kinney Mine is located just north and east of the Town of Scofield, Utah, on the east side of Utah State Highway 96. The area is part of the Wasatch Plateau in Pleasant Valley, and is characterized by high plateaus to the east and Pleasant Valley to the west. Scofield Reservoir is located to the north and west of the permit area. The mine surface facilities are located on semi-arid mountainous land that is dry and sparsely populated by quaking aspen, a few fir trees, and brush. Within the permit area, topographic relief ranges from 7,650 feet, near the highway to over 8,800 feet on the ridge top east of the portal area.

The area is drained by small unnamed ephemeral channels near the portal area, Eagles Canyon over the ridge to the east of the mine site, and Long Canyon east of Eagles Canyon. All drainages eventually lead to Scofield Reservoir. Eagles Canyon is ephemeral, and Long Canyon contains a perennial stream. Several other very small unnamed ephemeral channels drain the permit area. The climate of the area is semi-arid and, with the exception of the noted perennial drainage, most area drainages flow only in response to spring snowmelt or major thunderstorm events. Ground water occurrence and use in the area is limited by low infiltration and recharge, and the relatively low permeability of most units of the geologic sequence. Soils are generally thin and poorly developed except in drainage valleys, where soil depths can reach 5 feet or more. Area vegetation is typical of semi-arid areas in the west and reflects the wide range of topographic conditions within the proposed permit and adjacent areas. Dominant vegetation types include sagebrush-grass, mountain brush, and aspen in the surface facilities area.

The underground mining operations are planned to recover coal reserves contained in the Hiawatha Coal Seam. Mining methods will include room development using continuous mining techniques, with no pillar recovery planed at this time. Mining will be restricted to blocks of coal lying between faults. Numerous faults will need to be crossed during development of the mine and recovery of the reserves. The mine is being designed for a nominal annual production rate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WASATCH
DUCHESNE
UINTAH
UTAH
JUAB
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IRON
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STATE OF UTAH
Coal Energy Group 3
CEG
Kinney Mine
GENERAL LOCATION
FIGURE 1

of 800,000 tons of coal, based on an operating schedule of 250 days per year, 2 shifts per day, 8 hour shifts, with a base production of 500 tons per hour. The projected life of the Kinney No. 2 Mine within the Portal Block Permit Boundary is approximately three years, with the potential to extend the mine life significantly with a combination of permitting other coal controlled by CEG3 and acquisition of additional coal reserves which exist to the south and east of the currently planned operation.

Following completion of the initial planning, design, and permitting work and on receipt of required permit approvals, CEG3 will initiate site development. Required development activities will include:

- Installation of required drainage and sediment control structures
- Removal of topsoil during the following activities
- Construction of required access roads and culverts
- General site grading and compaction for the mine facilities area
- Excavation of portals area and construction of portal facilities
- Construction of required foundation structures
- Installation of conveyor systems
- Installation of required ventilation equipment
- Development of mine portal and underground support facilities
- Required underground development work
- Erection of buildings and other structures

In order to support underground coal mining operations, CEG3 plans to develop, construct, and install surface facilities in the vicinity of the underground mine portals on the east face of Pleasant Valley. The mine facilities area has been extensively disturbed by previous historical mine development activities, highway construction, and Abandoned Mine Reclamation (AMR) projects completed in the 1980's. The surface facilities area is located on relatively flat areas near the portal and adjacent to Utah Highway 96. Constraints imposed by the topographic configuration of the facilities area have generally dictated the location and configuration of the proposed surface facilities. To the extent possible, facilities siteing reflects CEG3's efforts to minimize additional disturbance, avoid disturbance or potential future impacts to Scofield Reservoir.
Facility construction will generally proceed in parallel with site development activities. The proposed facilities will include the following:

- Mine portal structures (5-entry system)
- Mine ventilation fan structure.
- Conveyor coal haulage system consisting of the following components (all conveyors to be installed with half covers for weather protection and to minimize dust emissions, transfer points to either be enclosed or have BACT dust controls);
  - Conveyor SB-1(640' long, from portals to run-of-mine stockpile)
  - Spec Coal pile)
  - Conveyor SB-2 (185' long, from the Non-Spec Coal pile to the Spec Coal Pile, the conveyor gallery belt)
  - Conveyor SB-3 (485' long, from the Reclaim Tunnel to the Screening & Crushing Building).
  - Conveyor SB-4 (90' long, from the Screening & Crushing Building to the Truck Loadout)
  - Transfer Tower 1 (at mine portal area)
  - Non-Spec Coal pile stacking tube
  - Spec-Coal pile stacking tube
  - Coal piles reclaim tunnel
  - Screening and Crushing Building

- 17,000 ton Non-Spec Coal Stockpile including a stacking tube and sub-grade feeders.
- 6,000 ton Spec-Coal Stockpile including stacking tube and sub-grade feeders.
- Mine Office/Bathhouse Building
- Shop/Warehouse Building
- Parking area
- Water storage tank
- Electrical substation & distribution equipment
- Drainage and sediment control structures
- Access road
- Other service roads and minor ancillary support facilities

Development and operation of the proposed Kinney No. 2 Mine offers a number of important benefits specifically including the following:

- Assures continued availability of a valuable energy resource used to generate electricity and as an industrial heating fuel
- Provides for efficient development and consequent conservation of known coal reserves
- Facilitates effective reclamation, through a comprehensive reclamation program, of both new disturbance and previously disturbed areas
- Provides stable, high-paying jobs for approximately 100 to 140 employees with an annual payroll and benefits of $6,000,000 or more.
- Supports Federal, State, and local governments through payments of property, sales, excise, fuel, and other taxes estimated at $1,000,000 or more annually.
- Supports the National, State, and local economies through direct purchases of equipment, materials, supplies, and services (estimated at $4 Million or more annually); royalty payment of fee lands (estimated at $2 Annually); and indirect turn-over of these expenditures in the economy (multiplier of approximately 3.00 in total economic benefits for every dollar spent in wages, benefits, and purchases of goods and services)
- Supports local communities through charitable contributions

Since the proposed mine is located near the Town of Scofield, which has a limited availability of jobs, the mine will be a substantial benefit to the town.

As well as the noted benefits, the proposed mining and reclamation operations and related activities have the potential to result in possible environmental and socio-economic impacts. Based on available information on existing environmental resources and the proposed mining and reclamation plans, potential impacts could occur in the following areas:

- Disturbance of existing soils, vegetation, and wildlife resources
- Impacts on existing land uses
- Air quality impacts
- Surface and ground water impacts
- Subsidence impacts
- Socio-economic impacts

The following sections briefly describe potential impacts for each of the general impact categories. More detailed information on existing environmental resources, proposed mining and reclamation plans, potential mining related impacts, and planned control and mitigation measures is presented in the various sections of the permit application.

**Disturbance of Existing Soils, Vegetation, and Wildlife**

The only direct surface disturbance which will result from the Kinney No. 2 Mine will be that

associated with development and construction of the required mine surface facilities. As a result of previous historic mining, reclamation, and other development activities, approximately 73% of the mine surface facilities disturbance area has already been extensively disturbed. Existing site soils, vegetation, and wildlife resource values reflect and are limited by the previous disturbance. Due to the relatively small affected area and the limitations resulting from the previous disturbance, re-disturbance of the mine facilities area will not result in significant adverse impacts on soils, vegetation, or wildlife resources.

Evaluation of the soils in the proposed mine area was conducted in 1981 prior to the Abandoned Mine Reclamation project conducted at the mine site in the mid-1980's. This evaluation program found the soils to be adequate for reclamation. The AMR project was very successful as evidenced by the vegetation in the area, and further verifies the soils to be adequate for final reclamation. The alternative reclamation materials used by the AMR program for reclamation will be available for final reclamation for the Kinney No. 2 Mine project. These materials will be treated as topsoil for the purposes of this application. The only mining related vegetation impacts anticipated in conjunction with the proposed operations would be temporary elimination of existing vegetation from surface disturbance areas. Of this area, only a very small portion will occur in pre-mining areas where no historic mining was conducted.

Wildlife habitat and use in the surface disturbance area is limited by both the previous disturbance and the level of existing development in the immediate area. Since the area is in very close proximity to the Town of Scofield, large wildlife species use is somewhat limited because of the presence of human activity in the town and also due to the presence of Highway 96 which is adjacent to and parallels the mine site area. Contemporary reclamation including seeding the slopes of facilities pads and roads will to some degree offset the vegetation lost from disturbance during the life of the mine.

**Impacts on Existing Land Uses**

The mining operations will result in a temporary change in land use for the affected surface disturbance area. Minor impacts on areas which may fall under the definition of renewable resource lands, dependent on interpretation may occur. Potential mining related land use and related impacts are not expected to be significant due to the limited area of proposed surface disturbance, the fact that this area has already been extensively disturbed by previous historical mining, and grazing activities, and specific proposed protection and mitigation measures. Development, operation, and reclamation of the Kinney No. 2 Mine will not result in any long-term or permanent changes in land use, will not affect any areas designated unsuitable for mining, and will not impact any recreational facilities. The closest recreational facilities are at Scofield Reservoir, located north of the mine site, with the Scofield State Recreation Area being more than 4 miles north of the mine site. The Huntington and Eccles Canyons Scenic Byways are accessed from the north by Utah State Highway 96, which passes by the mine site, however, the Scenic Byways starts at the mouth of Eccles Canyon where it meets Highway 96 approximately 3.5 miles south of the mine site. One of the attractions promoted on the Scenic Byway is the Skyline Mine in Eccles Canyon. The Kinney Mine will be another possible attraction in the area of the Scenic Byway, along with the historic Scofield Cemetery, which lies less than a half mile south of the proposed mine site.

Lands within the mine facilities surface disturbance area are currently lands used for grazing, wildlife habitat, and for water shed. With construction of the surface facilities the new land use will be surface support for the Kinney No. 2 Mine with construction of the facilites listed in other sections.

As mentioned, the area has been extensively disturbed historically by mining activities ; the old mining operations were reclaimed in the mid-1980's. The Kinney No. 2 Mine development and operations activities will result in a temporary change for this area to a mining use in compliance with both Scofield Town, and Carbon County zoning ordinances. Following completion of mining, associated surface disturbance areas will be reclaimed and restored to the premining land uses of wildlife habitat, grazing, and water shed.

A baseline cultural resource survey has been conducted covering the mine permit area. Since the surface facilities area was extensively disturbed by mining, and because the portal area is steep, the cultural inventory conclusion is that no cultural resources were found that would require further investigation or documentation. Based on the findings of the cultural survey, archeological clearance was recommended.

Under the Utah Coal Mining Rules, renewable resource lands are defined as:

> "...geographic areas which contribute significantly to the long-range productivity of water supply or of food or fiber products, such as lands to include aquifers and aquifer recharge areas."

The definition is so broad as to potentially include any areas where an aquifer exists, recharge occurs, or any type of grazing or other agricultural activity is conducted. The clause "which contribute significantly" is the only limiting factor which would prevent this definition from applying to virtually any potentially affected lands. Given this limitation, the following are the only areas which would reasonably be considered renewable resource lands:

- Areas which support agricultural activities (cultivation, grazing, or timber) as the sole or primary and use
- Areas where a productive regional aquifer exists which is utilized as a ground water supply source
- Areas which provide a significant portion of the total recharge for any productive regional aquifer

There have been no regional aquifers identified in the vicinity of the mine, however a semi-regional piezometric surface has been identified approximately 150 feet below the seam to be mined at the portal. Some small localized perched aquifers may exist, but limited recharge area, and narrow, steep ridges preclude the formation of extensive aquifers above, or in the strata associated with the coal seams. Since the area has been extensively mined in the past, any aquifers in the area have likely been impacted previously. Some of the old mine works may be sinks for water as discussed in R645-301-700. Given these considerations, lands within the proposed permit area which could reasonably be characterized as renewable resource lands will be limited, and regardless of designation, potential mining related impacts are expected to be negligible.

**Air Quality Impacts**

Development of the Kinney No. 2 Mine will result in a minimal localized increase in air emissions, however BACT controls will help mitigate those impacts, and emissions will be held within Utah Division of Air Quality limits. The mine area is currently designated by the Utah Division of Air Quality (UDAQ) as an "attainment" area indicating no significant existing pollution problems. In cooperation with the UDAQ and in order to comply with all applicable regulatory requirements, CEG3 has incorporated air emission control considerations in the mine design and planning phases and will implement specific operational control measures under a Notice of Intent with UDAQ. Given existing air quality conditions, consideration of natural air movements in the area, and CEG3's planned control measures under the provisions of the required UDAQ permit, no

significant adverse mine related air quality impacts are anticipated. Due to the nature of the proposed operations, vehicular emissions will be negligible. During site development, active operations, and site reclamation CEG3 will control fugitive dust emissions by implementing the following control measures:

- Minimizing surface disturbance
- Surface watering in active operating areas as needed
- Use of suitable surfacing materials and surfactants, if necessary, on unpaved roads
- Paving of high traffic areas as needed
- Posted speed limits on all roads
- Regular road maintenance
- Use of natural windbreaks to minimize wind exposure where possible
- Use of covered conveyors
- Use of a sub-grade reclaim system for the coal stockpiles
- Full enclosures for crushing and screening equipment and transfer points with BACT controls

**Surface and Ground Water Impacts**

Construction of mine related surface facilities and development and production of coal from underground mine working will result in localized changes in surface runoff characteristics and potential increases in runoff, erosion, and sediment loss; minor reduction in surface flows corresponding to operational water supply requirements; possible increases in infiltration and ground water recharge. Some drainage of very small, localized perched aquifers due to mining as mine inflows and resultant increases in the volume and areal occurrence of stored mine water; and minor changes in surface and ground water chemistry and quality. Generally, potential surface water impacts will be confined to the mine facilities surface disturbance area. Potential indirect mining related ground water impacts due to mining are addressed in the following section as a separate topic. Direct mining related ground water impacts will be limited by the lack of significant ground water aquifers, low overall permeability of the effected geologic sequence, relatively slow rate of ground water movement, and the absence of any significant quantities of acid or toxic forming materials. While some temporary, localized surface and ground water impacts may be unavoidable, the combination of natural limiting factors and specific control and mitigation measures, as proposed in the operation and reclamation plans, will effectively prevent any significant long-term adverse hydrologic impacts.

Re-disturbance of the mine surface facilities area is required for site grading and facility construction, and will result in removal of existing vegetative cover and exposure and disturbance of surficial and near-surface overburden materials. Soils and other surficial materials which may be suitable as revegetation media will be removed and stockpiled for future use in reclaiming mining disturbance areas. Removal of vegetation and exposure of surficial materials may result in increased runoff, erosion, and sediment loss. These potential impacts will be addressed by minimizing the total disturbance area, diverting runoff from upgradient undisturbed areas around the area of disturbance, grading and surfacing disturbed areas to minimize erosion and sediment loss, intercepting and routing disturbed area drainage to a sedimentation pond to allow settlement of suspended sediments prior to discharge to natural drainages, and reclaiming the disturbed areas as soon as operationally feasible following completion of mining and related activities.

Mine water supply requirements for sanitary use will be provided by Scofield Town through a long term agreement with CEG3. Scofield Town has excess capacity in their culinary water system, having a 160 thousand gallon water tank perched on the mountain side west of town. The water

tank elevation is sufficient to provide at least 40 psi to the bath-house and warehouse. Mine water supply for surface dust control, fire fighting reserve, and operational mine water will also be provided by Scofield Town through a long term agreement with CEG3. Scofield Town has significant water rights on Mud Creek with a point of diversion suitable for pumping non-potable water to CEG3.

In the permit area, no significant aquifers have been identified. Perched water may occur in the formations above the coal beds, but a limited to small, perched, localized areas. The regional ground water table (piezometric surface) is clearly below the proposed mine as evidenced by the absence of a static water level in any of the four monitor wells located near the portal and first two years of production area (CR-06-01, CR-06-01BLW, CR-06-02, CR-06-02-ABV). Ground water occurrence is limited to the few geologic units which have sufficient permeability to contain and transmit ground water flows. Where mine workings intercept any of these more permeable units, discharge to the mine workings will occur. Discharge rates and mine inflow quantities will be limited by generally low permeabilities and limited head as resulting from the extensive historic mining in the area. During active mining operations, mine inflows will be collected and routed to centralized underground sumps which will serve as collection points for mine water. Mine water will be used for dust control in active underground working areas and, to the extent operationally feasible, the water will be recycled and reused.

Based on existing available information, mine water inflows will not exceed operational mine water requirements and underground storage capacity, consequently it is not anticipated that there will be any need to discharge mine water to the surface. Following completion of active mining in any given area, any mine inflows to the area will result in very slow, gradual flooding of the excavated mine workings and any downgradient areas. Given the proposed mining depth and development sequence, flooding of the underground workings will not result in any anticipated surface discharge since mine openings will be above the water table and outcrop areas will de upgradient from the mine workings. Gradual flooding may result in accumulation and storage of mine water in the abandoned mine workings, with inflows continuing until the water level in the mine workings reaches equilibrium with the natural ground water system. However, due to there not being any significant aquifers in the mine area and overlying formations, very little mine water accumulation. Mine water storage and restoration of hydraulic equilibrium following the completion of mining will minimize any long-term hydrologic impacts with the overall result being no significant mining related impact on the ground water system.

Increased surface runoff and sedimentation resulting from surface disturbance may result in minor changes in surface water chemistry and may increase the levels of certain chemical constituents due to exposure of partially weathered or un weathered overburden materials. These changes are not expected to be significant based on chemical characterization of the overburden materials and any potential changes will be monitored and evaluated under the proposed comprehensive hydrologic monitoring program. Similar changes are anticipated for ground water resources due to exposure of geologic strata in the underground mine workings to oxidizing conditions. However, the changes are not expected to be significant due to relatively low rates of ground water movement and the absence in the overburden sequence of any significant quantities of potentially acid or toxic forming materials.

**Subsidence Effects**

CEG3 has no plans to conduct full extraction mining within the permit boundary at this time.

**Socio-Economic and Transportation Impacts**

Construction and operation of the proposed Kinney No. 2 Mine may result in various potential direct and indirect socio-economic and transportation impacts to the general Carbon County

area, and especially to the Town of Scofield including:

- A temporary increase in the local workforce of approximately 20 to 50 contractor employees during the 1year mine construction and development phase
- Increased short-term demands on temporary housing, schools, utilities, and health and social services
- A potential long-term increase in overall employment of approximately 50 to 100 employees
- Increased long-term demand for housing, schools, utilities, health and social services, and retail goods and services
- Increases in traffic levels on Utah Highway 96, and on US Highway 6 and 50 in the Price Canyon area between Price and Scofield junction.

The potential socio-economic impacts will be mitigated to a degree by the fact that the mine will be phased in over a 1 to 3 year period. Temporary construction is projected to be completed by local companies in the Price and Scofield areas, and thus will not likely have a significant impact. Since the mine production is planned to be in the range of 300,000 to 800,000 tons per year, and the workforce requirements are relatively low, no significant socio-economic impacts are expected. As has been experienced in Carbon and Emery Counties, mining employment tends to fluctuate with the price of coal, and due to mine reserves depletion and other factors. At any given time, up to hundreds of coal miners can lose their jobs instantaneously, creating a glut of employees. Availability of employees to fill the needs of CEG3 is not expected to be a problem, with many trained and miners living in the Price area and likely will not have a significant impact on Carbon County or Scofield Town. The Town of Scofield is likely to experience a boon with the mine, which will provide valuable income for a town that has experienced severe ups and downs in its' economy. Given these considerations, no significant long-term mining related socio-economic impacts are anticipated. Anticipated increases in traffic levels are well within the design capacities for the effected roadways and traffic impacts will be mitigated to some extent by an organized program to encourage employee carpooling and by multiple shift operations.

## R645-301-112 Identification of Interests

### 112.100 Statement of Corporation

. Coal Energy Group 3, LLC prepared this Mining and Reclamation Permit application for the Kinney No. 2 Mine, a proposed new underground mine complex. This permit application has been developed to effect full compliance with applicable permitting requirements under the State of Utah Coal Mining Rules and is being submitted for review and approval of the mining and reclamation plans contained herein by the Utah Division of Oil, Gas and Mining (UDOGM), and other jurisdictional agencies. CEG3 operates under corporate registration with the Utah Division of Commerce. That information is enclosed in the confidential Binder.

### 112.200 Name and Address of Operator

This application for a Mining and Reclamation Permit for the Kinney No. 2 Mine is submitted by Coal Energy Group 3, LLC (CEG3) as the permit applicant. The following is the business address, phone number, and employer identification numbers and Tax ID No. for Coal Energy Group 3, LLC

Coal Energy Group 3, LLC
6602 Ilex Circle
Naples, Florida 34109
Phone: (239) 825-2332

EIN: ~~Found in the Confidential Binder~~83-2286468

Resident Agent for Applicant:

Larry W. Johnson
2850 Crimson Ridge Drive
St. George, Utah 84790
(435)691-2983

Correspondence regarding the Kinney No. 2 Mine Permit and related operations should be directed to:

Coal Energy Group 3, LLC
6602 Ilex Circle
Naples, Florida 34109

Attention: Robert Nead

**112.310 Applicant**

Members holding 10% or more of ownership of applicant

James Wayland
2841 Capistrano Way
Naples, Florida 34105
239-659-4525

Robert Nead
6603 Ilex Circle
Naples, Florida 34109
269-825-2332

Social Security numbers of Coal Energy Group 3, LLC members, managers, and officers are provided in the "Confidential Binder".

**112.320 Relationship to the Applicant**

Ownership:

James Wayland: 50%
Robert Nead: 50%

Control:

James Wayland: Member
Robert Nead: Member

**112.330 Title and Date of Position.**

The following summarizes Corporate Information, provides the name, business address, telephone number, and employer identification number and list of officers and directors, with their titles, social security numbers and the date that they assumed position of responsibility.

Member
James Wayland
October 18, 2018

Member
Robert Nead
October 18, 2018
Person in charge of payments pursuant to R645-300-147

Robert Nead
6602 Ilex Circle
Naples, Florida 34109
(239) 825-2332
50% ownership

Jim Wayland
2841 Capistrano Way
Naples, Florida 34105
50% ownership

Organization of CEG 3 is reflected below.

**Coal Energy Group 3, LLC**
Managing Members

Robert Nead
Member: 50%
6602 Ilex Circle
Naples, Florida 34109
239-825-2332

Jim Wayland
Member: 50%
2841 Capistrano Way
Naples, Florida 34105
239-659-4525

**112.340 Ownership and Control of other Coal mining and reclamation operations.**

Both James Wayland and Robert Nead hold interests in Alton Coal Development, LLC, Coal Hollow Coal Mine, EIN Number 42-1655092, Permit No. C/025/0005, a surface coal mine (MSHA ID

42-02519) and inactive underground coal mine (MSHA ID 42-02639) located just south of Alton Town. The mine location is in Kane County in south west Utah.
James Wayland owns a 25.5% interest in Alton Coal Development, LLC. Robert Nead holds less than 10% in Alton Coal Development, LLC.

Both James Wayland and Robert Nead hold interests in the Wildcat Coal Loadout, under Coal Energy Group 2, LLC, EIN Number 83-0571532, Permit No. C 0070033, a coal loadout facility (MSHA ID 42-01864) located west of Spring Glen, Utah, Carbon County, Utah. Both James Wayland and Robert Nead hold 50%, each in Coal Energy Group 2, LLC.

~~Information regarding these operations are within the Confidential Binder~~.,

. Coal Energy Group 3, LLC prepared this Mining and Reclamation Permit application for the Kinney No. 2 Mine, a proposed new underground mine complex. This permit application has been developed to effect full compliance with applicable permitting requirements under the State of Utah Coal Mining Rules and is being submitted for review and approval of the mining and reclamation plans contained herein by the Utah Division of Oil, Gas and Mining (UDOGM), and other jurisdictional agencies.

~~112.350 Other Pending coal mining and reclamation operations~~

~~NA~~

### 112.400 Operating Permit

The following permits and approvals will be required to initiate and conduct mining and related operations for the Kinney No. 2 Mine:

**Federal Permits and Approvals**

USDI – Office of Surface Mining Reclamation and Enforcement (OSMRE), Review, approval, and oversight of the UDOGM Mining and Reclamation Permit.

USDL – Mine Safety and Health Administration (MSHA), Issuance of an MSHA I.D. number, approval of mine ventilation and roof control plans, and oversight and enforcement of applicable health and safety provisions under the Coal Mine Health and Safety Act of 1966. This permit will be obtained prior to start of mining and will be timed to coincide with approval of the SMCRA (Surface Mining Control and Reclamation Act of 1977) permit.

U.S. Commerce Department – Bureau of Alcohol, Tobacco, and Firearms, Approval of Federal permits for transportation, storage, and handling of explosives. Powder and cap magazines are depicted on Map 13, Surface Facilities Map. This permit will be obtained prior to start of mining and in conjunction with approval of the MSHA permit.

**State Permits and Approvals**

Utah Division of Oil, Gas and Mining (UDOGM) – Approval of Mining and Reclamation Permit and enforcement of applicable provisions under SMCRA the Surface Mining Control and Reclamation Act of 1977.

Utah Division of Water Quality (UDWQ) – Approval of Surface Water Discharge Permits and enforcement of applicable provisions under the Utah Pollution discharge Elimination Program (UPDES) in compliance with the Federal Water Pollution Control Act of 1977. CEG 3 will obtain the permit prior to the start of any mining and in conjunction with approval of the mine and reclamation permit.
Utah Division of Air Quality (UDAQ) – Approval of Air Emission Permits and enforcement of

applicable provisions under the Utah Air Pollution Control Program in compliance with the Federal Clean Air Act of 1970. CEG 3 will obtain the permit prior to the start of any mining and in conjunction with approval of the mine and reclamation permit.
Utah State Engineer – Approval of Pond Construction and Water Well Construction Permits and surface and ground water appropriations. An application for a pond permit was submitted to the Utah State Department of Natural Resources, Division of Water Rights, State Engineers Office.

Water Rights – CEG3, under the operating rights of Carbon Resources, holds water rights Number 91-5152 for 2 aCEG3e-feet of water that will be applied to the sediment pond storage if necessary. CEG3 has obtained an agreement from Scofield Town to supply culinary, fire suppression, and dust control water, and thus Scofield Town's water rights will cover the mines water needs.

Sanitary Sewer Service – CEG3 has an agreement from Scofield Town to provide sewer service for the Kinney No. 2 Mine.

**County and Local Permits and Approvals**

Carbon County – Conditional Use Permit for mining operations
Scofield Town – Building Permit

CEG3 has applied for a Conditional Use Permit from Carbon County.
The Mine will operate under the name "Coal Energy Group 3, LLC - Kinney No. 2 Mine". The MSHA identification number for the mine will be obtained prior to commencement of mining operations. CEG3 will obtain building permits from both Carbon County and Scofield Town prior to starting construction of any facilities.

**Utah Department of Transportation (UDOT) Highway Access**

Application for a highway access permit has been submitted to UDOT

### 112.410 Federal and State Permits

The UDOGM Mining and Reclamation Plan approval under applicable provisions of the Utah Coal Mining Rules for Coal Mining will be the primary operating permit required to initiate construction, development, and mining operations for the Kinney No. 2 Mine. In addition, the following permit approvals may be required under other applicable regulatory provisions and requirements:

- Surface Water Discharge Permit (UDWQ)
- Air Emissions Notice of Intent (UDAQ)
- Pond Construction Permit (Utah State Engineer) (Negative Determination – no permit required)
- Pond Approvals (MSHA – for any ponds meeting criteria of 30CFR 77.216) – none needed
- Highway Access Permits (UDOT)
- Mine ID Number (MSHA)
- Archeological Clearance (SHPO)
- Carbon County Building Permit
- Carbon County Conditional Use Permit
- Building Permit (Scofield Town)

### 112.420 Control Relationship to Applicant

The Kinney No. 2 Mine permit surface area encompasses a block of approximately 448.14 acres. Of this surface acreage, 15.33 acres are owned in fee by Carbon Resources, the remaining 432.84 acres are owned by Evangelos George Telonis, ETAL., of this, 22.8 acres are held by Carbon

Resources as a Lease from George Telonis, ETAL and is subleased to CEG3.

The area of surface disturbance is confined within the 38.1 acres (combined Fee and Lease) controlled by Coal Energy Group 3, LLC, of which only 27.6 acres are planned to be disturbed by mining operations. The coal to be mined lies beneath the George Telonis, ETAL. Fee surface land and is owned by Carbon County which in turn is leased it to Carbon Resources, and sub leased to CEG 3.
Lands adjoining the permit boundary are owned by private owners, and the Utah Department of Transportation.

**112.500 – 600 Owners of Surface and Minerals**

The legal and equitable owners of record of surface lands associated with those areas to be mined by underground coal mining activities or of surface lands to be affected by surface operations and facilities incidental thereto (lands within the permit area) are shown on the Regional Surface Ownership Map, Map 11, and are listed below:

Carbon Resources, LLC
~~P.O. Box 954~~3019 Country Club Drive
~~Sandia Park, New Mexico 87047~~Pueblo, Colorado 81008

Evangelos George Telonis Trust
c/o Nick Sampinos
190 North Carbon Ave.
Price, Utah 84501

In addition to the designated owners of lands within the permit area identified above, the owners of record of all surface areas contiguous to the permit area are shown on the Regional Surface Ownership Map 11, and are listed below:

Evangelos George Telonis Trust
c/o Nick Sampinos
190 North Carbon Ave.
Price, Utah 84501

Hilda M. Hammond
2912 Redwood Ave.
Costa Mesa California 92626-3719

Utahna Pace Jones, Trust
HC 35 Box 510
Helper, Utah 84526-0000

Gayland B. Trust
C/O Judy Smith
HC 35 Box 510
Helper, Utah 84526

LH2 Enterprises, Inc.
6338 South Happiness Circle
West Jordan, Utah 84084-0000

Sanpete Water Conservancy District
90 W Union Street
Manti, Utah 84642

Utah Department of Transportation
4501 South 2700 West
Salt Lake City, Utah 84114-1200

The legal and equitable owners of record of the coal to be mined within the permit area are shown on the Regional Coal Ownership Map, Map 12, and are listed below:

Carbon County
120 East Main Street
Price, Utah 84501

(Lease from Carbon County dated March 7, 1997, as amended December 31, 2002)
Carbon Resources, LLC
~~P.O. Box 117893~~3019 Counrty Club Drive
~~Albuquerque, New Mexico 87192~~Pueblo, Colorado 81008

~~(Sub Leased from Carbon Resources, LLC dated November ?, 2018~~
Coal Energy Group 3, LLC
6602 Ilex Circle
Naples, Florida 34109
239-825-2332

Peabody Natural Resources
701 Market Street
St. Louis MO 63101

In addition to the designated owners of minerals within the permit area identified above, the

owners of record of minerals contiguous to the permit area are shown on the Regional Coal Ownership Map, MAP 12, and are listed below:

Pit-Min, Inc.,
an Ohio Corporation, of Cincinnati, Hamilton County, State of Ohio
Address Unknown

Hilda M. Hammond
2912 Redwood Ave.
Costa Mesa California 92626-3719

Utahna Pace Jones, Trust
HC 35 Box 510
Helper, Utah 84526-0000

**112.700 MSHA Numbers**

The Mine will operate under the name "Coal Energy Group 3, LLC - Kinney No. 2 Mine". An MSHA Number 42-02566 will designate the MSHA ID number for the Kinney #2 mine.~~CEG3 will obtain from MSHA and provide to UDOGM a MSHA MINE ID number for mining operations.~~ CEG3 plans to time the issuance of the MSHA mine number with UDOGM's schedule to issue the mine permit conditional on bond posting. Coal Energy Group 3, LLC does not anticipate the need for more than one MSHA Mine ID number at this time, and will obtain additional MSHA numbers for structures

etc. as MSHA deems necessary. No coal processing waste pile is planned so no MSHA number is needed.

### 112.800 Interest in Land

The Kinney No. 2 Mine permit surface area encompasses a block of approximately 448.14 acres. Of this surface acreage, 15.33 acres are owned in fee by Coal Energy Group 3, LLC, the remaining 432.5 acres are owned by Evangelos George Telonis, ETAL., of this, 22.8 acres are held by Carbon Resources as a Lease from George Telonis, ETAL.

The area of surface disturbance is confined within the 38.1 acres (combined Fee and Lease) owned or controlled by CEG3, of which only 27.6 acres are planned to be disturbed by mining operations. The coal to be mined lies beneath the George Telonis, ETAL. Fee surface land and is owned by Carbon County.

Lands adjoining the permit boundary are owned by private owners, and the Utah Department of Transportation. CEG3 controls a coal lease from Carbon County as shown on Map 12, Regional Coal Ownership Map, a portion of which lies within the permit boundary included in this application. This County lease also extends east and south of the permit boundary as shown on Map 12, Regional Coal Ownership Map, and it is the intent of CEG3 to ultimately modify this permit to include this lease.

Table 24, Pertinent Acreages, Land Ownership & Control includes land ownership with the acreages of those lands.

**Table 24 Pertinent Acreages, Land Ownership & Control**

| AREA | ACRES | OWNER |
|---|---|---|
| Permit Area | 15.33 | Fee |
| Permit Area Leased Private | 22.8 | E.G. Telonis et. al. |
| Right to Mine | 410.01 | E.G. Telonis et. al. |
| Total Permit Area | 448.14 | See above |
| Disturbed Area | 27.6 | Fee and E.G. Telonis et.al. |
| U.S. Government | 0 | U.S. Government |
| Utah State Government | 0 | Utah State Government |
| Local Governments | 0 | Local Governments |
| Other Private Land | 0 | Other Private Land |

## R645-301-113 Violation Information

The Kinney No. 2 Mine will be a new operation, therefore, no notices of violation (NOV), cessation orders (CO), or air or water quality violation notices have been issued in conjunction with this

operation.

### 113.110 Revocation of Federal or State Permits

Neither the applicant, affiliate nor persons controlled by or under common control with the applicant has had a Federal or State mining permit suspended or revoked in the five (5) years previous to the date of this application. Likewise, no mining bond or similar security deposited in lieu of bond has been forfeited by any affiliated entities or persons.

### 113.120 Forfeiture of Bond

No mining bond or similar security deposited in lieu of bond has been forfeited by any affiliated entities or persons associated with Carbon Resources.

### 113.300 List of Violation Notices for Past 3 Years

The Kinney No. 2 Mine will be a new operation, therefore, no notices of violation (NOV), cessation orders (CO), or air or water quality violation notices have been issued in conjunction with this operation.
Other operations connected with the applicant are:

1. Alton Coal Development, Coal Hollow Mine, C/025/0005
2. Coal Energy Group 2, LLC, Wildcat Loadout, C/007/0033

A history of violations for the last 3 years for both operations listed above are incorporated into Exhibit 4 of this document.

## R645-301-114 Right of Entry Information

CEG3's right of entry for surface lands and coal extraction is based on it's ownership of part of the surface and on an agreement with the major property owner, Evangelos George Telonis, ETAL, and on ownership of the Carbon County Coal Lease covering the permit area.

The Leases giving CEG3 Right of Entry is in the confidential files.

It should be noted that Western Reserve Coal Company, Incorporated no longer exists and all titles, leases, properties were forfeited in September, 2015. That foreclosure document is in the confidential file.

### 114.100 Documentation of Ownership

The following describes fee surface, leased surface, and lease coal, held by CEG3 and coal leases held by CEG3 as can be seen on Map 11, Surface Ownership Map, and Map 12, Coal Ownership Map.

**Fee Surface**

Title to 15.33 acres of surface lands adjacent to the highway.
Title recorded in the Carbon County Court House Book 657 Page 128.

Located in Section 32, T 12 S, R 7 E, SLB&M as follows:

Beginning at a point which lies North, a distance of 1320.00 feet from the southeast corner of Section 32, Township 12 South, Range 7 East, Salt Lake Base & Meridian, thence S 89°59'00" W a distance of 920.00 feet, more or less to the intersection of the East right-of-way line of the State

Road 96; thence in a Northerly direction along said east right-of-way line a distance of 270.00 feet; thence in a Northeasterly direction along said highway line a distance of 317.10 feet; thence N 45°32' E along said highway line a distance of 465.40 feet; thence in a Northeasterly direction along said highway line a distance of 733.00 feet, more or less to the intersection of said highway right-of-way line, and the East boundary of Section 32; thence South a distance of 1475.00 feet, more or less to the point of beginning. Containing 16.33 acres, more or less.

Excepting a parcel more particularly described as follows:

Commencing at the Southeast quarter of said Northeast quarter of the Southeast quarter of said Section 32, running thence North along the section line 330 feet, more or less to a point 50 feet North of the railway track of the Union Pacific Railway running across said land; thence in a Southwesterly direction parallel with and 50 feet distance from center line of said track, 412.5 feet, more or less to the South line of said Northeast quarter of the Southeast quarter; thence East 132 feet, more or less to the point of beginning. Containing 1 acre, more or less.

Total acreage of the fee surface parcel is 15.33 acres.

**Leased Surface**

Lease Agreement with Evangelos George Telonis, ETAL for 22.88 acres of surface land.
Recorded in the Carbon County Court House Book 666, Page 106, dated 2/15/08.

Located in Section 33, T 12 S, R 7 E, SLB&M as follows:

Beginning at a point on the east Right-Of-Way line of the Utah State Highway 96, said point being further described as being S00°14'01"E, 1652.62 feet along the west section line of Section 33, Township 12 South, Range 7 East, Salt Lake Base & Meridian in Carbon County, Utah and N90°00'00"E, 235.93 feet from said west line of Section 33; thence along said east right-of-way line the following three courses, N11°02'21"E, 75.98 feet; thence N18°41'18"E, 180.40 feet; thence N10°47'24"E, 82.52 feet; thence along the Telonis north property line N90°00'00"E, 285.41 feet; thence S01°17'17"W, 175.81 feet; thence S26°57'44"W, 450.28 feet; thence S0°14'01"E, 1947.79 feet; thence S90°00'00"W, 400 feet to the west line of the Telonis property, which is the west line of said Section 33; thence N0°14'01"W, 2200.00 feet along said section line being also the west line of the Telonis property; thence N90°00'00"E, 235.93 feet to the point of beginning. Containing 22.88 acres.

**Leased Coal**

Coal ownership for the permit area is held by Carbon County and is leased toCarbon Resource, LLCThe coal is subleased from Carbon Resources, LLC to Coal Energy Group 3, LLCThe lands listed below include all of the Carbon County Coal Lease to be included in this permit application as can be seen on Map 12, Regional Coal Ownership Map within the permit boundary. CEG3 holds additional coal in the Carbon County Coal Lease adjacent to the permit boundary to the south and east, which is excluded from this permit application, although it is shown on the referenced map for informational purposes only.

Township 12 South, Range 7 East, SLB&M

Section 32: SW1/4NW1/4; W1/2SW1/4
Section 33: S1/2NW1/4; SW1/4NE1/4; N1/2S1/2; S1/2SE1/4; S1/2SW1/4
Section 34: All

Section 35: All
Section 36: All

Township 13 South, Range 7 East, SLB&M

Section 3: NW1/4
Section 4: All
Section 5: E1/2E1/2
Section 9: N1/2NW1/4

**Permit Boundary Description**

The permit boundary as shown on Map 4, Regional Land Use Map, and on Map 13, Surface Facilities Map, includes land owned by Evangelos George Telonis, ET. AL. and fee land owned by Coal Energy Group 3, LLC. A portion of the Evangelos George Telinis ET. AL. property is held by lease by Coal Energy Group 3, LLC, which is where a portion of the surface facilities will be located. A legal description of the permit boundary including portions of existing legal description boundaries where applicable is included as follows:

Beginning at the Northwest corner of the Southwest Quarter of the Northwest Quarter of Section 33, Township 12 South, Range 7 East, Salt Lake Base & Meridian; thence East 1320 feet, more or less along the North line of the South half of the Northwest Quarter of said Section 33, which is the South line of Parcel 2A-226 in the Carbon County records; thence 1320 feet, more or less to the North-South center line of said Section 33; thence along the North line of the Southwest Quarter of the Northeast Quarter of said Section 33 1320 feet, more or less to the Northeast corner of said Southwest Quarter of the Northeast Quarter; thence along the East line of said Southwest Quarter of the Northeast Quarter 1320 feet more or less, which line is the West property line of Parcel 2A-226 in the Carbon County records, to the Southeast corner of said Southwest Quarter of the Northeast Quarter; thence East 223.47 feet along the North line of the Northeast Quarter of the Southeast Quarter, which is the South line of Parcel 2A-226 in the Carbon County records; thence South 2640 feet, more or less to the South line of the Southeast Quarter of said Section 33; thence South 617 feet, more or less; thence West 223.47 feet more or less to the West line of Lot 1 of Section 4, Township 13 South, Range 7 East, Salt Lake Base & Meridian; thence West 4183.47 feet, more or less along the South line of said Lot 1, and the South lines of Lots 2, 3 and 4 of said Section 4 to the West line of said Section 4; thence North 617 feet, more or less to the Southwest corner of said Section 33, Township 12 South, Range 7 East, Salt Lake Base & Meridian; thence North 1320 feet, more less to the Northwest corner of the Southwest Quarter of the Southwest Quarter of said Section 33; thence S89°59'00"W 920.00 feet, more or less along the South line of the Northeast Quarter of the Southeast Quarter of Section 32, Township 12 South, Range 7 East, Salt Lake Base & Meridian, which is the North line of Parcel 1B-485 in the Carbon County records to the intersection of the east right-of-way line of Utah State Road 96; thence in a Northerly direction along said east right-of-way line a distance of 270.00 feet; thence in a Northeasterly direction along said highway right-of-way line 317.10 feet; thence N45°32'00"E along said highway right-of-way line 465.40 feet; thence in a Northeasterly direction along said highway right-of-way line 733.00 feet, more or less to the intersection of said highway right-of-way line, and the East boundary of Section 32, which is the West boundary of Section 33; thence N 00°14"11"W 1258.08 feet along the east line of said Section 32, which is the East boundary of Parcel 2A-224 and the West boundary of Parcel 2A-227 in the Carbon County records to the point of beginning.

Excepting a parcel more particularly described as follows:

Commencing at the Southeast quarter of said Northeast quarter of the Southeast quarter of said

Section 32, running thence North along the section line 330 feet, more or less to a point 50 feet North of the railway track of the Union Pacific Railway running across said land; thence in a Southwesterly direction parallel with and 50 feet distance from center line of said track, 412.5 feet, more or less to the South line of said Northeast quarter of the Southeast quarter; thence East 132 feet, more or less to the point of beginning. Containing 1 acre, more or less.

Total acreage of the parcel is 448.14 acres.

## R645-301-115 Status of Unsuitability Claims

### 115.100 Information of Unsuitable Areas

Based on available information and to the best of the applicant's knowledge, the permit area is not within and does not include any area designated or under current study for designation as unsuitable for mining.

### 115.300 Owners of Nearby Buildings and Operating Within 100 Feet of a Public Road

Mining operations will be conducted within 100 feet of Utah State Highway 96, which is a public road. In compliance with the applicable regulatory provisions of Rules R645-103-234.100 through 400, CEG3 has contacted and obtained approval from the Utah Department of Transportation (UDOT) for access to Highway 96. Access Approval from the UDOT has been given and is supplied in Exhibit 4~~The final design of the mine entrance from Highway 96 will be approved by UDOT.~~ In compliance with R645-103-234.200 opportunity for a public hearing will be provided in two public notices for the Kinney No. 2 Mine operation within 100 feet of a public road. The notices will be published for two weeks in the local news paper of general circulation and opportunity will be provided for the public to request a hearing and any affected owners to present information relating to protection of their interests.

One occupied structure exists within 300 feet horizontally of the mine permit area; this structure is a convenience store operated by L2H Enterprises, Carbon County Parcel No. 1B-433-2. Mr. Jim Levanger, VP of L2H by letter dated Feburary 22~~9~~, 2019~~09~~ has waived any and all objections to conducting coal mining operations with 300 feet of his property. A copy of Mr. Levanger's letter can be found in Exhibit 4, Other Permits.

This permit application provides general information relative to the location, sequence, timing, and affected areas for all anticipated mining and reclamation operations over the life of the mine. The proposed timetable for each phase of mining and reclamation is discussed in R645-301-500, Engineering Design and Operation Plans, Reclamation of Mining Disturbance, and illustrated by the Mine Plan Layout & Production Schedule Map, (Map 15).

## R645-301-116 Permit Term Information

### 116.100 Starting and Termination Dates for Mining Operations

The permit term requested for the Kinney No. 2 Mine is 5 years. This permit application provides general information relative to the location, sequence, timing, and affected areas for all anticipated mining and reclamation operations over the life of the mine. The proposed timetable for each phase of mining and reclamation is discussed in R645-301-500, Engineering Design and

Operation and Reclamation Plans.

### 116.200 Request for Permit Term in Excess of Five Years

Although the initial permit term is for 5 years, additional coal reserves are held by CEG3. These coal reserves are intended to be mined, and are necessary to justify a long term mining plan economically. Additional coal reserves are adjacent to the CEG3 coal reserves and may provide continuation of the Kinney No. 2 Mine if and when those reserves are acquired.

## R645-301-117 Insurance and Proof of Publication

### 117.100 Proof of Liability Insurance

CEG3 will obtain and provide UDOGM with the certificate of insurance prior to initiation of development and mining activities. On receipt, a copy of the certificate of insurance will be submitted to UDOGM for insertion in Exhibit 18, Bonding and Insurance Information, as evidence that CEG3 has a public liability insurance policy in force for the Kinney No. 2 Mine and related operations. The insurance policy will meet all applicable regulatory requirements for minimum coverage, will be maintained in full force during the permit term and all subsequent renewals, and will include a rider providing for notification to UDOGM of any termination or substantive changes in the policy.

### 117.200 Proof of Publication

Upon receipt of notification that UDOGM determined the permit application to be administratively complete, CEG3 will place the public notice advertisement in a newspaper of local circulation for publication once per week for a period of four weeks. Copies of the proofs of publication for the public notices will be found in Exhibit 5, Public Notice and Proof of Publication, Hearing Notices and Documentation. Any public notices and proof of publication documentation for future permit revisions will also be inserted in Exhibit 5.

### 117.300 Facilities Shared With Other Operations

No facilities are shared with other operations at the Kinney No. 2 Mine.

## R645-301-120 Permit Application Format and Content

The information presented in this permit document represents a compilation of relevant historic information and recent site environmental and planning information developed specifically for the Kinney No. 2 Mine. Within the constraints of applicable regulatory information requirements, CEG3 has endeavored to present permit information in a clear and concise manner.

Permit information has been formatted to address applicable regulatory information requirement in a logical organized manner, and in the regulatory format. Permit format and organization is also designed to facilitate both initial agency review and future use and revision of the permit documents a reference for permit commitments and requirements and as the plan basis for ongoing mining and reclamation operations.

Any references or assumptions which serve to clarify or qualify the information provided are presented and discussed and any technical data utilized as the basis for permit discussions has been reviewed and validated to verify that any conclusions presented have a sound technical basis. The descriptions of legal, financial, compliance, and related Information and environmental resources and the discussions of operation and reclamation plans are supported by relevant tables, figures, maps and exhibits which are included as part of the permit application document. Other information which is either readily available or is too voluminous for inclusion in the permit document has been referenced, as appropriate.

The required notarized verification by a responsible CEG3 official that the information presented in this permit application is true and correct to the best of that individual's information and belief is included on the transmittal which accompanied the permit application submittal.

**R645-301-130 Reporting of Technical Data**

CEG3 has reviewed sampling, testing, and analysis information developed in conjunction with this permit application and has confirmed that the information was collected, developed, and analyzed by or under the supervision of a competent qualified professional in the discipline under consideration. All laboratory analyses were performed by experienced laboratory personnel using accepted standardized analysis methods.

In order to assure appropriate documentation, technical data presented in this application includes the name(s) of the persons or organizations directly responsible for its collection and analysis, dates of collection and analysis, and a description of collection and analysis methodologies where appropriate.

This application reflects the efforts of numerous individuals and organizations. Considerable time, expense, and many man-hours have been devoted to the collection, analysis, and presentation of technical data and other information contained in this permit application. Those individuals are identified and listed by organization as follows:

Coal Energy Group 3, LLC

James Wayland
Robert Nead

Geo-Hunt Consulting LLC

| | |
|---|---|
| Gregory L. Hunt, M.S. | Geologist |
| Eric Robeck, M.S. | Geologist |

Rock Logic LLC

| | |
|---|---|
| Brad Lindsey, B.S. | Geologist |

Hansen, Allen & Luce, Inc, Engineers

| | |
|---|---|
| David Hansen, PhD, P.E. | Hydrology, Engineering |

| | |
|---|---|
| Tyler Shelley, P.E. | Hydrology |
| David Bruse | Land Technologist |
| Ben Grimes, P.L.S. | Surveying, Permitting Specialist |

Mt Nebo Scientific

| | |
|---|---|
| Patrick D. Collins, PhD | Botanist |

Bruce Chesler BA Soil Science — Soils Scientist

Rollins, Brown & Gunnell Engineers

| | |
|---|---|
| Brad Price, P.E. | Geotechnical Engineering |

Randall Peterson, P.E. — Mining Engineering

Risun Technologies

| | |
|---|---|
| William Simmons, P.E. | Facilities Engineer |
| Bill Whitney. P.E. | Facilities Engineer |

Gault Group, Inc.

| | |
|---|---|
| Major N. Kindsfater, B.S. | Environmental Engineer, Air Quality |
| Ben Grimes, B.S., P.L.S. | Permitting Specialist, Professional Land Surveyor |

Qualifications to conduct raptor monitoring:
Ben Grimes completed the Raptor Identification Short Course conducted by the Utah Division of Wildlife Resources in March 1999, and has completed over 15 raptor inventories with the Utah Division of Wildlife Resources at the Star Point Mine and at the Willow Creek Mine in Carbon County. Ben has completed numerous raptor monitoring sessions at both mines mentioned above. Ben also completed a Golden eagle nest taking permit application with the US Fish and Wildlife Service and the Utah Division of Wildlife Resources with it's associated inventory of raptor nesting activity of 314 square miles of eagle habitat surrounding the Star Point Mine in Carbon County. He participated in fencing off the Golden eagle nest to prevent harm to the eagles or their eggs. This was possibly the first such deterrent action of this type in the United States. He conducted numerous monitoring sessions of the fenced off nest and the nesting territory. He wrote and presented a paper on this deterrent action project at the Thorne Ecological Institute, Issues and Technology in the Management of Impacted Wildlife, April 8-10, 1991 at Snomass Resort, Colorado. (Underground Coal Mining – A Case Study of Land Surface Disturbance Impacts To Golden Eagles, Thorn Ecological Institure, Issues and Technology In The Management of Impacted Wildlife, No. 5:138-140, 1991).
Ben will be assisted by Sam Grimes, a student in Environmental Studies at Utah Valley University.

**R645-301-140 Maps and Plans**

All maps included in the permit application document are based on either U.S. Geological Survey

Mapping or site specific mapping developed using surveyed aerial control and accepted aerial photogrammetry methods. Maps showing overall permit area and regional information are presented at an AutoCAD scale of 1:1, with produced maps at a general scale of 1" = 1,000', or 1"=2,000' for larger areas, and smaller areas down to 1"=100'. The maps also clearly designate the limits of anticipated surface disturbance under this permit application. Rule R645-301-512 and a number of other regulatory provisions specify that certain designated maps and cross-sections be completed under the direction of and certified by a qualified, registered professional engineer, or land surveyor. Those permit maps which have been certified in compliance with applicable regulatory provisions are identified in Chapter 5, R645-301-512, Certification, Inspection, Reporting, and Emergency Procedures.

## R645-301-150 Completeness

The information provided in this permit is designed to adequately address and effect compliance with all applicable regulatory provisions. The summaries of applicable regulatory sections addressed included at the beginning of each permit section provide documentation that all regulatory provisions have been addressed and also serve as a ready reference to verify the completeness of the permit application.

# Chapter 2

# R645-301-200 Soils

# Kinney No 2 Mine

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## R645-301-200 Soils

### R645-301-221 Prime Farmland Investigation

Prime farmland is addressed in the Soil Survey Results in Exhibit 6, Soils Information. In addition, a formal request to the U.S.D.A., Natural Resources Conservation Service (NRCS) for a determination on prime farmland for the permit area. Documentation of the response from the NRCS can be found in Exhibit 2, Prime Farmland Determination.

The NRCS determined that the soils in the area do not meet the criteria for prime, state important, or unique farmlands.

### R645-301-222 Soil Survey

The information presented in this section was obtained from various published studies and mine permit related evaluations which have previously been conducted in the area corresponding to the permit and adjacent areas. A soils report was prepared in 1981 by Patrick D. Collins, Botanist/Reclamation Specialist for Western Reserve Coal Company, Inc. for a Mining and Reclamation Permit application for the Kinney No. 2 Mine. In that report, the soils description was taken from the then current United States Department of Agriculture, Soil Conservation Service Soil Survey (USDA-SCS). The soils investigation for the Kinney No. 2 Mine did not use the 1981 report by Dr. Collins because the mine site was extensively modified in 1985-1986 by the Utah Abandoned Mine Reclamation program (AML). That work by AML extensively disturbed the soils in the area, and made the earlier work by Dr. Collins unusable.

A soil survey performed by Bruce Chesler completed in 2006 and updated in 2007 identified 27.3 acres in a total of 28 individual units (areas) containing approximately 68,092 Cubic Yards of Topsoil anticipated to be disturbed during construction of surface facilities. For the complete report of investigation and findings refer to Exhibit 6 for the following:

- Presentation of methods
- Lab analysis and data interpretation
- Potential soil management alternatives discussion
- Soil Survey results
- Soil salvage discussion
- Primary grown medium discussion

Exhibit 6 also includes the following Appendices to the soils survey:

1. ACZ Soil Analysis Data Summary as Spread Sheet Prints, and as individual ACZ Soil Analysis Lab Report Sheets
2. IML Soil Analyses Lab Report Sheets
3. Soil Pedons for 36 Profiles
4. Color Photographs of 36 Soil Pits
5. Color Photographs of Micromonolith Box Samples
6. Official Soil Series Descriptions
7. Reclaimed Coal SGS Lab Sheets

Per the Divisions suggestion, two small topsoil piles have been added west of highway 96, discussed in detail below. These new topsoil piles occupy 0.4 acres of disturbance containing 989 cubic yards of topsoil. This increases the total planned disturbance area to 27.6 acres and the total volume of topsoil to be removed to 68,845 Cubic Yards. Map 34, Topsoil to Be Disturbed - with embedded table, shows the type, distribution, and volume of

30 individual units of planned disturbed topsoil.

**222.100 Soil Maps**

Refer to Figure 1 in Exhibit 6, Soils Survey. Figure 1 of the Bruce Chesler "Soil Survey Report" has been updated and enlarged for clarity and is presented herein as Map 34 and named (Topsoil To Be Disturbed – with embedded table).

**222.200 Soil Identification**

Refer to page 3 in Exhibit 6, Soils Survey.

**222.300 Soil Description**

Refer to page 9 of Exhibit 6, Soils Survey.

**222.400 Soil Productivity**

Refer to Exhibit 6, Soils Survey.

Productivity at the Kinney No. 2 Mine is an estimate of the annual biomass production of the plant communities at the site as shown in Table 25, Annual Biomass Production of the Plant Communities At the Kinney No. 2 Mine Site.

**Table 25**
**Annual Biomass Production of the Plant Communities**
**At the Kinney No. 2 Mine Site (Patric Collins PhD)**

| COMMUNITY TYPE | ANNUAL PRODUCTION (LBS/ACRE) |
|---|---|
| Sagebrush/Grass (Proposed Disturbance) | 1200 |
| Sagebrush/Grass (Reference Area) | 1200 |
| Rabbitbrush/Grass | 500 |
| Aspen | 1100 |

**R645-301-223 Soil Characterization**

Refer to page 9 of Exhibit 6, Soils Survey.

**R645-301-224 Substitute Topsoil**

Refer to page 12 of Exhibit 6, Soils Survey.

"Previously Disturbed" Topsoil will be salvaged and stored separately from the Prime A-Horizon Topsoil, and will serve as substitute topsoil to augment the volume of A-Horizon Topsoil.

**R645-301-230 Operation Plan**

**R645-301-231 General Requirements**

The mine facility area will be the only area where direct surface disturbance will occur as a result of the mining and related activities. As described in R645-301-200, Soils Information, the majority of the mine facilities area has been extensively disturbed by previous mining and related activities. No soil salvage occurred at the historic disturbance activities. In

addition, the existing surficial materials over much of the area represent disturbed soils which are intermixed with overburden and coal fines materials. Potential disturbance areas where natural undisturbed soils remain will generally be small, occurring in the southwest corner, in the southeast area at the proposed mine portal area, and a small area in the northeast corner of the proposed mine disturbance area Map 36, Planned Salvage Area Soils Map.

For those limited areas where natural soils remain, if the individual separate area is sufficiently large to allow recovery with conventional mobile equipment, available soils will be recovered and stockpiled for future reclamation use. Given the combined factors of the limited amounts of soil available from new disturbance areas, and the relatively favorable suitability characteristics of existing disturbed soils, disturbed soils will also be recovered and stored from proposed facilities areas prior to facilities construction activities.

Soil materials will be recovered and placed in stockpiles for temporary storage in such a manner as to minimize loss, erosion, or further contamination of these materials. To the extent practicable, stockpiles will be located and oriented to minimize exposure to wind and water erosion and avoid active operating areas, and any stockpile which will remain in-place for over 6 months will be seeded to provide a temporary protective vegetative cover.

### 231.100 Topsoil Removing and Storage

Soil materials will be recovered from any disturbance area where natural soils exist and the area is large enough to permit soil recovery using conventional mobile equipment and from previously disturbed areas where suitable disturbed soils exist. Soil material will not be recovered from very limited disturbance areas such as power pole locations, steep hill slope areas defined as in excess of 30% slope, or areas where soil recovery is limited by the practical considerations of limited depth or high rock content.

The initial step in recovering available soil materials will be removal of any trees, large bushes or large rocks and boulders which could interfere with recovery operations. These materials will be removed prior to soil recovery using the same equipment used for soil recovery operations; typically a tracked dozed or wheel loader, and placed in one or more debris piles on the margins of the disturbance area. Smaller brush and other vegetative materials will not be removed and will be incorporated into the soil materials during soil recovery operations. Incorporation of vegetative material with the soil provides an effective mulch to stabilize the soil material and increases natural re-establishment of indigenous species through roots, seeds, plant fragments and other plant propagules in the soil material.

Soil recovery operations may take place at any time during the period from early spring through late fall when ground conditions are favorable but will occur prior to any other site disturbance activities. ~~CR~~ CEG3 will generally utilize tractor scrapers or a combination of tracked dozers, wheel loaders, and rear dump trucks to recover, transport, and place available soil and substitute materials. Soil materials will be removed in horizontal layers by either a tractor scraper or tracked dozer. Where tractor scrapers are utilized, they will load, haul, and place the salvaged soil material in the temporary storage stockpiles directly. Where tracked dozers are utilized for material removal, the soil material will be pushed into temporary piles. A wheel loader will then either load from the temporary pile, transport, and place the material in stockpile if the stockpile is located in close proximity to the recovery area, or will load the material into rear dump trucks which will then transport and place the material in stockpiles.
Given existing limitations on the availability of suitable soil materials, where recoverable undisturbed soils exist, soil recovery operations will focus on removal and salvage of all

reasonably recoverable soils. In these areas, available soil material will be recovered to a reasonable depth, or until highly consolidated, coarse fragment content or clayey materials are encountered, if these limiting conditions occur at a shallower depth. In any area where suitable materials exist at depths greater than 3 feet, those materials will be salvaged to a reasonable depth in an effort to provide as much usable material for final reclamation as possible. The soils investigation presented in R645-301-200 found very limited areas where topsoil, or substitute topsoil depths were greater than 3 feet. Considering the high percentage of the proposed disturbance area that has been previously disturbed by pre-SMCRA mining (approximately 74%), it is unlikely that large areas of topsoil exist. Given relatively poor soil development, high rock content, and limited salvage areas, no effort will be made to segregate individual soil horizons since segregation may not be operationally feasible and doing so would not result in any appreciable revegetation benefit.

Generally, maximum recovery depths will be achieved on relatively flat or gently sloping areas where rock content, presence of coaly materials, or natural obstacles are not limiting factors relative to full recovery. To the extent operationally feasible, zones or areas with any significant coal or coal refuse content will be avoided during soil material recovery operations and any coaly significant deposits or accumulation will be excavated and removed to avoid intermixing with topsoil, or topsoil substitute materials. As indicated previously, it is not practicable or possible to totally separate coal fines materials from topsoil or substitute topsoil where the coal is less that about 6 inches thick. A large portion of the proposed disturbance area has been previously disturbed causing the coal fines to be extensively mixed with the soils materials. Where the coaly materials are thicker that about 6 inches, It will be treated as "Reclaimed Coal" and will be removed separately from the soils and sold as a fuel source.

### 231.200 Suitability of Topsoil Substitute

As documented in Exhibit 6, Soil Survey Report, based on available sampling and testing data, that the disturbed soils are suitable as soil material and that they represent the best available material to support revegetation efforts, ~~CR~~ CEG3 plans to sample these materials prior to revegetation as described in R645-301-240, Soil Replacement Plans.

As documented in the soils report in Exhibit 6 the results of the soil sample analyses and the field survey of the soils resources, the salvageable soils within the 27.6 acres for the proposed mine facilities are adequate for use as plant growth material. The pre-SMCRA disturbed soil materials are an equivalent vegetative growth media in this area based on the UDOGM suitability criteria. The only parameters of concern relative to suitability of the soils are water holding capacity of soils containing greater than 50% rock content, soil materials with sandy textures, and an accurate determination of the quantity of coal found within the mixture of alternative reclamation materials in disturbed land Map Units DA and DB. While these may be considered limiting factors under the UDOGM Guidelines and may in fact limit maximum vegetation potentials, they do not appear to have had a significant adverse impact on vegetation establishment in the area nor on the natural reinvasion of previously disturbed areas which have not been intentionally revegetated by the Utah AML Program. The available soil materials have been mixed by historic mining activities and by reclamation work completed by the Utah AML Program. This mixing has not greatly affected the ability of the materials to support vegetation, and there is little reason to doubt the same effect for final reclamation of the Kinney No. 2 Mine. The available soil materials will be salvaged, stockpiled, and used for final reclamation.

### 231.300 Soil Testing Plan

Given the lack of available natural soils and ~~CR's~~ CEG3's resultant plans to recover

disturbed soils for use as soil material, ~~CR~~ CEG3 is relying primarily on the baseline soil sampling information presented in Exhibit 6, Soils Survey Information, to establish the relative suitability of disturbed soils as the best material available in the proposed disturbance area to support revegetation efforts. This is based on the available soils sampling and testing information, which included undisturbed and disturbed soil.

Prior to final reclamation ~~Carbon Resources~~Coal Energy Group 3 will sample the topsoil storage piles per the UDOGM Topsoil/Overburden Guidelines.

### 231.400 Construction, Modification and Maintenance

The topsoil stockpiles will be located in stable, protected areas away from active operations, natural water-courses, and coal handling activities to avoid disturbance, loss or contamination of the stored soil resources. To the extent operationally practicable, the stockpile will be located and oriented to minimize exposure to wind and water erosion, utilizing the natural topography or grading to divert drainage away from stockpile area. The stockpile locations have been selected to avoid potential future operations so that once the stockpile is established the soil material will not have to be moved until it is utilized for reclamation. The proposed stockpile locations are shown on Maps 13, Surface Facilities Map, and on Map 38, Topsoil Storage. The largest stockpile is adjacent to Highway 96 at the southwest corner of the permit area, and is as far away and upwind of the coal handling facilities. The small stockpiles are located west of Highway 96, which will provide a barrier from operations. Since the large stockpile location is adjacent to Highway 96, where winter road salting occurs, a six (6) foot thick base (see Map 16, Mine Surface Facilities Area, Pre-Mining, & Post Mining Cross Sections. Also "Volume A" on Map 38, Topsoil Storage, of clean excavated material will be placed to provide a buffer for the topsoil material. Salt migration from the Highway will be isolated from the toe of the topsoil by the highway-side ditch, the berm as shown on Map 24, Drainage and Sediment Control Plan, and the six foot clean excavated material base. The small stockpiles on the West side of Highway 92 are farther away from the highway than the large stockpile and it is believed that road salt will not be a contaminating factor for the small stockpiles.

The topsoil stockpiles will be constructed by placing soil materials in successive horizontal layers with stockpile side slopes at 2H: 1V or less. Stockpile construction activities will be designed to minimize compaction of the soil resource to the extent operationally feasible. Where necessary to prevent erosion of stockpiled material by up gradient drainage, temporary berms or diversion ditches will be used to intercept and route drainage around the stockpiles. The large topsoil stockpile lies on the outside fill slope if the Office Pad, and will be isolated from pad by a berm as shown on Map 16, Mine Surface Facilities Area, Pre-Mining, Mining & Post Mining Cross Sections – Section A-A'. Drainage from the stockpile areas will be controlled by the proposed surface drainage and sediment control system as described in R645-301-730, Hydrologic Resource Protection. In order to stabilize and minimize erosion of the stockpiled material the surface of the soil stockpile will be left in a roughened condition to minimize erosion and runoff. Any long-term stockpile which will remain in-place for over 6 months will be seeded with a rapid-germinating temporary seed mixture as described in R645-301-340, Habitat Restoration Plan, to provide a protective vegetative cover. Seeding will normally occur as soon as reasonably feasible once active soil stockpiling operations cease for a given stockpile area. In addition, each soil and substitute stockpile will be identified by durable signs placed so as to be readily visible from the closest point of access. Stockpile areas will be inspected on a regular basis and any significant erosion or other problems will be noted and repaired.

## R645-301-232 Topsoil and Subsoil Removal

### 232.100 Topsoil Removal Prior to Disturbance

Soil material recovery areas and volumes for proposed mining and related surface disturbance are summarized on Figure 1, Soil Map Unit ID Legend with Sampled Soil Profile Locations, found in the Soil Survey Report, Kinney No. 2 Mine, Carbon County, Utah located in Exhibit 6, Soils Information. This information is also displayed on Maps 36, Planned Salvage Area Soil Map, and Map 37, Planned Topsoil Cut Design, which are enlarged versions of Figure 1.

The soil removal thicknesses and volumes are estimates based on extensive field sampling of both disturbed and undisturbed soils in the proposed surface disturbance area. Actual recovery depths, and therefore volumes, may vary dependent on site-specific conditions and practical operating limitations. In order to assure that all operationally recoverable soil material is removed and stockpiled for later reclamation use, soil recovery operations will be supervised and monitored by a qualified and experienced reclamation specialist/soil scientist. Actual soil recovery depths and volumes will be documented and any site-specific limitations on soil recovery will be noted and described. Following completion of soil removal operations, a narrative description of soil recovery operations along with appropriate supporting documentation will be prepared and incorporated into the next Annual Reclamation Monitoring Report for submittal to UDOGM and forms C1-C2 will also be provided for update of the MRP. Any variations between actual and projected soil recovery depths and volumes (as outlined on Figure 1 of the soils report referenced above) will be identified and explained.

~~CR~~ CEG3 will remove all available soil material to a maximum depth of 3 feet in areas where good topsoil exists, or until highly consolidated, excessive coarse fragment content, or clayey materials are encountered. Recognizing that the soil volumes calculated are based on limited soil pits and other investigation means, and that volumes could vary, ~~CR~~ CEG3 will make every effort to salvage good soil materials where they are encountered up to the total volume available in the topsoil stockpile. Soil removal operations will be dependent on the topographic configuration of the recovery area and site specific conditions encountered. In order, therefore, to assure compliance with this permit commitment, ~~CR~~ CEG3 will commit to supervision of all topsoil salvage operations by an experienced reclamation specialist/soil scientist who will assure that all available soil materials are removed prior to any mining-related disturbance. The results of the soil removal operations will then be reported in the Annual Reclamation Monitoring Report which will contain a written narrative documenting actual soil recovery thicknesses and volumes and comparing actual recovery versus projected recovery (as outlined on Figure 1 of the soils report in Exhibit 6). For any areas where either less or more soil material is recovered than originally projected, the narrative will address the reasons for any soil recovery limitations and associated soil losses or increases in recoverable soil depths.

Areas where site conditions would preclude soil salvage include rock outcrop areas, areas where large boulders occurred, where coaly materials preclude soil salvage, where very thin topsoil occurs on >30% slopes and cannot be retrieved without mixing with subsoils, and in areas where the safety factor for equipment and operators precludes operating safely.

Based on the field measurements, soil volumes for each soil map unit can be found on Table 8 of the soils report found in Exhibit 6, Soils Information, for a total volume of 68,092.4 cubic yards for the proposed disturbance on 27.3 acres as shown on Map 13, Surface Facilities Map, labeled Disturbance Boundary and Map 34, Topsoil To Be Disturbed. The topsoil volume estimate of 68,092 .4 cubic yards included in R645-301-200 has been

estimated from the 36 soils backhoe pits, hand dug pits, and road cut excavations (see Figure 1 in the soils report in Exhibit 6.

Per the Divisions suggestion, two small topsoil piles have been added west of highway 96, discussed in detail below. These new topsoil piles occupy 0.4 acres of disturbance containing 989 cubic yards of topsoil. This increases the total planned disturbance area to 27.6 acres and the total volume of topsoil to be removed to 68,744 Cubic Yards as shown on Map 34, (Topsoil To Be Disturbed), and in Table 23, Topsoil Balance. The topsoil stockpile maximum volume is 54,966, therefore this amount is the total that can be salvaged for final reclamation. This will provide 1.24 feet, or 14.8 inches of topsoil available for reclamation as follows:

Total Salvaged Topsoil (A-Horizon + B-Horizon + Previously Disturbed) =

$$\frac{\frac{54{,}966 \text{ CY} \times 27 \text{ CF/CY}}{27.6 \text{ ACRES}}}{43{,}560 \text{ SF/ACRE}} = 1.23 \text{ FT or } 14.8 \text{ INCHES}$$

As shown in Table 23, and discussed below, the 20,271 cubic yards of A-Horizon Topsoil is sufficient to cover the entire 27.6 acres of planned disturbed area with a 5.5 inches thick covering as shown in the following calculation.

$$\text{A-Horizon} = \frac{\frac{20{,}271 \text{ CY} \times 27 \text{ CF/CY}}{27.6 \text{ ACRES}}}{43{,}560 \text{ SF/ACRE}} = 0.45 \text{ FT or } 5.5 \text{ INCHES}$$

Nearly 30% of the total planed disturbed area is on a slope exceeding 30% which is deemed too steep to effectively salvage topsoil and separate it from the underlying subsoil Map 33, Slope Analysis Map - with embedded table. Therefore, of the total 68,744 Cubic Yards of Topsoil anticipated to be disturbed, total salvageable topsoil is calculated at 54,966 cubic yards leaving 13,778 cubic yards (from >30% slope)of planned disturbed topsoil to be mixed with the fill material. Of the 54,966 cubic yards of topsoil to be salvaged 20,271 cubic yards consist of prime A-horizon topsoil. The 34,695 cubic yards balance of salvaged topsoil consists of 1,520 cubic yards of B-horizon topsoil and 33,175 cubic yards of previously disturbed topsoil shown on Map 36, Planned Salvage Area Soil Map - with embedded table, and on TABLE 23, Top Soil Balance, below.

**TABLE 23**

| TOPSOIL BALANCE | | | |
|---|---|---|---|
| **CUT- TOPSOIL DISTURBED** | | **FILL - TOPSOIL STORAGE PILES** | |
| Planned Disturbance Total | 68,744 | | |
| Planned Salvageable | | | |
| A-Horizon | 20,271 | SW of Parking Lot TS Pile | 18,223 |
| | | West of Highway N | 612 |
| | | West of Highway S | 1,436 |
| B-Horizon | 1,520 | Beneath Parking Lot TS Pile | 1,520 |
| Previously Disturbed | 33,175 | Beneath Parking Lot TS Pile | 33,175 |
| Planned Salvable Total | 54,966 | Planned Storage Pile Total | 54,966 |

(All Values in Cubic Yards)

The following sections describe these specific soil and substitute salvage, handling, and storage practices.

Within the ability of equipment operators, to vary the recovery depth, and considering safety factors when operating on steep slopes, topsoil will be recovered per the cut plan shown on Map 37, Planned Topsoil Cut Design, which shows depth of topsoil removal for all the salvageable topsoil.

Salvaged topsoil will be placed in a combination of four topsoil piles, explained in detail below. The prime A-Horizon topsoil will be placed in a combination of three topsoil piles that are covered with vegetation for stabilization. The salvaged B-horizon topsoil and the salvaged "Previously Disturbed Topsoil" will be stored in a topsoil pile as part of the fill located beneath the asphalt covered bathhouse parking lot Map 38, Topsoil Storage - with x-section).

Essential Steps in the plan for removal, salvage and storage of topsoil are:

1. Clean the operations pad area of all debris, metal objects and junk that were not properly buried during the previous (AML) reclamation effort.
2. Remove the topsoil from the bathhouse area including the bathhouse parking lot area which totals 18,153 cubic yards of prime A-horizon topsoil (3,147 cubic yards from unit 2A1 and 15,000 cubic yards from unit 2A2), and 1,650 cubic yards of previously disturbed topsoil from combined units DA-1 and DA-2, Map 34,Toposoil to be disturbed – with embedded table .
3. The 18,153 cubic yards of A-horizon topsoil removed from the bathhouse area will be distributed in storage piles thus:
    a. 2,047 cubic yards will be placed in the two topsoil piles west of the highway (North 612 cubic yards and South 1,436 cubic yards).
    b. 16,106 cubic yards, which is the balance of the 18,153 cubic yards of A-horizon topsoil, will be placed in a temporary topsoil stockpile on the operations pad Map 38 Topsoil Storage, with x-section.
4. The 1,650 cubic yards of previously disturbed topsoil (DA-1 and DA-2) removed from the bathhouse area will also be placed in a temporary topsoil stockpile on the

operations pad separated from the A-horizon temporary topsoil pad Map 38, Topsoil Storage - with x-section.

5. The remaining 1,226 cubic yards of A-Horizon topsoil removed from, 2A-3, 2A-4, 2A-5, and 2A-7, will be removed and also stored in the temporary A-horizon stockpile on the operations pad Map 38, Topsoil Storage - with x-section.
6. The bathhouse area that includes the future parking lot will be re-shaped to accommodate the future A-Horizon Topsoil Stockpile as well as the previously disturbed topsoil stockpile by:
    a. Placing sterile sub-soil fill as "Volume A" shown on Map 38, Topsoil Storage - with x-section, and Map 39, Top Soil 3D Sequence, which is an underlayment for "Volume B" Map 38, Topsoil Storage - with x-section), and Map 39, Top Soil 3D Sequence. "Volume B" is the main A-horizon topsoil pile; Volume A (fill) is used to elevate Volume B topsoil above level of the highway and prevent Volume B topsoil pile from being contaminated by salt and other debris from the nearby Highway 96.
    b. Next haul temporary topsoil stockpile of previously disturbed topsoil (DA-1 and DA-2) as the first fill forming the 2-1 layback "batter" which is the headwall (east side) of the Volume B space Map 39, Top Soil 3D Sequence.
    c. The base of Volume B and the east end headwall "batter" will be carefully surveyed and plastic fabric "marking strips" will be laid down to mark the boundary between Volume B the A-Horizon topsoil from the underlying Volume A composed of sterile fill and previously disturbed topsoil. This will enable crews to clearly identify the extent of the A-Horizon topsoil, Volume B, during final reclamation.
7. Salvage the remaining topsoil from all the remaining units, except that underlying the temporary A-Horizon topsoil pile on the future operations pad, and place the 1,226.3 cubic yards of remaining A-Horizon (Units; 2A-3, 2A-4, 2A-5, 2A, 7) on that temporary A-horizon topsoil pile and the approximately 33,175 cy of previously disturbed topsoil in the bathhouse area south-west end, beneath the future paved parking lot to complete the "batter" for Volume B Map 39, Top Soil 3D Sequence. This space, "Volume D" Map 38, Topsoil Storage - with x-section, has ample capacity (exceeds 88,000 cubic yards) to accept all of the remaining previously disturbed topsoil.
8. The bathhouse area will then be filled with cut material, from the portal pad and access roads construction, up to final grade leaving enough room to accept the previously disturbed topsoil remaining beneath the temporary A-horizon topsoil pile.
9. Topsoil from the temporary A-horizon topsoil pile will next be placed into the Volume B space prepared to accept it on the west side of the bathhouse parking lot Map 38, Topsoil Storage - with x-section, and Map 39, Top Soil 3D Sequence.
10. Should there be more A-horizon topsoil encountered during excavation than presently contemplated there is excess storage capacity available both in the temporary A-horizon topsoil pile and in the permanent A-horizon topsoil pile on the south west side of the bathhouse area. This excess storage capacity is labeled Volume C which is an upward extension of Volume B, Map 38, Topsoil Storage, - with x-section, and Map 39, Top Soil 3D Sequence. Volume C would create a "berm" along the southwest side of the bathhouse parking lot which would have utility as a visual and audio screen between Scofield Town and the bathhouse parking lot in addition to providing topsoil storage.
11. The topsoil storage piles, described above, excepting Volume D (beneath the Bathhouse Parking Lot), and the small Temporary Previously Disturbed Top Soil Pile on the future operations pad, have been modeled in 3D and detail designs for construction are presented in the following series of Maps. Map 40, A-Horizon Topsoil Temporary Storage Design, Map 41, Volume A Fill Design, Map 42, Volume

B Topsoil Pile Design, Map 43, West Side Topsoil Piles Design, and Map 44, Volume C Topsoil Pile Design.

12. The small amount of previously disturbed topsoil beneath the temporary A-horizon topsoil pile will next be placed onto the large capacity bathhouse parking lot topsoil pile Volume D.
13. The approximately 12,000 cubic yards of "RECLAIMED COAL", buried on the old Columbine Mine surface pads Map 45, Reclaimed Coal thickness – with embedded table, will next be scraped together and transported to the Savage/Arch wash plant on Ridge Road south of Price UT, or alternatively to Coval Engineered Fuels, Wellington, UT. Written expressions of interest from both companies can be found in, Exhibit 3 Confidential Information. There are two tables embedded in Map 45, Reclaimed Coal Thickness – with embedded table, one displays the available analysis of this coal and the second summarizes the volume of this reclaimed coal.
14. Stabilize topsoil stockpiles by reseeding, mulching, and erosion controls.
15. Completion of the cut and fills needed to site the surface infrastructure.

### 232.200 Insufficient Topsoil

Given the lack of available natural soils and ~~CR's~~ CEG3's resultant plans to recover disturbed soils for use as soil material, ~~CR~~ CEG3 is relying primarily on the baseline soil sampling information presented in Exhibit 6, Soils Survey Information, to establish the relative suitability of disturbed soils as the best material available in the proposed disturbance area to support revegetation efforts. Based on the available soils sampling and testing information, which included undisturbed and disturbed soil, the following summarizes the overall suitability of disturbed soils and topsoil as soil material based on the UDOGM Topsoil/Overburden Guidelines:

As documented in the soils report in Exhibit 6 the results of the soil sample analyses and the field survey of the soils resources, the salvageable soils within the 27.6 acres for the proposed mine facilities are adequate for use as plant growth material. The pre-SMCRA disturbed soil materials are an equivalent vegetative growth media in this area based on the UDOGM suitability criteria. The only parameters of concern relative to suitability of the soils are water holding capacity of soils containing greater than 50% rock content, slope gradients of over 30% affecting use of soil salvage machinery, soil materials with sandy textures, and an accurate determination of the quantity of coal found within the mixture of alternative reclamation materials in disturbed land Map Units DA and DB. While these may be considered limiting factors under the UDOGM Guidelines and may in fact limit maximum vegetation potentials, they do not appear to have had a significant adverse impact on vegetation establishment in the area nor on the natural reinvasion of previously disturbed areas which have not been intentionally revegetated by the Utah AML Program. The available soil materials have been mixed by historic mining activities and by reclamation work completed by the Utah AML Program. This mixing has not greatly affected the ability of the materials to support vegetation, and there is little reason to doubt the same effect for final reclamation of the Kinney No. 2 Mine. The available soil materials will be salvaged, stockpiled, and used for final reclamation.

While it is documented in Exhibit 6, Soil Survey Report, based on available sampling and testing data, that the disturbed soils are suitable as soil material and that they represent the best available material to support revegetation efforts, ~~CR~~ CEG3 plans to sample these materials prior revegetation as described in R645-301-200, Soil Replacement Plans.

### 232.300 Topsoil Material Less Than 6" Thick

The mine facility area will be the only area where direct surface disturbance will occur as a result of the mining and related activities. As described in R645-301-200, Soils Information, the majority of the mine facilities area has been extensively disturbed by previous mining and related activities. No soil salvage occurred at the historic disturbance activities. In addition, the existing surficial materials over much of the area represent disturbed soils which are intermixed with overburden and coal fines materials. Potential disturbance areas where natural undisturbed soils remain will generally be small, occurring in the southwest corner, in the southeast area at the proposed mine portal area, and a small area in the northeast corner of the proposed mine disturbance area.

For those limited areas where natural soils remain, if the area is sufficiently large to allow recovery with conventional mobile equipment, available soils will be recovered and stockpiled for future reclamation use. Given the combined factors of the limited amounts of soil available from new disturbance areas, and the relatively favorable suitability characteristics of existing disturbed soils, disturbed soils will also be recovered from proposed facilities areas prior to redisturbance.

Soil materials will be recovered and placed in stockpiles for temporary storage in such a manner as to minimize loss, erosion, or further contamination of these materials. To the extent practicable, stockpiles will be located and oriented to minimize exposure to wind and water erosion and avoid active operating areas, and any stockpile which will remain in-place for over 6 months will be seeded to provide a temporary protective vegetative cover.

### 232.400 Area Where Topsoil Will Not Be Recovered

In areas where extensive coal fines and other unsuitable materials exist, no materials will be salvaged. These materials will be removed separately from topsoil and substitute materials, and will be disposed of as discussed in other sections of this permit application.

In areas where slopes exceed 30% no topsoil will be recovered but will be taken together with the cut material and not segregated. Topsoil will not be salvaged from areas where site conditions would preclude soil salvage include rock outcrop areas, areas where large boulders occurred, or where coaly materials preclude soil salvage.

### 232.500 Subsoil Segregation

Given existing limitations on the availability of suitable soil materials, where recoverable undisturbed soils exist, soil recovery operations will focus on removal and salvage of all reasonably recoverable soils. In these areas, available soil material will be recovered to a reasonable depth, or until highly consolidated, coarse fragment content or clayey materials are encountered, if these limiting conditions occur at a shallower depth. In any area where suitable materials exist at depths greater than 3 feet, those materials will be salvaged to a reasonable depth in an effort to provide as much usable material for final reclamation as possible. The soils investigation presented in R645-301-200 found very limited areas where topsoil, or substitute topsoil depths were greater than 3 feet.

Generally, maximum recovery depths will be achieved on relatively flat or gently sloping areas where rock content, presence of coaly materials, or natural obstacles are not limiting factors relative to full recovery. To the extent operationally feasible, zones or areas with any significant coal or coal refuse content will be avoided during soil material recovery operations and any coaly significant deposits or accumulation will be excavated and removed to avoid intermixing with topsoil, or topsoil substitute materials. As indicated previously, it is not practicable or possible to totally separate coal fines materials from topsoil or substitute topsoil where the coal is less that about 6 inches thick. A large portion

of the proposed disturbance area has been previously disturbed causing the coal fines to be extensively mixed with the soils materials. Where the coaly materials are thicker that about 6 inches, It will be treated as "Reclaimed Coal" and will be removed separately from the soils and sold as a fuel source. Map 45, Reclaimed Coal Thickness – with embedded table, depicts the area where coal fines greater than 6 inches thick are anticipated.

Soil material recovery areas and volumes for proposed mining and related surface disturbance are summarized on Figure 1, Soil Map Unit ID Legend with Sampled Soil Profile Locations, found in the Soil Survey Report, Kinney No. 2 Mine, Carbon County, Utah located in Exhibit 6, Soils Information. The soil removal thicknesses and volumes are estimates based on extensive field sampling in the proposed surface disturbance area. Actual recovery depths, and therefore volumes, may vary dependent on site-specific conditions and practical operating limitations. In order to assure that all operationally recoverable soil material is removed and stockpiled for later reclamation use, soil recovery operations will be supervised and monitored by a qualified and experienced reclamation specialist/soil scientist. Actual soil recovery depths and volumes will be documented and any site-specific limitations on soil recovery will be noted and described. Following completion of soil removal operations, a narrative description of soil recovery operations along with appropriate supporting documentation will be prepared and incorporated into the next Annual Reclamation Monitoring Report for submittal to UDOGM and forms C1-C2 will also be provided for update of the MRP. Any variations between actual and projected soil recovery depths and volumes (as outlined on Figure 1 of the soils report referenced above) will be identified and explained.

~~CR~~ CEG3 will remove all available soil material to a maximum depth of 3 feet in areas where good topsoil exists, or until highly consolidated, excessive coarse fragment content, or clayey materials are encountered. Recognizing that the soil volumes calculated are based on limited soil pits and other investigation means, and that volumes could vary, ~~CR~~ CEG3 will make every effort to salvage good soil materials as encountered up to the total volume available in the topsoil stockpile. Soil removal operations will be dependent on the topographic configuration of the recovery area and site specific conditions encountered. In order to assure compliance with this permit commitment, ~~CR~~ CEG3 will commit to supervision of all topsoil salvage operations by an experienced reclamation specialist/soil scientist who will assure that all available soil materials are removed prior to any mining-related disturbance. The results of the soil removal operations will then be reported in the Annual Reclamation Monitoring Report which will contain a written narrative documenting actual soil recovery thicknesses and volumes and comparing actual recovery versus projected recovery (as outlined on Figure 1 of the soils report in Exhibit 6). For any areas where either less or more soil material is recovered than originally projected, the narrative will address the reasons for any soil recovery limitations and associated soil losses or increases in recoverable soil depths.

**232.600 Timing**

The initial step in recovering available soil materials will be removal of any trees, large bushes or large rocks and boulders which could interfere with recovery operations. These materials will be removed prior to soil recovery using the same equipment used for soil recovery operations; typically a tracked dozed or wheel loader, and placed in one or more debris piles on the margins of the disturbance area. Smaller brush and other vegetative materials will not be removed and will be incorporated into the soil materials during soil recovery operations. Incorporation of vegetative material with the soil provides an effective mulch to stabilize the soil material and increases natural re-establishment of indigenous species through roots, seeds, plant fragments and other plant propagules in the soil material.

Soil recovery operations may take place at any time during the period from early spring through late fall when ground conditions are favorable but will occur prior to any other site disturbance activities.

Detailed sequence and timing of topsoil salvage and storage are addressed in Section 232 above.

**R645-301-233 Topsoil Substitutes and Supplements**

Refer to the discussion of topsoil substitutes above.

For those limited areas where natural soils remain, if the area is sufficiently large to allow recovery with conventional mobile equipment, available soils will be recovered and stockpiled for future reclamation use. Given the combined factors of the limited amounts of soil available from new disturbance areas, and the relatively favorable suitability characteristics of existing disturbed soils, disturbed soils will also be recovered from proposed facilities areas prior to redisturbance.

Soil materials will be recovered from any disturbance area where natural soils exist and the area is large enough to permit soil recovery using conventional mobile equipment and from previously disturbed areas where suitable disturbed soils exist. Soil material will not be recovered from very limited disturbance areas such as power pole locations, steep hill slope areas, or areas where soil recovery is limited by the practical considerations of limited depth or high rock content.

**R645-301-234 Topsoil Storage**

**234.100 Stockpile of Topsoil**

Addressed in Section 232 above.

**234.210 Topsoil Placement**

Addressed in Section 232 above.

**234.220 & 234.230 Topsoil Protection**

The topsoil stockpiles will be located in stable, protected areas well away from active operations, natural water-courses, and coal handling activities to avoid disturbance, loss or contamination of the stored soil resources. To the extent operationally practicable, the stockpiles will be located and oriented to minimize exposure to wind and water erosion, utilizing the natural topography or grading to divert drainage away from stockpile area. The stockpile locations have been selected to avoid potential future operations so that once the stockpile is established the soil material will not have to be moved until it is utilized for reclamation. The proposed stockpile locations are shown on Map, 13 Surface Facilities Map. The location of the large stockpile is adjacent to Highway 96 at the southwest corner of the permit area, and is as far away and upwind of the coal handling facilities. Since the location of the large stockpile is adjacent to Highway 96, where winter road salting occurs, a six (6) foot thick base (see Map 16, Mine Surface Facilities Area, Pre-Mining, Mining & Post Mining Cross Sections) of clean excavated material will be placed to provide a buffer for the topsoil material. Salt migration from the Highway will be isolated from the toe of the topsoil by the highway-side ditch, the berm as shown on Map 24, Drainage and Sediment Control Plan, and the six foot clean excavated material base; Volume A, Map 39, Top Soil

3D Sequence. The small stockpiles west of the highway are farther away from the highway than the large stockpile and it is believed that road salt will not be a contaminating factor.

The topsoil stockpiles will be constructed by placing soil materials in successive horizontal layers with stockpile side slopes at 2H: 1V or less. Highly visible plastic strips (thick ribbons) and or geosynthetic fabric will be laid down under the stockpiles prior to placing topsoil on the site to enable easy identification of the topsoil pile – non topsoil pile interface during reclamation. Stockpile construction activities will be designed to minimize compaction of the soil resource to the extent operationally feasible. Where necessary to prevent erosion of stockpiled material by upgradient drainage, temporary berms or diversion ditches will be used to intercept and route drainage around the stockpiles. The large topsoil stockpile lies on the outside fill slope if the Office Pad, and will be isolated from pad by a berm as shown on Map 16, Mine Surface Facilities Area, Pre-Mining, Mining & Post Mining Cross Sections. Drainage from the stockpile area will be controlled by the proposed surface drainage and sediment control system as described in R645-301-700, Hydrologic Resource Protection. In order to stabilize and minimize erosion of the stockpiled material the surface of the soil stockpiles will be left in a roughened condition to minimize erosion and runoff. Any long-term stockpile which will remain in-place for over 6 months will be seeded with a rapid-germinating temporary seed mixture as described in R645-301-300, Habitat Restoration Plan, to provide a protective vegetative cover. Seeding will normally occur as soon as reasonably feasible once active soil stockpiling operations cease for a given stockpile area. In addition, each soil and substitute stockpile will be identified by durable signs placed so as to be readily visible from the closest point of access. Stockpile areas will be inspected on a regular basis and any significant erosion or other problems will be noted and repaired.

### 234.240 Reclamation Plan

This section of the Kinney No. 2 Mine Permit Application provides both general and specific information relative to the plans and practices which will be utilized to reclaim and restore surface disturbance areas resulting from mining and related operations to condition and productivity comparable to or better than their condition prior to the Kinney No. 2 Mine disturbance consistent with a postmining land use of wildlife habitat, and watershed, which is a Carbon County Zoning designation for the permit area east of the Scofield Town boundary, and for the Scofield Town Commercial Zone designation of the western portion of the surface facilities area. Information sources utilized in developing the reclamation plans presented in this section include the baseline environmental investigations, detailed mining plans, conceptual and detailed facility layouts and designs, detailed drainage and sediment control plans, and specific plans for control, monitoring, and mitigation of mining related impacts, and zoning designations criteria for both Carbon County zones and the Scofield Town zone . The reclamation design information and discussions of reclamation practices presented in this section have been prepared in compliance with applicable provisions of the State of Utah Coal Mining Rules and are intended to provide a reasonable description of the nature, timing, and anticipated results of planned reclamation activities. The reclamation plans presented in this section reflect consideration of the environmental resource information presented in Chapters 3, 4, and 7, Environmental Information, and the mining plans presented in Chapter 5, R645-301-500, Engineering Design and Operations Plans, and are designed to effectively mitigate to the extent operationally practicable the potential effects of mining.

### R654-301-241 General Requirements

This section presents and describes soil material replacement plans and practices to be used in reclaiming disturbed areas resulting from mining and related activities. Information in this section was developed in accordance with applicable regulatory requirements for

coal mine permitting in the State of Utah.

The Kinney No. 2 Mine surface facilities area will be the only new surface disturbance area resulting from the planned mining and related activities. During mine construction and development, all available soil and substitute material will be recovered from this area and stockpiled for use in future reclamation. A description of proposed soil recovery and stockpiling plans for this area is presented in R645-301-230 Soil Handling Plans.

Consistent with applicable regulatory requirements, ~~CR~~ CEG3 will utilize all of the available stockpiled reserves of soil material to establish a relatively uniform thickness of soil material on all reclaimed areas. Soil replacement will follow final backfilling, grading, and drainage reestablishment and replacement plans are designed to provide both suitable growth media and favorable surface conditions for vegetative reestablishment on the reclaimed areas. Soil materials will be placed and handled to protect the soil/substitute resource and minimize loss or degradation to the extent operationally feasible. Following placement soil materials will be sampled and tested according to UDOGM regulations and guidelines to verify suitability for reclamation, any appropriate mitigation measures based on the testing will be implemented, and appropriate surface treatments will be utilized to stabilize and protect the replaced soil materials.

**R645-301-242 Soil Redistribution**

Generally, soil replacement practices will be essentially the same for all surface disturbance areas and will not vary between soil replacement and soil substitute replacement. Typical soil replacement activities will involve:

- Preparation of the regraded surface
- Establishment of drainages
- Soil recovery from stockpile, placement, and grading
- Soil sampling, testing, and evaluation
- Mitigation of any suitability concerns and application of soil amendments, if required
- Soil stabilization measures
- Reseeding

The following sections describe these specific soil and substitute replacement, testing, and stabilization practices.

Generally, soil replacement and revegetation efforts will be coordinated so that soil materials are revegetated as soon as practically possible following placement. Normally this will involve placement of soil and immediate reseeding.

Following completion of final backfilling, grading, and drainage reestablishment for surface disturbance areas, soil materials will be recovered from the previously established stockpiles and will be hauled, placed, and spread on the regraded areas. Two different methods of soil placement will be utilized based on the slope of the surface. Where slopes are steeper than 30% as shown on Map 33, Slope Analysis Map, soil materials will be placed with track hoes, dozers, and similar equipment due to safety requirements. Areas where the slope is less than 30% as shown on Map 33, Slope Analysis Map, soil materials will be placed with scrapers, dozers and similar equipment where safety requirements dictate. As noted in R645-301-500, Reclamation Practices, the regraded surface will be left in a roughened condition to control runoff, provide a good bond with the replaced soil/substitute material, and promote moisture infiltration. Prior to soil replacement, regraded surfaces will be deep ripped in the less than 30% slope areas to alleviate

compaction and enhance soil bonding. In the areas where the slope is greater than 30% as shown on Map 33, Slope Analysis Map, the regarded surface will be roughened and loosened to provide a good bond with the replaced soil/substitute material and promote moisture infiltration.

Typically either tractor-scrapers, trackhoes, or wheel loaders will be utilized to recover and load the materials from stockpile and either scrapers or trucks will be utilized to haul and place the material. Where tractor scrapers are utilized for recovery, haulage, and placement, the soil material will be spread in thin horizontal lifts as it is placed. If trucks are used for haulage, a tracked dozer, track hoes, or motor graders will be used to spread and distribute the soil material at a relatively uniform thickness. Replacement thickness will generally be controlled visually by the equipment operators but will also be checked and monitored for general consistency by the ~~CR~~ CEG3 operations supervisor responsible for reclamation activities. Based on the available existing soil stockpile volumes and the soil recovery plans as outlined in R645-301-200, Soil Handling Plans, the following summarizes approximate soil replacement thicknesses for the general disturbance areas:

As described in section 232.100 the salvage volume will result in a covering of 14.8 inches of topsoil as shown below.

Total Salvaged Topsoil (A-Horizon + B-Horizon + Previously Disturbed) =

$$\frac{\dfrac{54{,}966 \text{ CY} \times 27 \text{ CF/CY}}{27.6 \text{ ACRES}}}{43{,}560 \text{ SF/ACRE}} = 1.23 \text{ FT or } 14.8 \text{ INCHES}$$

As shown in Table 23, and discussed below, the 20,271 cubic yards of A-Horizon Topsoil is sufficient to cover the entire 27.6 acres of planned disturbed area with a 5.5 inches thick covering as shown in the following calculation.

$$\text{A-Horizon} = \frac{\dfrac{20{,}271 \text{ CY} \times 27 \text{ CF/CY}}{27.6 \text{ ACRES}}}{43{,}560 \text{ SF/ACRE}} = 0.45 \text{ FT or } 5.5 \text{ INCHES}$$

Soil placement thickness will vary somewhat dependent on terrain and practical operating constraints, however, every effort will be made to establish a uniform, stable soil layer on all regraded areas. To the extent operationally feasible, efforts will be made during placement to limit equipment traffic in order to minimize compaction. On gently sloping areas soil will be replaced parallel to the natural land contour to establish linear contour line features which help to minimize erosion potential.

**R645-301-243 Soil Nutrients and Amendments**

To replace soil biota and promote moisture holding capacity finely chopped native hay at a rate of 3 tons per acre from the current year's crop will be applied to the topsoil after

placement to help increase organic content. Topsoil stockpiled for an extended period of time can lose biota and organic content breaks down. This effort has been shown to significantly increase reclamation success.

As described in R645-301-231, Soil Suitability and Testing, both natural soils and the disturbed soils which will be utilized as soil material are generally considered to be suitable materials for use as a revegetation growth medium for the purposes of site reclamation. The primary limitations are the available water holding capacity of soils containing greater than 50% rock content, soil materials with sandy textures, and an accurate determination of the quantity of coal found within the mixture of alternative reclamation materials located in Disturbed Lands Map Units DA and DB. While noted as a concern relative to the UDOGM Topsoil/Overburden Suitability Parameters, these limitations do not seem to be a deterrent to the existing natural vegetation which exists on these soils in the mine area.

In order to optimize overall reclamation success with the materials available, ~~CR~~ CEG3 will, immediately following soil replacement, collect soil samples from the resoiled areas, complete suitability analysis of the samples, and evaluate the analysis results to assess the need for any corrective measures or soil amendments. Soil samples will be collected at a sampling density of 1 sample for every four acres with sampling grids established to fit the configuration of the reclaimed area. A soil auger or shovel will be used to obtain samples to a depth of approximately 6 to 12 inches, dependent on soil replacement depth. Samples will be analyzed for the suitability parameters included in current UDOGM regulations and guidelines.

If soil analyses result in an indication of potential suitability concerns for any given area, confirmation sampling will be completed at an increased sampling density of one sample for every two to three acres. If confirmation sampling verifies a potential suitability concern, ~~CR~~ CEG3 will in consultation with UDOGM develop and implement specific remediation plans for the area of concern. Remediation may include the application of soil modifiers or amendments, capping of potentially unsuitable materials with other suitable material, removal and burial of the suspect materials and replacement with known suitable materials, or combinations of these or other measures as appropriate.

In addition to the soil suitability evaluation, ~~CR~~ CEG3 will utilize the fertility parameters data to determine the need for any soil amendments to promote effective revegetation. One of the problems with long-term storage of soil materials in stockpile is that soil organic material and beneficial mycorrhizal fungi are lost. In order to address this problem, ~~CR~~ CEG3 proposes to deep rip (up to 3 feet) along the contour the regraded surface in areas where the slope is 30% or less as shown on Map 33, Slope Analysis Map prior to soil replacement and follow ripping with application of finely chopped native hay at a rate of 3 tons per acre from the current years hay crop. In areas where the slope is greater than 30% as shown on Map 33, Slope Analysis Map the surface will be roughened by track hoe thus allowing the application of finely chopped native hay to infiltrate the topsoil or substitute material. Based on mine reclamation experience in the area, this technique has proven very effective in increasing organic content, providing soil biota, and enhancing moisture infiltration and retention with noticeable benefits relative to vegetative reestablishment and overall reclamation success. Based on the results of soil fertility analysis, ~~CR~~ CEG3 will also develop site specific recommendations addressing the type and application rates for any indicated soil amendments. These recommendations will be reviewed with UDOGM prior to implementation of any soil amendment programs.

## R645-301-244 Soil Stabilization

### 244.100 Exposed Surface

Areas reclaimed that are too steep to disc (greater than 30%) as shown on Map 33, Slope Analysis Map will be seeded either by hand followed by spaying the seeded areas with an organic mulch with a tackifier approved the Division to stabilize the area, or by spraying on the seed mixture and then an organic mulch with a tackifier approved by the Division to stabilize the area. Seeding and soil stabilization will take place immediately after the topsoil has been placed to prevent erosion.

### 244.200 Soil Stabilization

Soil materials will be left in a roughened condition to control runoff, limit erosion and soil loss, and promote moisture infiltration. ~~CR~~ CEG3 will also selectively apply alternative sediment control measures as described in R645-301-730, Hydrologic Resource Protection Plan. Revegetation seeding will occur immediately following soil material placement so additional stabilization measures will not be required prior to seeding. In conjunction with seeding operations, the soil material will be deep ripped, plowed or disked to prepare the seedbed in areas where the slopes are 3.33:1 (30%) or flatter as shown on Map 33 Slope Analysis Map. Where the slopes are steeper than 3.33:1 (30%), gouging, or plowing along the contour will done to prepare the seedbed as dictated by safety standards.

The reclaimed ground surface will be very similar in topography to the pre-mining surface as shown on Map 29, Mine Surface Facilities Area – Postmining Topography and Interim Drainage Control Map. Reclaimed ground gradients can be seen on Map 33, Slope Analysis Map. Deep gouging is the preferred method, with plowing along the contour as an alternative where slope angle allows. In all cases, UGOGM will be consulted prior to seedbed preparation to insure that the reclamation plan is being followed. Following seeding, the reseeded areas with less than 30% slopes as shown on Map 33, Slope Analysis Map will be mulched with straw or native hay at a rate of two tons per acre and the mulch will be crimped into the soil to minimize wind loss. Another method of soil stabilization that may be used in areas with slopes greater than 30% as shown on Map 33, Slope Analysis Map is spray on organic mulch at a rate of 2 tons per acre with a tackifier to stabilize the mulch and seeds. Again, UDOGM will be consulted prior to seeding and soil stabilization to insure the reclamation techniques used are the best for the particular slope, soil type and surface aspect, and that the application rates are appropriate for the slope and time of season when reclamation is done.

### 244.300 Rills and Gullies

Rills and gullies in excess of 6 inches deep will be regraded and stabilized as soon as practicable on the topsoil stockpile, and in regraded and reclaimed areas if they are deemed to be problematic, and in consultation with UDOGM. Reseeding of these re-treated areas will follow the approved plan including seeding, replanting, mulching, and soil stabilization methods discussed previously.

# Chapter 3

# R645-301-300 Biology

# Kinney No 2 Mine

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## 301.312 POTENTIAL MINING RELATED IMPACTS TO BIOLOGICAL RESOURCES

Most of the land proposed for new disturbance to construct and operate the Kinney No. 2 Mine has already been disturbed by historical mining and other activities. To the extent reasonably feasible, Coal Energy Group 3 (CRCEG3) plans to prevent or minimize potential mining related impacts on biological resources by minimizing new surface disturbance to native, undisturbed plant communities and wildlife habitat. Implementation of the following specific control and mitigation measures for those limited areas which represent re-disturbance or new disturbance will effectively minimize potential impacts for these areas. For more information refer to the OPERATION PLAN below (R645-301.330).

### R645-301-321 Vegetation Information

#### Habitat Values and Vegetation Communities

Comparison of the mining related surface disturbance with previous surface disturbance due to historic mining and related activities and more recent disturbances associated with construction of transportation and electric transmission facilities indicates that there is little potential for any significant vegetation impacts. This conclusion is based on the fact that most potentially significant terrestrial biological impacts have already occurred given the extent and nature of previous development in the surface disturbance areas. In addition, while Utah AML reclamation has been successful in re-establishing vegetative cover and some habitat values, the limited age of reclaimed vegetation and proximity to human activity continue to limit wildlife use. Most of the anticipated surface disturbance for mining and related activities will involve previously disturbed areas. Mining related disturbance of previously undisturbed areas will be negligible. The potential for aquatic impacts is very limited since there are no water sources in the immediate area of the proposed mining surface facilities area. The following provides additional details relative to potential mining related impacts on individual biological resource values.

#### Potential Effects on Terrestrial Vegetation, (Includes Sensitive Species and Associated Habitat Values)

Potential impacts on terrestrial vegetation habitat values resulting from the mining and related operations may include:

- Re-disturbance of approximately 20.7 acres of disturbed vegetation and habitat occurring on previously disturbed areas
- Temporary loss of approximately 6.9 acres of previously undisturbed vegetation and habitat
- Localized reduction or elimination of certain vegetation types

With regard to sensitive species of vegetation or terrestrial wildlife, no known threatened, endangered, or sensitive vegetation or wildlife species exist within, occupy, or utilize surface disturbance areas for their basic life requisites. The potential, therefore, for any significant adverse mining related impacts would be limited to the unlikely situation of an accident involving a transitory animal.

The potential for significant adverse impacts due to re-disturbance of previously disturbed areas is low due to existing vegetation and habitat conditions in the proposed disturbance areas. The Utah AML reclamation efforts have resulted in effective reestablishment of vegetation on portions of the previously disturbed areas. While these areas currently provide some cover and forage values, the area is close to Highway 96, and Scofield Town, with their noise, highway traffic, and human presence. These proximity factors and resulting level of human activity in the area are also important factors which tend to preclude significant long-term use by large mammals, raptors, and many other terrestrial wildlife species with current use being limited to opportunistic or seasonal migratory use. The temporary mining related impacts will be effectively mitigated by the comprehensive reclamation program including all surface disturbance areas which will be implemented when the mine facilities are no longer needed to support ongoing operations.

The potential impact of losses of existing vegetation and habitat in previously undisturbed areas will be minimized by the limited areal extent (approximately 6.9 acres) of any new disturbance. Areas of potential new disturbance are immediately adjacent to previously disturbed areas, and as such exhibit some inherent limitations relative to their value as wildlife habitat. Field surveys of potential new disturbance areas did not result in identification of any unique habitat characteristics. Minor vegetation and habitat impacts for any new disturbance areas will be a temporary result of the mining and related operations, however, proposed site reclamation measures will result in effective mitigation of any temporary impacts and in most cases offer the potential for overall enhancement of vegetation and habitat conditions.

### 321.100 Plant Communities

Refer to Exhibit 7, Vegetation Information

### 321.200 Productivity of Land

Productivity at the Kinney No. 2 Mine is an estimate of the annual biomass production of the plant communities at the site as follows:

**Table 25**
**Annual Biomass Production of the Plant Communities At the Kinney No. 2 Mine Site**

| COMMUNITY TYPE | ANNUAL PRODUCTION (LBS/ACRE) |
|---|---|
| Sagebrush/Grass (Proposed Disturbance) | 1200 |
| Sagebrush/Grass (Reference Area) | 1200 |
| Rabbitbrush/Grass | 500 |
| Aspen | 1100 |

## R645-301-322 FISH & WILDLIFE INFORMATION

This chapter generally describes existing habitat conditions and potential fish and wildlife resources within the Kinney No. 2 permit and adjacent areas that could be affected or impacted by the mining and reclamation activities. Information presented in this chapter was developed in accordance with applicable regulatory requirements for coal mine permitting in the State of Utah.

**R645-301-322.100 Sources of Information**

Fish and wildlife resources and habitat values in the permit area and adjacent areas have been characterized in this using information from previous and ongoing baseline characterization and monitoring activities, principally by the State of Utah, Division of Wildlife Resources (UDWR). Existing available information was utilized to the extent possible. UDWR's Utah Conservation Data Center (UCDC) is the central repository for Utah's biodiversity information and has been used extensively to prepare this permit application. In addition, Utah's Sensitive Species List, as well as federally listed threatened (T), endangered (E), and candidate (C) species lists from the U.S. Fish & Wildlife Service (USFWS) have also been consulted. The information resources utilized are summarized below:

- County Lists of Utah's Federally Listed Threatened (T), Endangered (E), and Candidate (C) Plant Species (last updated November 1, 2017) – Reviewed on April 8, 2019.

- Dalton, L.B., J.S. Price, and L.A. Romin. 1990. Fauna of Southeastern Utah and Life Requisites Regarding Their Ecosystems. Publication No. 90-11. Utah Dept. of Nat. Res. Div. of Wildlife Resources. 326 pp.

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- Bosakowski, T. and R. Speiser. 1994. Macrohabitat selection by nesting northern goshawks: implications for managing eastern forests. Studies in Avian Biology (16): 46-49.

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- Ellsworth, E. and T. D. Reynolds. 2006. Snowshoe hare (*Lepus americanus*): A technical conservation assessment. USDA Forest Service, Rocky Mountain Region.

- Foresman, K. R. 2001. The wild mammals of Montana. American Society of Mammalogists, Special Publication No. 12. 278 pp. Parks Home Page.

- Hendricks, P., D. L. Genter, and S. Martinez. 2000. Bats of Azure Cave and the Little Rocky Mountains, Montana. Canadian Field-Naturalist 114 :89-97.

- Hendricks, P., and D. Kampwerth. 2001. Roost environments for bats using abandoned mines in southwestern Montana: a preliminary assessment. Report to the U.S. Bureau of Land Management. Montana Natural Heritage Program,

- Helena, Montana. 19 pp.

- Hendricks, P. 2000. Preliminary bat inventory of caves and abandoned mines on BLM lands, Judith Mountains, Montana. Montana Natural Heritage Program, Helena, Montana. 21 pp.

- Musclow, H.J. and L.B. Dalton. 1990. Wildlife Mitigation Technologies for Man-Made Impacts. Publication No. 90-3. Utah Dept. of Nat. Res. Div. of Wildlife Resources. 141 pp.

- Multiple historic site-specific investigations, principally by the UDWR. The latest available GIS data and information available from the UDWR has been included in this application.

- Occasional site-specific investigations, observations, and/or notes which have occurred intermittently over the previous two decades.

- Pekins, P.J., F. G. Lindzey, and J.A. Gessaman. 1991. Physical characteristics of blue grouse winter use-trees and roost sites. Great Basin Naturalist 51(3), 1991, pp. 244-248.

- Pelton, M.R. Alex B. Coley, Thomas H. Eason, Diana L. Doan Martinez, Joel A. Pederson, Frank T. van Manen, and Keith M. Weaver. American Black Bear Conservation Action Plan. IUCN Conservation Plans. URL: www.iucn.org/themes/ssc/actionplans/bears/bearsAPchapter8.pdf

- Personal Communications with UDWR Biologists, Wood, C. (Regional Habitat Manager), Beagley, K. (Regional Oil & Gas Biologist), Mead, L. (Regional Biologist) from June, 2007 - Sept., 2007.

- Speiser, R. and T. Bosakowski. 1987. Nest site selection by northern goshawks in northern New Jersey and southeastern New York. Condor 89:387-394

- Squires, J.R and R.T. Reynolds. 1997. Northern Goshawk, No. 298 in Birds of North America series. c/o Academy of Natural Sciences, 1900 Benjamin Franklin Parkway, Philidelphia, Pa. 31 pp.

- UDWR. 2000. Utah black bear management plan. Utah Division of Wildlife Resources. Salt Lake City, UT.

- UDWR. 2009. Utah moose statewide management plan. Utah Division of Wildlife Resources. Salt Lake City, UT.

- UDWR. 2010. Utah elk statewide management plan. Utah Division of Wildlife Resources. Salt Lake City, UT.

- UDWR Website: http://dwrcdc.nr.utah.gov/ucdc/
  Including: Utah Conservation Data Center. Utah's Federally (USF&WS) Listed Threatened (T), Endangered (E), and Candidate (C) Plant Species – Accessed April 8, 2019.

- ~~UDWR Website: http://dwrcdc.nr.utah.gov/ucdc/~~
  ~~Including: Utah's Federally (USF&WS) Listed Threatened (T), Endangered (E), and Candidate (C) Plant Species – November 6, 2018.~~

- UDWR. 1999. Mule Deer. Wildlife Notebook Series No. 13. Utah Division of Wildlife Resources. Salt Lake City, UT.

- UDWR. 2009. Utah Greater Sage-Grouse Management Plan. Utah Division of Wildlife

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- UNHP, Lindsey, Sarah. November 15, 2018. Personal communications letter. State of Utah, Natural Heritage Program, Salt Lake City, UT

- UNHP, State of Utah, Natural Heritage Program GIS Database, Salt Lake City, UT. Accessed April 8, 2019.

- Utah Sensitive Species List, November 1, 2017.

- Utah's State Listed Species by County, November 6, 2018.

- USDI-BLM. 1983. Uintah - Southwestern Utah Coal Region. Round Two, Draft EIS.

- U.S. Fish & Wildlife Service, Information for Planning and Consultation (IPaC). https://ecos.fws.gov/ipac/ Database accessed: April 8, 2019.

- Vertebtate Animals, Southeastern Utah's Fish, Southeastern Utah's Reptiles, Southeastern Utah's Amphibians, & Southeastern Utah's Birds. Invertebrate Animals, Mollusks, & Insects.

- Worthington, D. J. 1991. Abundance, distribution, and sexual segregation of bats in the Pryor Mountains of south-central Montana. M.A. Thesis, University of Montana, Missoula, Montana. 41 pp.

- www.fws.gov/r5gomp/gom/habitatstudy/metadata/northern_goshawk_model.htm

**R645-301-322.200 Site Description of the Proposed Permit & Adjacent Areas**

The Kinney No. 2 Mine and permit area are located in Pleasant Valley in central Utah, immediately northeast of the town of Scofield. Primary surface facilities will be located on the west-facing slope of Pleasant Valley within sight of the town, and adjacent to Utah Highway 96. Pleasant Valley contains Mud Creek to the west and approximately one-quarter mile from the closest point of the permit area boundary; it also contains Scofield Reservoir to the northwest, or approximately one-half mile at its closest point (at high water mark). Mud Creek is a tributary to Scofield Reservoir, which in turn flows to the Price River, ultimately reaching the Colorado River.

More than eighty percent of the surface disturbances related to mine development will be in areas which have already been disturbed by previous mining related activities, some of which were reclaimed by the State of Utah, Utah Division of Oil, Gas & Mining's (UDOGMs), Abandoned Mine Reclamation (AMR) program in the 1980's. This percentage may be higher since mining has

been conducted in the area since the early 1900's. Historically, there were four mines in the area of the proposed surface facilities of the Kinney No. 2 Mine (Kinney Mine, Columbine Mine, Jones Mine, and the UP Mine). These four mines disturbed approximately 74% of the area estimated to be disturbed by the proposed Kinney No. 2 Mine.

The west-facing slopes of Pleasant Valley contain small, very shallow intermittent drainage channels and moderate pediments that slope gradually toward the bottom of the valley from the ridges to the east of the valley. Elevations in the proposed permit area range between 7,750 feet near the lower end of the facilities area up to about 8,800 feet at the ridge top at the south-central portion of the permit area. The proposed permit area encompasses a portion of the west-facing slope of Pleasant Valley and drains into Mud Creek.

Soils are generally shallow and skeletal in the steeper portions of the proposed permit area. Sandstone is the predominant parent material. As mentioned above, soils in approximately 74% of the surface facilities area have been disturbed by previous mining activities prior to the *Surface Mining Control and Reclamation Act* of 1977 (SMCRA), and no topsoil salvage for reclamation was conducted. There are very limited areas of deeper and more well-developed soils.

The vegetation of the region consists of predominantly sagebrush and rabbitbrush communities with small stands of quaking aspen. In descending order, these communities are encompassed by the montane (6,500 – 12,721 feet elevation), and submontane (5,500 – 8,500 feet elevation) zones.

Other than coal exploration and mining, the predominant land uses of the area include wildlife habitat, livestock rangeland and watershed. A wide variety of wildlife species may potentially utilize habitats within and adjacent to the mine plan area. Species of public interest or species which can also be economically important include moose, mule deer, elk, black bear, blue grouse, sage-grouse, snowshoe hare and several raptor species.

As a reflection of the arid climate and rugged topography of the region, runoff in the surface facilities area are characterized by narrow, high-gradient channels with very little evidence of erosion from the runoff events. Because these drainages receive runoff flows from limited surface areas, ephemeral flows fluctuate significantly, especially in response to spring thaw and major summer thunderstorms. Only one major drainage exists on the proposed permit area; it is located at the extreme east side of the permit block. This drainage, called Eagles Canyon, is a tributary to Scofield Reservoir, and is shown by USGS maps to be generally ephemeral in nature, with no significant flows with the exception of snowmelt runoff and where small springs and seeps surface near the bottom of the canyon. These seeps and springs generally flow in the springtime and early summer in response to snowmelt followed by a significant drop in flows as dry weather begins to predominate. The flows in the bottom of Eagles Canyon, a consequence of seeps and springs, disappear into the canyon alluvium after flowing a short distance.

### R645-301-322.210 Threatened, Endangered and Sensitive Species

The Endangered Species Act of 1973 (ESA) requires federal agencies to "*insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical habitat of such species*." 4 of the ESA (Determination of Endangered Species or Threatened Species) grants the Secretary of the Interior power to determine whether any species is considered threatened or endangered. While 7 of the Act (Interagency Cooperation) specifies that all other federal departments and agencies shall take such action necessary to insure that actions authorized, funded, or carried out by them (federal departments and agencies) do not jeopardize

the continued existence of any listed species (pursuant to 4) or result in the destruction or modification of critical habitat of such species. It should be noted that all of the permit area is on private property and the coal reserves are either private or are controlled by Carbon County and therefore the only federal action in the Kinney No. 2 Mine operation is concurrence by the Office of Surface Mining and Reclamation, with primacy held by UDOGM.

The consultation process is designed to assist federal agencies when complying with the ESA, and authority of consultation has been delegated by the Secretary of the Interior to the Director of the USFWS. The consultation process involves several phases. First, a general description of the proposed action and a formal request for a listing of proposed and listed endangered and threatened species potentially affected by the proposed action is submitted to the USFWS by the affected agency (or entity). The USFWS responds with a list of proposed, candidate, and listed species within the proposed permit area. When the project is a construction project, the agency (or entity) then prepares a Biological Assessment (BA) which identifies the project, details the biology of the species on the list submitted by the USFWS, analyzes the cumulative effects of the project, and determines if there is likely to be an effect (either beneficial or adverse) on any listed or proposed species.

If a "may affect" determination is made, the responsible federal agency must request formal consultation with the USFWS.

Formal consultation involves USFWS consideration of the proposed project and how it may affect the biology of any listed threatened or endangered species, including the magnitude of such effects and potential cumulative effects. Based on this information, a Biological Opinion is issued by the USFWS which states one of three possible conclusions: the proposed action (1) may promote the continued existence of the species, (2) is not likely to jeopardize the continued existence of the species, or (3) is likely to jeopardize the continued existence of the species. Reasonable and prudent alternatives must be addressed by the USFWS as part of the Biological Opinion when a determination is made that the proposed project is likely to jeopardize the continued existence of the species.

The following table shows the most recent federally listed plant and animal species) for Carbon County, Utah (last updated by the agency November 1, 2017).

**Table 1: Federally listed threatened, endangered & candidate species in Carbon County, Utah and notes regarding potential impacts to them as a result of the proposed Kinney No. 2 Mine.**

NOTE**: This list was compiled using known species occurrences and species observations from the Utah Natural Heritage Program's Biodiversity Tracking and Conservation System (BIOTICS). This list includes both current and historic records. (Last updated on November 1, 2017).**

| Common Name | Scientific Name | Status* | Site-Specific Notes |
|---|---|---|---|
| Humpback chub | *Gila cypha* | LE | Humpback chub in Utah are now confined to a few white-water areas in the Colorado, Green, and White Rivers.<br>These rivers do not occur in the study area. The drainage control measures of the site limit impacts to the downstream drainage of the Colorado River system.<br>There should be no impacts to this species as a result of construction and operation the proposed new mine. |
| Bonytail | *Gila elegans* | LE | The bonytail is a very rare minnow originally native to the Colorado River system.<br>These rivers do not occur in the study areas. The drainage control measures of the site limit impacts to the downstream drainage of the Colorado River system.<br>There should be no impacts to this species as a result of construction and operation of the proposed new mine. |
| Black-footed ferret - (Unconfirmed) | *Mustela nigripes* | LE Ext | Black-footed ferret habitat is primarily prairie grasslands. The ferret has a diet consisting of almost 90% prairie dogs. This habitat and food source does not occur in the study areas.<br>There will be no impacts to this species as a result of construction and operation the proposed new mine. |

**Table 1: Federally listed threatened, endangered & candidate species in Carbon County, Utah and notes regarding potential impacts to them as a result of the proposed Kinney No. 2 Mine.**

NOTE**: This list was compiled using known species occurrences and species observations from the Utah Natural Heritage Program's Biodiversity Tracking and Conservation System (BIOTICS). This list includes both current and historic records. (Last updated on November 1, 2017).**

| | | | |
|---|---|---|---|
| Clay phacelia | *Phacelia argillacea* | LE | This plant is found in pinyon-juniper plant and mountain brush plant communities on steep slopes in the Green River Shale Formation. These communities and geologic formation are not found within the project area.<br><br>There should be no impacts to this species as a result of construction and operation the proposed new mine. |
| Colorado pikeminnow | *Ptychocheilus lucius* | LE | The Colorado pikeminnow is a fish that prefers medium to large rivers. With the loss of habitat they are now restricted to the upper Colorado River system.<br><br>These rivers do not occur in the study area. The drainage control measures of the site limit impacts to the downstream drainage of the Colorado River system.<br><br>There should be no impacts to this species as a result of construction and operation the proposed new mine. |

**Table 1: Federally listed threatened, endangered & candidate species in Carbon County, Utah and notes regarding potential impacts to them as a result of the proposed Kinney No. 2 Mine.**

NOTE**: This list was compiled using known species occurrences and species observations from the Utah Natural Heritage Program's Biodiversity Tracking and Conservation System (BIOTICS). This list includes both current and historic records. (Last updated on November 1, 2017).**

| | | | |
|---|---|---|---|
| Uinta Basin hookless cactus | *Sclerocactus wetlandicus* | LT | *Sclerocactus wetlandicus* generally occurs on cobblely, gravelly, or rocky surfaces on river terrace deposits along the White and Green Rivers of Utah.<br><br>*S. wetlandicus* occurs on varying exposures, but is more abundant on south facing exposures, and on slopes to about 30 percent grade; it is most abundant at the point where terrace deposits break from level tops to steeper side slopes.<br><br>Plant communities and species associated with this species are bud sage, shadscale, black sagebrush and horsebrush.<br><br>These plant communities nor habitats associated with them occur in the study areas, therefore, there should be no impacts to this species as a result of construction and operation the proposed new mine. |

**Table 1: Federally listed threatened, endangered & candidate species in Carbon County, Utah and notes regarding potential impacts to them as a result of the proposed Kinney No. 2 Mine.**

NOTE**: This list was compiled using known species occurrences and species observations from the Utah Natural Heritage Program's Biodiversity Tracking and Conservation System (BIOTICS). This list includes both current and historic records. (Last updated on November 1, 2017).**

| | | | |
|---|---|---|---|
| Razorback sucker | *Xyrauchen texanus* | LE | This species prefers slow backwater habitats and impoundments in the Colorado River system. UDWR distribution maps of this species for Carbon County shows to occur near the Green River in extreme eastern portion of the county.<br><br>These rivers do not occur in the study areas. The drainage control measures of the site limit impacts to the downstream drainage of the Colorado River system.<br><br>There should be no impacts to this species as a result of construction and operation the proposed new mine. |
| | | | |
| | | | |

* Status

LE = A taxon that is listed by the U.S. Fish and Wildlife Service as "endangered" with the probability of worldwide extinction.

LT = A taxon that is listed by the U.S. Fish and Wildlife Service as "threatened" with the threat of becoming endangered.

Ext = Extirpated

Utah Administrative Rule R657-48, Implementation of the Wildlife Species of Concern and Habitat Designation Advisory Committee, specifies designation of certain species categories including, Conservation Species, State Sensitive Species, Wildlife Species of Concern, and creation of the Utah Sensitive Species List. These categories and the Utah Sensitive Species List will be addressed in the following sections.

**Additional TES Information:**

The U.S. Fish & Wildlife Service's Information for Planning and Consultation (IPaC) database suggested potential habitat for Mexican Spotted Owl (*Strix occidentalis lucida*), a threatened species, in the general project area. IPaC stated that of the final habitat mapped for this species, the project area is "outside the critical habitat".

In Utah, the Mexican Spotted Owl occupies a variety of habitats primarily in steep-walled, rocky canyons in the southern portion of the state. They also have been known to occur in forests, mostly mixed conifers. Habitat for this bird has not been mapped for the project area in the Utah Division of Wildlife Resources' Conservation Data Center (UDWR, April 2019) or on the UNHP GIS database (April 2019) distribution maps.

The project area is comprised primarily of Sagebrush/Grass and Aspen plant communities. Plant communities adjacent to the permit area also include these same communities to the north, east and south with pasturelands and riparian zones located to the west (Map 1B). The communities proposed for disturbance by mining activities include Sagebrush/Grass and previously disturbed Rabbitbrush plant communities. There are, however, some conifer communities located south of the project area -- these stands are more than one mile away from any proposed disturbance areas.

With the known distribution of the Mexican Spotted Owl and the plant communities and habitats within and adjacent to the project area, it is unlikely that this species is present or could be impacted by the proposed mining operations.

**Conservation Agreement Species**

The following are ~~is~~ the only species listed by the State of Utah as a "Conservation Agreement Species" that has the potential to be present within or adjacent to the Kinney No. 2 Mine permit area.

- Northern goshawk (*Accipiter gentilis)*
- *Bnneville cutthroat trout (Oncorhynchus clarkia Utah)*

**Species of Concern**

The following species have been listed by the State of Utah as "Species of Concern" and have the potential to be present in the general area. These species along with the relevance to their presence in the Kinney No. 2 Mine permit and adjacent areas are discussed later in this chapter.

- Western toad (*Bufo boreas)*
- Smooth greensnake (*Opheodrys vernalis)*
- *Bald eagle (Halianetus leucocephalus)*
- Burrowing owl (*Athene cunicularia)*
- Ferruginous hawk (*Buteo regalis)*
- Black swift (*Cypseloides niger)*
- Long-billed curlew (*Numenius americanus)*
- American white pelican (*Pelecanus erythrorhynchos)*
- Three-toed woodpecker *(Picoides tridactylus)*
- Townsend's big-eared bat (*Corynorhinus townsendii)*
- Spotted bat (*Euderma maculatum)*
- Fringed myotis_(*Myotis thysanodes)*
- White-tailed prairie-dog_(*Cynomys leucurus)*
- Kit fox (*Vulpes macrotis)*

* In a letter from the Utah Natural Heritage Program (Lindsey 2018), it was noted that there was an history record of an occurrence of a bald eagle within a ½-mile radius of the project area. Additionally, within a 2-mile radius there are records of occurrence for Bonneville cutthroat trout, a Utah Conservation Agreement species (see above).

**Raptors**

Raptor information was provided on a map in 2010 by the previous mine operator, Carbon Resources, LLC (Map 2, Raptor Map). This map was placed in the confidential files at the State of Utah, Division of Oil, Gas & Mining (DOGM) and provided specific nest locations from a survey that was conducted in 2006. The map indicates that the information was obtained from the Utah Division of Wildlife Resources Conservation Database Center.

In April 2019, several sources were used to review current raptor information within and adjacent to the Kinney No. 2 Mine project area including: 1) UDWR Conservation Database Center (as mentioned above and was also used for the 2010 Raptor Map), 2) State of Utah, Natural Heritage Program (UNHP) GIS database, 3) U.S. Fish & Wildlife Information for Planning and Consultation (IPaC) database, and a response from a request for site-specific data from the Information Manager at the UNHP. Other than a note about potential Mexican Spotted Owl habitat in the IPaC, as described above in "Additional TES Information", and in a letter from the UNHP about an historical record of an occurrence of a bald eagle within a ½-mile radius of the project site, no other information about raptors in the area was found. In other words, the information shown on the Raptor Map (dated September 2010) was not found in the references mentioned above in April 2019.

Consultation was then made by CEC3 and Mt. Nebo Scientific with a DOGM biologist (Todd Miller). Mr. Miller then conferred with biologists from UDWR regarding information about raptors and other sensitive species in the project area. Because their files and databases no longer showed the information provided on the aforementioned raptor map, it was recommended that a follow-up ground survey be conducted to update the raptor and nest information for the project area. Accordingly, with the recommendation made by state biologists, a ground survey will be conducted at appropriate time periods in 2019 and prior to any surface disturbance to the mine site. The survey will include visits to the nests shown on the raptor map to ascertain whether or not

they still exist and if so, to note the current condition and activity status of the nests. Furthermore, the survey will include a search for additional raptor activity and nests in the area. Following the survey, the raptor map and other information in the MRP will be updated

**R645-301-322.220 High-Value Habitats**

In 2006, DWR updated their habitat value definitions as described below.

*Crucial Value* was defined as "habitat on which the local population of wildlife species depends for survival because there are no alternative ranges of habitats available. Crucial Value habitat is essential for the life history requirements of a wildlife species".

*Substantial Value* was defined as "habitat that is used by a wildlife species but is not crucial for population survival. Degradation or unavailability of substantial value habitat will not lead to significant declines in carrying capacity and/or numbers of the wildlife species in question".

The following species have been described by UDWR geographic information system (GIS) database as having high value habitats. Information and maps about these species have been presented in the following section.

- Black Bear
- Blue Grouse
- Moose
- Mule Deer
- Rocky Mountain Elk
- Sage-Grouse
- Snowshoe Hare

The UDWR GIS database was consulted by project biologists in June 2007, again in August 2010, ~~and most recently~~ in November 2018, and most recently in April 2018~~.~~ The following critical or otherwise important habitats from the database were mapped for the Kinney No. 2 Mine project area.

**Black Bear**

First, substantial year-long habitat for black bear (*Ursus americanus*) has been mapped within and adjacent to the permit area. Additionally, critical year-long habitat has been designated within the project area by the UDWR database (Map 2A).

**Blue Grouse**

Next, year-long crucial habitat for blue grouse (*Dendragapus obscures*) has also been previously mapped within and adjacent to the project area (Map 2B). (NOTE: Although a map showing this species remains in this document, blue grouse habitat was not shown in the UDWR database for the project area when accessed November 5, 2018 and April 8, 2019).

Blue grouse, as year-long residents of the Wasatch Plateau, prefer open stands of conifers which serve as the principal source of forage. In the warmer months, blue grouse are found in the lower elevation sagebrush, pinyon-juniper, and mixed brush habitats where they can obtain newly developing buds and other tender vegetation. At various times during the breeding and brooding seasons, insects and berries become an important dietary component and habitats which supply

these requisites are classified as high-priority. During the colder months, young needles and buds from Douglas-fir and spruce trees at higher elevations provide the necessary forage for survival. Therefore, high elevation coniferous stands rank as critical habitat during the months of December through February for blue grouse. Even though there are no conifer stands in the mine surface disturbance area, the UDWR database showed the permit and adjacent areas to be crucial year-long habitat for blue grouse in 2010, but not in 2018or 2019.~~.~~

**Moose**

Crucial winter habitat for moose (*Alces alces*) has also been designated within and outside the permit area. Additionally, crucial year-long habitat has been mapped within some of the riparian zones just outside the permit area (Map 2C).

Moose are listed by the UDWR as an uncommon inhabitant of the Wasatch Plateau. Moose have a strong affinity for riparian habitats, especially during the late spring through fall periods, and prefer aquatic vegetation. During the winter, moose will browse on twigs and bark of conifers in all areas of their habitat. Because they are strongly associated with riparian habitats during most of the year, they would be primarily found in the Mud Creek riparian area, and in the other riparian areas. Since the mine site is located very near the town of Scofield and Highway 96, moose presence is unlikely in the area. However, there is the possibility of the occasional moose passing through the area.

**Mule deer**

Mule deer *Odocoileus hemionus*) habitat has been mapped in the area by UDWR biologists. Mule deer (Herd Unit 17) are common year-long inhabitants of the Wasatch Plateau with crucial summer habitat found in the mine and adjacent areas (Map 2D). Some vertical migration of mule deer occurs in response to seasonal changes, resulting in concentration of populations in lowland areas during winter months. These concentration areas, known as winter range, are variably utilized depending on the severity of the winter. In all cases, this winter range is defined as crucial for mule deer. During more severe winters and certain times of any given winter, the most concentrated use defines the most critical winter range for the general maintenance of the mule deer population. There is no critical winter range in the mine permit area. Although no specific areas are known, fawning grounds for this herd unit likely occur within the permit area. Use of fawning grounds during critical period (June), would be considered to be of crucial value to the mule deer population. The mining operations area is in close proximity to the town of Scofield and Highway 96, and therefore may have less impact on mule deer than would otherwise.

**Rocky Mountain elk**

Rocky Mountain elk (*Cervus canadensis*) habitat has been mapped in the area. Crucial summer habitat was mapped throughout the entire area including the permit area (Map 2E).

Rocky mountain elk are inhabitants of the Wasatch Plateau with habitat spanning from the submontane through the montane regions. The local elk population does not exhibit as strong a vertical migration as mule deer; however, such a migration does exist resulting in some concentration during the winter months. These concentration areas, known as winter range, are variably utilized depending on the severity of the winter. In all cases, the summer range is defined as crucial for elk. Although no specific areas are known, calving grounds for this herd unit could

possibly occur within the permit area. Use of calving grounds during critical periods (June), would be considered to be of critical value to the elk population. Since the mine operations area lies within close proximity to both the town of Scofield and Highway 96, it is unlikely that elk would use the area for calving due to current human activity.

**Sage-grouse**

Sage-grouse (*Centrocercus urophasianus*) habitat has been documented in and around the project area. UDWR biologists have mapped this area to be winter and summer habitat for this species with no other values (i.e. "crucial") attached to it in the most recent (April 8, 2019) UNHP database map (Map 2F). However, a portion of the project area lies within regions called Sage-Grouse Management Areas (SGMAs). These are areas that have been designated as such in state conservation plans and have the goal to protect, maintain and increase sage-grouse populations and habitat.

~~Sage grouse (*Centrocercus urophasianus*) habitat has been documented in and around the project area. UDWR biologists have mapped this area to be "occupied" by this bird and much of the area to be crucial brooding habitat as well as crucial winter habitat for this species (Map 2F).~~

Sage-grouse are listed on the Utah Sensitive Species List (UDWR, November 1, 2017) as a "species of concern", and are year-round residents of the high plateau and adjacent portions of the permit area which lie east of the mine site. ~~However, within their crucial winter habitat at the site it is also crucial brooding habitat.~~ Sage-grouse only occur in sagebrush dominated vegetation types or communities in close proximity to sagebrush types within the submontane life zone. Open areas (e.g., wet meadows) surrounded by sagebrush are often utilized as strutting grounds during the critical breeding period from March 15 through June 15. Sagebrush stands within a two-mile radius of such sites are also classified as crucial value areas due to their use as brooding habitat following nesting. Following the brooding period, the sage-grouse disperse over the entire substantial use area until about mid-November. No leks have been identified in the mine area.

The areas that are disturbed my mining activities and lie within the SGMA will be mitigated at a 4:1 ratio, or for each one acre disturbed compensatory mitigation will occur on at least four acres of land. This mitigation could be handled through the State of Utah, Department of Natural Resources (DNR) Credit Exchange Mitigation under consultation with DOGM and DWR.

**Snowshoe hare**

Snowshoe hare (*Lepus americanus*) also has year-long crucial habitat in a portion of the permit area as well as adjacent to it (Map 2F).

For more information about other species on the Wasatch Plateau, refer to “General Wildlife Occurrence and Use” (Table 2).

## Vegetation Maps

Two vegetation maps have been created for the Kinney No. 2 Mine and adjacent area. Map 1A, "Facilities Area Vegetation Map", is a contour map that shows the native plant communities as well as those areas that have been previously disturbed by historical mining and other activities. Map 1B is a general vegetation map shown on an aerial photograph. Both maps provide information about the habitat types for the wildlife species in the area.

### R645-301-230 Other Wildlife Species & Habitat Information of the Permit & Adjacent Areas

There are a number of accepted approaches for habitat definition and evaluation, however, with respect to the proposed permit area and evaluation of potential mining related impacts, two basic approaches are of particular relevance. First, plant communities and physiognomic attributes of a given area can be described relative to habitat value as most species have particular affinities for certain features and conditions of their environment. Second, habitat values for certain geographical areas which correspond to a unique combination of plant community associations and other environmental variables can be described with respect to the necessary life requisites they provide for particular species of wildlife, especially during critical periods of their life cycles.

With respect to the first approach to habitat classification, the major plant communities have been described in R645-301-300, "Vegetation Information", for the permit area. The location and extent of these associations within the proposed permit area are illustrated by the "Regional Vegetation Map", (Map 1A) in the Vegetation Report included in Exhibit 7, Vegetation Information. As indicated in R645-301-300, three plant community types in the permit boundary have been described including Sagebrush/Grasslands Rabbitbrush/Grass (previously disturbed) and Aspen. In addition, there was also a riparian complex associated with Mud Creek. The riparian area was located within one mile of the permit boundary, as can be seen on the Regional & Site Vegetation Map, (Map 1A) in the Vegetation Report included in Exhibit 7, Vegetation Information. Between the permit area and the Mud Creek riparian complex lies an expanse of pastureland.

As mentioned, Scofield Reservoir is located approximately one-half mile from the closest point of the permit boundary. Scofield Reservoir with its associated riparian zone is an important habitat for numerous species of fishes, birds, mammals and amphibians. Relative utility of these habitats is dependent on each species of wildlife, but in general, the riparian bottomlands offer the highest level and greatest diversity of habitat values.

While the permit area occupies only a very small portion of the Wasatch Plateau, it has some of the same plant communities and wildlife habitats that are typical of the montane regions in central Utah. However, the proposed mine facilities area is located in an area that has been impacted by historical and recent mining activities, as well as residential development, commercial development, transportation corridor, and electrical power transmission facilities and operations. It should be noted that generally only three plant communities exist in the permit boundary, the Aspen, Sagebrush/Grass and Rabbitbrush/Grass (previously disturbed). In the general area of the mine site, and within a one-mile radius around the permit boundary, there are other communities including a riparian complex along Mud Creek. Given the characteristics of these vegetation types, the permit area could provide potential habitat for approximately 329 species of vertebrate wildlife, including: 7 fish species, 8 amphibians, 17 reptile species, 231 birds, and 66 mammals. Table 2, Potential Wildlife Species of the Wasatch Plateau, identifies those

species known to occur in this general area as well as the likelihood of occurrence in the permit area. Of the 329 species identified as occurring in the general area, 92 are known, have potential, or are likely inhabitants of the permit area, and 237 are considered unlikely, or not inhabitants based on known range or habitat preference. Included on this list are several species of wildlife considered to be of high interest to the State of Utah. High interest wildlife is defined as all game species, any economically important species, and any species of special aesthetic, scientific, or educational significance, and those species listed on the Utah Sensitive Species List. Included in this category are those species of wildlife that are federally listed as endangered or threatened or candidates for these designations.

Given the significant extent of previous and existing disturbance in the proposed surface facilities area and the very limited aerial extent of the new surface disturbance, initial site-specific wildlife baseline studies have been limited to review of available documentation on wildlife occurrence and habitat in the area, ground surveys and aerial raptor surveys. Any supplemental wildlife information requirements will be determined by UDOGM in consultation with state and federal wildlife agencies. In order to address potential mining related wildlife impacts, the following discussion addresses important and/or typical species which may occur as inhabitants or transients in the permit area. An evaluation of the potential for impact is detailed in R645-301-312 and 313 of this application. Only those species of high interest as listed in the Utah Sensitive Species List will be specifically addressed in the following section of this application.

The following Table 2 shows a list of species that are present on the Wasatch Plateau of central Utah of which the Kinney No. 2 Mine is located. Also included about each species listed on the table is the occurrence status in the Wasatch Plateau and legal status.

Follow up information about the sensitive or special status species on the table specific to the project area has been described in another table.

**TABLE 2 POTENTIAL WILDLIFE SPECIES OF THE WASATCH PLATEAU**

(From Dalton et. Al., 1990, Fauna of Southeastern Utah and Life Requisites Regarding Their Ecosystems. UDWR Publication No.90-11).

* Status in Wasatch Plateau; K = Unknown; C = Common; U = Uncommon; R = Rare; O = Occasional; A = Accidental; L = Limited; P = Protected; N = Unprotected

** Likelihood in Mine Plan Area; K = Known; L = Likely; P = Potential; U = Unlikely; N = None

Federal Status(updated to 2010 status); E = Endangered; EXP = Experimental; T = Threatened; C = Candidate;

Utah Status; C2 = Conservation Agreement; C3 = Species of Concern; EXT = Extirpated

| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| **Fishes - *42 species total in Price River, Scofield Reservoir and their tributaries (7 species). *Only those species in the Scofield Reservoir and its tributaries included in table** | | | | | |
| 1 | Cutthroat trout | *Oncorhynchus* | C | N | |
| 2 | Rainbow trout | *Oncorhynchus my kiss* | C | N | |
| 3 | Carp | *Cyprinus carpio* | C | N | |
| 4 | Utah chub | *Gila atraria* | L | N | |
| 5 | Red side shiner | *Richardsonius balteatus* | C | N | |
| 6 | Mountain sucker | *Catostomus platyrhynchus* | C | N | |
| 7 | Waleye | *Stizostedion vitreum* | O | N | |
| **Reptiles - *17 species total in mine biogeographic area** | | | | | |
| 1 | Leopard lizard | *Crotaphytus wislizenii* | C | U | |
| 2 | Eastern fence lizard | *Sceloporus undulates* | C | L | |
| 3 | Sagebrush lizard | *Sceloporus graciosus* | C | L | |
| 4 | Tree lizard | *Urosaurus ornatus* | C | U | |
| 5 | Side-blotched lizard | *Uta stansburiana* | C | P | |
| 6 | Short-horned lizard | *Phrynosoma douglassi* | C | P | |
| 7 | Rubber boa | *Charina bottae* | U | U | |

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| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 8 | Ring-necked snake | *Diadophis punctatus* | U | U | |
| 9 | Striped whipsnake | *Masticophis taeniatus* | C | U | |
| 10 | Sanoran mountain king | *Lampropeltis pyromelana* | R | U | |
| 11 | Racer | *Coluber constrictor* | U | U | |
| 12 | Smooth greensnake | *Opheodrys vernalis* | U | U | C3 |
| 13 | Pine snake | *Pituophis melanoleucus* | C | P | |
| 14 | Milk snake | *Lampropeltis triangulum* | R | U | |
| 15 | Western terrestrial garter snake | *Thamnophis elegans* | C | U | |
| 16 | Common garter snake | *Thamnophis sirtalis* | C | U | |
| 17 | Night snake | *Hypsiglena torquata* | C | U | |
| **Amphibians - * 8 species total in mine biogeographic area** | | | | | |
| 1 | Tiger salamander | *Ambystoma tigrinum* | C | U | |
| 2 | Great Basin spadefoot toad | *Scaphiopus intermontanus* | C | P | |
| 3 | Western toad | *Bufo boreas* | U | U | C3 |
| 4 | Woodhouse's toad | *Bufo woodhousei* | C | U | |
| 5 | Great Plains toad | *Bufo cognatus* | C | U | |

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| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 6 | Chorus frog | *Pseudacris triseriata* | C | U | |
| 7 | Spotted frog | *Rana pretiosa* | R | U | |
| 8 | Leopard frog | *Rana pipiens* | C | U | |
| **Birds – * 231 species total in mine biogeographic area** | | | | | |
| 1 | Common loon | *Gavia immer* | U | U | |
| 2 | Horned grebe | *Podiceps auritus* | C | U | |
| 3 | Eared grebe | *Podiceps nigricollis* | C | U | |
| 4 | Western grebe | *Aechmophorus occidentalis* | C | U | |
| 5 | Pied-billed grebe | *Pdoilymbus podiceps* | C | U | |
| 6 | White pelican | *Pelecanus erythrorhynchos* | C | U | C3 |
| 7 | Double-crested cormorant | *Phalacrocorax auritus* | C | U | |
| 8 | Great blue heron | *Ardea herodias* | K | U | |
| 9 | Black-crowned night heron | *Nycticorax nycticorax* | U | U | |
| 10 | Snowy egret | *Egretta thula* | O | U | |
| 11 | White-faced ibis | *Plegadis chihi* | T | U | |
| 12 | Canada goose | *Branta Canadensis* | C | P | |

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| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 13 | Snow goose | *Chen caerulescens* | O | P | |
| 14 | Mallard | *Anas platyrhynchos* | C | P | |
| 15 | Wood duck | *Aix sponsa* | O | U | |
| 16 | Gadwall | *Anas strepera* | C | U | |
| 17 | Northern pintail | *Anas acuta* | C | P | |
| 18 | Green-winged teal | *Anas crecca* | C | P | |
| 19 | Blue-winged teal | *Anas discors* | U | P | |
| 20 | Cinnamon teal | *Anas cyanoptera* | C | P | |
| 21 | American wigeon | *Anas Americana* | C | P | |
| 22 | Northern shoveler | *Anas clypeata* | C | P | |
| 23 | Redhead | *Aythya mericana* | C | U | |
| 24 | Ring-necked duck | *Aythya collaris* | O | U | |
| 25 | Canvasback | *Aythya yallisineria* | O | U | |
| 26 | Greater scaup | *Aythya marila* | O | U | |
| 27 | Lesser scaup | *Aythya affinis* | O | U | |
| 28 | Common goldeneye | *Bucciphala clangula* | O | U | |
| 29 | Bufflehead | *Bucephala albeola* | U | U | |
| 30 | Hooded merganser | *Mergus cucullatus* | O | U | |
| 31 | Common merganser | *Mergus merganser* | O | U | |

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Federal Status(updated to 2010 status); E = Endangered; EXP = Experimental; T = Threatened; C = Candidate;

Utah Status; C2 = Conservation Agreement; C3 = Species of Concern; EXT = Extirpated

| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 32 | Red-breasted merganser | *Mergus serrator* | O | U | |
| 33 | Turkey vulture | *Cathartes aura* | C | K | |
| 34 | Northern goshawk | *Accipiter gentiles* | U | U | C2 |
| 35 | Sharp-shinned hawk | *Accipiter striatus* | U | U | |
| 36 | Cooper's hawk | *Accipiter cooperii* | C | P | |
| 37 | Red-tailed hawk | *Buteo jamaicensis* | C | K | |
| 38 | Swainson's hawk | *Buteo swainsoni* | R | U | |
| 39 | Rough-legged hawk | *Buteau lagopus* | C | U | |
| 40 | Ferruginous hawk | *Buteo regalis* | R | U | C3 |
| 41 | Golden eagle | *Aquila chrysaetos* | C | K | |
| 42 | Bald eagle | *Haliaeetus leucocephalus* | U | P | C3 |
| 43 | Northern harrier | *Circus cvaneus* | C | U | |
| 44 | Osprey | *Pandion haliaetus* | U | U | |
| 45 | Prairie falcon | *Falco mexicanus* | C | U | |
| 46 | Peregrine falcon | *Falco peregrinus* | U | U | |
| 47 | American kestrel | *Falco sparverius* | C | U | |
| 48 | Blue grouse | *Dendragapus obscurus* | C | U | |

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Federal Status(updated to 2010 status); E = Endangered; EXP = Experimental; T = Threatened; C = Candidate;

Utah Status; C2 = Conservation Agreement; C3 = Species of Concern; EXT = Extirpated

| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 49 | Ruffed grouse | *Bonasa umbellus* | C | U | |
| 50 | Sage grouse | *Centrocercus urophasianus* | C | L | C |
| 51 | California quail | *Lophortyx californicus* | L | U | |
| 52 | Chukar | *Alectoris chukar* | C | U | |
| 53 | Common moorhen | *Gallinula chloropus* | A | U | |
| 54 | Sora | *Porzana Carolina* | U | U | |
| 55 | Virginia rail | *Rallus limicola* | C | U | |
| 56 | Whooping crane | *Grus Americana* | E | U | EXT |
| 57 | Sandhill crane | *Crus Canadensis* | U | U | |
| 58 | American coot | *Fulica Americana* | L | U | |
| 59 | Semipalmated plover | *Charadrius semipalmatus* | U | U | |
| 60 | Snowy plover | *Charadrius alexandrinus* | R | U | |
| 61 | Killdeer | *Charadrius vociferous* | C | U | |
| 62 | Mountain plover | *Charadrius montanus* | R | U | |
| 63 | Lesser golden plover | *Pluvialis dominica* | U | U | |
| 64 | Black-billed plover | *Pluvialis squatarola* | C | U | |
| 65 | Common snipe | *Capella gallinago* | C | U | |
| 66 | Long-billed curlew | *Numenius americanus* | R | U | C3 |

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Utah Status; C2 = Conservation Agreement; C3 = Species of Concern; EXT = Extirpated

| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| | | | | | |
| 67 | Willet | *Catoptrophorus semipalmatus* | U | U | |
| 68 | Spotted sandpiper | *Actitis macularia* | C | U | |
| 69 | Solitary sandpiper | *Tringa solitaria* | U | U | |
| 70 | Greater yellowlegs | *Tringa melanoleuca* | U | U | |
| 71 | Lesser yellowlegs | *Tringa flavipes* | C | U | |
| 72 | Pectoral sandpiper | *Calidris melanotos* | U | U | |
| 73 | Baird's sandpiper | *Calidris bairdii* | U | U | |
| 74 | Least sandpiper | *Calidris minutilloa* | C | U | |
| 75 | Western sandpiper | *Calidris mauri* | C | U | |
| 76 | Sanderling | *Calidris alba* | U | U | |
| 77 | Short-billed dowitcher | *Limnodromus griseus* | U | U | |
| 78 | Long-billed dowitcher | *Limnodromus scolopaceus* | C | U | |
| 79 | Marbled godwit | *Limosa fedoa* | C | U | |
| 80 | American avocet | *Recurvirostra Americana* | C | U | |
| 81 | Black-necked stilt | *Himantopus mexicanus* | U | U | |
| 82 | Red-necked phalarope | *Phalaropus labatus* | C | U | |

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| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 83 | Wilson's phalarope | *Phalaropus tricolor* | C | U | |
| 84 | Herring gull | *Larus argentuatus* | U | U | |
| 85 | California gull | *Larus californicus* | C | U | |
| 86 | Ring-billed gull | *Larus delawarensis* | C | U | |
| 87 | Franklin's gull | *Larus pipixcan* | C | U | |
| 88 | Bonaparte's gull | *Larus philidelphia* | U | U | |
| 89 | Foster's tern | *Sterna foresteri* | C | U | |
| 90 | Common tern | *Sterna hirundo* | U | U | |
| 91 | Black tern | *Childonias niger* | C | U | |
| 92 | Caspian tern | *Hydropprogne caspia* | R | U | |
| 93 | Bandtailed pigeon | *Columba fasciata* | O | P | |
| 94 | Rock dove | *Columba livia* | C | U | |
| 95 | Mourning dove | *Zeniada macroura* | C | L | |
| 96 | Yellow-billed cuckoo | *Coccyzus americanus* | R | U | C |
| 97 | Common barn-owl | *Tyto alba* | U | U | |
| 98 | Great-horned owl | *Bubo virginianus* | C | L | |
| 99 | Northern Pygmy owl | *Glaucidium gnoma* | C | P | |
| 100 | Burrowing owl | *Athene cunicularia* | L | U | C3 |

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| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 101 | Long-eared owl | *Asio otus* | C | P | |
| 102 | Northern saw-whet owl | *Aegolius acadicus* | U | U | |
| 103 | Common nighthawk | *Chordeiles minor* | C | P | |
| 104 | Common poorwill | *Phalaehoptilus nuttallii* | C | U | |
| 105 | Black swift | *Cypseloides niger* | U | U | C3 |
| 106 | Black-chinned hummingbird | *Archilochus alexandri* | C | P | |
| 107 | Broad-tailed hummingbird | *Selasphorus platycercus* | C | P | |
| 108 | Rufous hummingbird | *Selasphorus rufus* | C | P | |
| 109 | Calliope hummingbird | *Seellula calliope* | U | U | |
| 110 | Belted kingfisher | *Ceryle alcyon* | U | U | |
| 111 | Northern flicker | *Colaptes auratus* | C | P | |
| 112 | Red-headed woodpecker | *Melanerpes erythrocephalus* | U | U | |
| 113 | Williamson's sapsucker | *Sphryapicus thyroids* | R | N | |
| 114 | Yellow-bellied sapsucker | *Sphryapicus varius* | C | P | |
| 115 | Hairy woodpecker | *Picoides villosus* | C | P | |
| 116 | Downy woodpecker | *Picoides pubescens* | C | P | |

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| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| | | | | | |
| 117 | Three-toed woodpecker | *Picoides tridactylus* | U | U | C3 |
| 118 | Western kingbird | *Tyrannus verticalis* | C | U | |
| 119 | Cassin's kingbird | *Tyrannus vociferans* | U | U | |
| 120 | Eastern kingbird | *Tyrannus tyrannus* | C | U | |
| 121 | Ash-throated flycatcher | *Mylarchus cinerascens* | C | U | |
| 122 | Say's phoebe | *Savornis sava* | C | P | |
| 123 | Willow flycatcher | *Empidonax traillii* | C | U | |
| 124 | Hammond's flycatcher | *Empidonax hammondii* | U | U | |
| 125 | Dusky flycatcher | *Empidonax oberholderi* | C | P | |
| 126 | Gray flycatcher | *Empidonax wrightii* | U | U | |
| 127 | Olive-sided flycatcher | *Contopus borealis* | U | P | |
| 128 | Horned lark | *Eremophila alpestris* | C | U | |
| 129 | Cliff swallow | *Hirundo pyrrhonota* | C | U | |
| 130 | Barn swallow | *Hirundo rustica* | C | U | |
| 131 | Violet-green swallow | *Tachycineta thalassina* | C | P | |

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| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 132 | Tree swallow | *Tachycineta biocolor* | C | U | |
| 133 | Bank swallow | *Riparia riparia* | C | U | |
| 134 | Purple martin | *Progne subis* | R | U | |
| 135 | Northern rough-winged swallow | *Stelgidopteryx serripennis* | C | U | |
| 136 | Steller's jay | *Cyanocitta stelleri* | C | L | |
| 137 | Scrub jay | *Aphelocoma coerulescens* | C | U | |
| 138 | Gray jay | *Perisoreus Canadensis* | U | U | |
| 139 | Black-billed magpie | *Pica pica* | C | K | |
| 140 | Common raven | *Corvus corax* | C | K | |
| 141 | American crow | *Corvus brachyrhyncos* | O | U | |
| 142 | Pinyon jay | *Gymnorhinus cyanocephala* | C | U | |
| 143 | Clark's nutcracker | *Nucifraga Columbiana* | C | U | |
| 144 | Black-capped chickadee | *Parus atricapillus* | C | L | |
| 145 | Mountain chickadee | *Parus gambelli* | C | L | |
| 146 | Plain titmouse | *Parus lnorntus* | U | U | |
| 147 | Bushtit | *Psaltriparus minimus* | C | P | |

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| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 148 | White-breasted nuthatch | *Sitta carolinensis* | C | P | |
| 149 | Red-breasted nuthatch | *Sitta Canadensis* | C | U | |
| 150 | Pygmy nuthatch | *Sitta pygmaea* | C | P | |
| 151 | Brown creeper | *Certhia Americana* | C | U | |
| 152 | American dipper | *Cinclus mexicana* | C | N | |
| 153 | House wren | *Troglodytes aedon* | C | P | |
| 154 | Rock wren | *Salpinctes obsoletus* | C | U | |
| 155 | Canyon wren | *Catherpes mexicanus* | C | U | |
| 156 | Marsh wren | *Cistothorus palustris* | L | U | |
| 157 | Bewick's wren | *Thryomanes bewickii* | C | U | |
| 158 | Blue-gray gnatcatcher | *Polioptila caerulea* | C | U | |
| 159 | Sage thrasher | *Oreoscoptes montanus* | C | U | |
| 160 | American robin | *Turdus migratorius* | C | L | |
| 161 | Hermit thrush | *Catharus gattatus* | C | P | |
| 162 | Swainson's thrush | *Catharus ustulatus* | C | P | |
| 163 | Western bluebird | *Sialia mexicana* | R | U | |
| 164 | Mountain bluebird | *Sialia currucoides* | C | K | |

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| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 165 | Townsend's solitaire | *Myadestes townsendi* | C | P | |
| 166 | Golden-crowned kinglet | *Regulus satrapa* | U | P | |
| 167 | Ruby-crowned kinglet | *Regulus calendula* | C | P | |
| 168 | Veery | *Catharus fuscoscens* | U | U | |
| 169 | American robin | *Turdus migratorius* | C | L | |
| 170 | Gray catbird | *Dumetella carolinensis* | U | U | |
| 171 | Northern mockingbird | *Mimus polyglottos* | U | U | |
| 172 | Water pipet | *Anthus spinoletta* | C | U | |
| 173 | Cedar waxwing | *Bombycilla cedrorum* | C | U | |
| 174 | Bohemian waxwing | *Bombycilla garrulous* | U | U | |
| 175 | Northern shrike | *Lanius excubitor* | U | U | |
| 176 | Loggerhead shrike | *Lanius ludovicianus* | C | U | |
| 177 | European starling | *Sturnus vulgaris* | C | U | |
| 178 | Solitary vireo | *Vireo solitarius* | C | P | |
| 179 | Warbling vireo | *Vireo gilvus* | C | L | |
| 180 | Orange-crowned warbler | *Vermivora celata* | C | P | |

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| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 181 | Nashville warbler | *Vermivora ruficapilla* | U | U | |
| 182 | Yellow warbler | *Dendrioca petechia* | C | L | |
| 183 | Magnolia warbler | *Dendrocia magnolia* | R | N | |
| 184 | Yellow-rumped warbler | *Dendrocia coronata* | C | U | |
| 185 | Townsend's warbler | *Dendrocia townsendi* | U | U | |
| 186 | Black-throated gray warbler | *Dendroica nigrenscens* | C | U | |
| 187 | MacGilivray's warbler | *Oporomis tolmiei* | C | P | |
| 188 | Virginia's warbler | *Vermivora virginiae* | C | U | |
| 189 | Common yellowthroat | *Geothlypis trichas* | L | U | |
| 190 | American redstart | *Setophaga ruticilla* | C | U | |
| 191 | Yellow-breasted chat | *Lcteria virens* | R | U | |

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| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 192 | Wilson's warbler | *Wilsonia pusilla* | C | U | |
| 193 | House sparrow | *Passer domestious* | C | U | |
| 194 | Brown-headed cowbird | *Molothrus ater* | C | U | |
| 195 | Western tanager | *Piranga ludoviciana* | C | P | |
| 196 | Black-headed grosbeak | *Pheucticus melanocephalus* | C | P | |
| 197 | Rose-breasted grosbeak | *Pheucticus ludovicianus* | O | U | |
| 198 | Red-winged blackbird | *Agelaius hoeniceus* | C | U | |
| 199 | Rusty blackbird | *Euphagus carolinus* | O | U | |
| 200 | Brewer's blackbird | *Euphaqus cyanocephalus* | C | U | |
| 201 | Yellow-headed blackbird | *Xanthocephalus xanthocephalus* | C | U | |
| 202 | Northern oriole | *Icterus galbula* | C | U | |

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| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 203 | Lazuli bunting | *Passerian amoena* | C | U | |
| 204 | Indigo bunting | *Passerina cyanea* | U | U | |
| 205 | Lark bunting | *Calamospiza melanocorys* | O | U | |
| 206 | Green-tailed towhee | *Pipilo chlorurus* | C | L | |
| 207 | Rufous-sided townee | *Pipilo erythrophthalamus* | C | U | |
| 208 | Vesper sparrow | *Pooecetes gramineus* | C | P | |
| 209 | Dark-eyed junco | *Junco hyemalis* | C | L | |
| 210 | Tree sparrow | *Spizella arborea* | U | U | |
| 211 | Chipping sparrow | *Spizella passerine* | C | L | |
| 212 | White-crowned sparrow | *Zonotrichia leucophrys* | C | L | |

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|---|---|---|---|---|---|
| 213 | Fox sparrow | *Passerella iliaca* | U | U | |
| 214 | Song sparrow | *Melospiza melodia* | C | U | |
| 215 | Sage sparrow | *Amphispiza belli* | U | U | |
| 216 | Black-throated sparrow | *Amphispiza bilineata* | U | U | |
| 217 | American tree sparrow | *Spizella arborea* | U | U | |
| 218 | Harris' sparrow | *Zonotrichia querula* | U | U | |
| 219 | Common grackle | *Ouiscalus quiscula* | A | U | |
| 220 | Evening grosbeak | *Coccothraustes vespertinus* | C | P | |
| 221 | Lincoln's sparrow | *Melosoiza lincolnii* | U | U | |
| 222 | Lesser goldfinch | *Cardvelis Psaltria* | C | U | |
| 223 | American goldfinch | *Cardvelis tristis* | C | U | |

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|---|---|---|---|---|---|
| 224 | Cassin's finch | *Carpodacus cassinii* | C | U | |
| 225 | House finch | *Carpodacus mexicanus* | C | U | |
| 226 | Pine grosbeak | *Pinicola enucleator* | U | U | |
| 227 | Evening grosbeak | *Coccothraustes vespertinus* | C | U | |
| 228 | Rosy finch | *Leucosticte arctoa* | U | U | |
| 229 | Common redpoll | *Carduelis fl' ammea* | C | U | |
| 230 | Pine siskin | *Carduelis pinus* | C | U | |
| 231 | Red crossbill | *Loxia curvirostra* | U | N | |
| **Mammals – * 66 species total in mine biogeographic area** | | | | | |
| 1 | Dwarf shrew | *Sorex nanus* | L | P | |
| 2 | Water shrew | *Sorex palustris* | C | U | |
| 3 | Merriam's shrew | *Sorex merriami* | U | U | |

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|---|---|---|---|---|---|
| 4 | Vagrant shrew | *Sorex vagrans* | U | U | |
| 5 | Masked shrew | *Sorex cinereus* | C | U | |
| 6 | Little brown myotis | *Myotis lucifugus* | C | P | |
| 7 | Fringed myotis | *Myotis thysanodes* | U | U | C3 |
| 8 | Long-eared myotis | *Myotis evotis* | C | U | |
| 9 | Long-eared myotis | *Myotis volans* | C | U | |
| 10 | Yuma myotis | *Myotis yumanensis* | R | U | |
| 11 | Silver-haired bat | *Lasioncteris noctivagans* | C | P | |
| 12 | Big brown bat | *Eptesicus fuscus* | C | P | |
| 13 | Hoary bat | *Lasiurus cinereus* | C | P | |
| 14 | Townsend's big-eared bat | *Plecotus townsendii* | C | U | C3 |
| 15 | Spotted bat | *Euderma maculatum* | U | U | C3 |

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|---|---|---|---|---|---|
| 16 | Pallid bat | *Antorozous pallidus* | U | U | |
| 17 | Pika | *Ochotona princes* | R | N | |
| 18 | White-tailed jackrabbit | *Lepus townsendii* | C | L | |
| 19 | Snowshoe hare | *Lepus americanus* | C | P | |
| 20 | Black-tailed jackrabbit | *Lepus californicus* | U | U | |
| 21 | Nuttall's cottontail | *Sylvilagus nuttallii* | C | P | |
| 22 | White-tailed prairie dog | *Cynomys leucurus* | C | N | C3 |
| 23 | Red squirrel | *Tamiasciurus hudsonicus* | C | U | |
| 24 | Rock squirrel | *Spermophilus variegates* | C | U | |
| 25 | Uintah ground squirrel | *Spermophilus armatus* | C | U | |
| 26 | Golden-mantled ground squirrel | *Spermophilus lateralis* | C | L | |

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| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 27 | Whitetail antelope squirrel | *Ammospermophilus leucurus* | U | N | |
| 28 | Yellow-bellied marmot | *Marmota flaviventris* | C | L | |
| 29 | Northern flying squirrel | *Glaucomys sabrinus* | R | N | |
| 30 | Least chipmunk | *Tamias minimus* | C | K | |
| 31 | Uinta chipmunk | *Tamias umbrinus* | C | U | |
| 32 | Cliff chipmunk | *Eutamius dorsalis* | C | U | |
| 33 | Northern pocket gopher | *Thomomys talpoides* | C | L | |
| 34 | Botta pocket gopher | *Thomomys bottae* | U | U | |
| 35 | Ord kangaroo rat | *Dipodomys ordii* | U | U | |
| 36 | Beaver | *Castor Canadensis* | C | P | |

**TABLE 2 POTENTIAL WILDLIFE SPECIES OF THE WASATCH PLATEAU**

(From Dalton et. Al., 1990, Fauna of Southeastern Utah and Life Requisites Regarding Their Ecosystems. UDWR Publication No.90-11).

* Status in Wasatch Plateau; K = Unknown; C = Common; U = Uncommon; R = Rare; O = Occasional; A = Accidental; L = Limited; P = Protected; N = Unprotected

** Likelihood in Mine Plan Area; K = Known; L = Likely; P = Potential; U = Unlikely; N = None

Federal Status(updated to 2010 status); E = Endangered; EXP = Experimental; T = Threatened; C = Candidate;

Utah Status; C2 = Conservation Agreement; C3 = Species of Concern; EXT = Extirpated

| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 37 | Western harvest mouse | *Reithrodontomys megolotis* | C | P | |
| 38 | Canyon mouse | *Peromyscus crinitus* | U | U | |
| 39 | Deer mouse | *Peromyscus maniculatus* | C | L | |
| 40 | Brush mouse | *Peromyscus boylei* | C | L | |
| 41 | Piñon mouse | *Promyscus truei* | C | U | |
| 42 | Brushy-tailed woodrat | *Meotoma cinerei* | C | L | |
| 43 | Muskrat | *Ondatra zibethicus* | C | U | |
| 44 | Montane vole | *Microtus montanus* | C | L | |
| 45 | Long-tailed vole | *Microtus longicaudus* | C | L | |
| 46 | Porcupine | *Erethizon dorsatum* | C | P | |

**TABLE 2 POTENTIAL WILDLIFE SPECIES OF THE WASATCH PLATEAU**

(From Dalton et. Al., 1990, Fauna of Southeastern Utah and Life Requisites Regarding Their Ecosystems. UDWR Publication No.90-11).

* Status in Wasatch Plateau; K = Unknown; C = Common; U = Uncommon; R = Rare; O = Occasional; A = Accidental; L = Limited; P = Protected; N = Unprotected

** Likelihood in Mine Plan Area; K = Known; L = Likely; P = Potential; U = Unlikely; N = None

Federal Status(updated to 2010 status); E = Endangered; EXP = Experimental; T = Threatened; C = Candidate;

Utah Status; C2 = Conservation Agreement; C3 = Species of Concern; EXT = Extirpated

| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 47 | Coyote | *Canis latrans* | C | L | |
| 48 | Red fox | *Vulpes vulpes* | C | L | |
| 49 | Kit fox | *Vulpes macrotis* | R | U | C3 |
| 50 | Black bear | *Ursus americanus* | C | L | |
| 51 | Ring-tailed cat | *Bassariscus astutus* | U | U | |
| 52 | Raccoon | *Procyon lotor* | K | U | |
| 53 | Short-tailed weasel | *Mustela erminea* | K | U | |
| 54 | Long-tailed weasel | *Mustela frenata* | C | L | |
| 55 | Mink | *Mustela vison* | L | U | |
| 56 | Black-footed ferret | *Mustela nigripes* | U | U | E – EXP |
| 57 | Marten | *Martes Americana* | R | U | |
| 58 | Badger | *Taxidea taxus* | C | L | |

**TABLE 2 POTENTIAL WILDLIFE SPECIES OF THE WASATCH PLATEAU**

(From Dalton et. Al., 1990, Fauna of Southeastern Utah and Life Requisites Regarding Their Ecosystems. UDWR Publication No.90-11).

* Status in Wasatch Plateau; K = Unknown; C = Common; U = Uncommon; R = Rare; O = Occasional; A = Accidental; L = Limited; P = Protected; N = Unprotected

** Likelihood in Mine Plan Area; K = Known; L = Likely; P = Potential; U = Unlikely; N = None

Federal Status(updated to 2010 status); E = Endangered; EXP = Experimental; T = Threatened; C = Candidate;

Utah Status; C2 = Conservation Agreement; C3 = Species of Concern; EXT = Extirpated

| Life Form | Common Name | Scientific Name | Status in Wasatch Plateau * | Likelihood In Mine Plan Area ** | T & E Status |
|---|---|---|---|---|---|
| 59 | Striped skunk | *Mephitus mephitus* | C | L | |
| 60 | Bobcat | *Felis rufus* | U | P | |
| 61 | Canada lynx | *Felis lynx canadensis* | R | U | T |
| 62 | Mountain lion | *Felis concolor* | C | L | |
| 63 | Mule deer | *Odocoileus hemionus* | C | K | |
| 64 | Rocky mountain elk | *Cervus elaphus* | C | K | |
| 65 | Moose | *Alces alces* | U | U | |
| 66 | Northern river otter | *Lutra canadensis* | R | U | |

**Amphibians**

Eight species of amphibians, as listed on Table 2, "Potential Wildlife Species of the Wasatch Plateau", are believed to be potential inhabitants of the biogeographic area in which the permit and adjacent areas are located. However, only one amphibious species is categorized as

possible, or a likely inhabitant of the permit area. The western toad is the only species listed on the Utah Sensitive Species List that has the potential to inhabit the mine permit area. Refer to Table 2A for more detail about this species.

**Fishes**

Seven (7) species of fishes, as listed on Table 2, "Potential Wildlife Species of the Wasatch Plateau", are believed to be potential inhabitants of the biogeographic area in which the permit area is located. There are 42 species of freshwater fish inhabiting southeastern Utah's streams and lakes, however, only the seven potential species listed in the UDWR database are included in this permit application. Since Pleasant Valley and its tributaries in the proposed mine's geographic area all drain into Scofield Reservoir, only those species in the UDWR database included for the Scofield Reservoir and its tributaries are included in Table 2. There are no species on the Utah Sensitive Species List that inhabit the mine permit area, or the Scofield drainage area. Because there are no streams or lakes within the permit boundary there is no potential for fish species to exist in the permit boundary.

**Reptiles**

Seventeen (17) species of reptiles, as listed on Table 2, "Potential Wildlife Species of the Wasatch Plateau", are believed to be potential inhabitants of the biogeographic area in which the permit area is located. Only 5 reptile species are categorized as likely or possible inhabitants of the permit area. The other 12 species are considered unlikely to inhabit the permit area due to their affinity for riparian areas. The only species listed on the Utah Sensitive Species List that may inhabit the area is the smooth greensnake (*Opheodrys vernalis*), but it is considered uncommon to the area. This species prefers meadows and riparian areas and thus is unlikely to inhabit the mine operations area east of Highway 96. For more details about this species, refer to Table 3.

**Birds**

Two hundred thirty-one (231) species of birds, as listed by Table 2, "Potential Wildlife Species of the Wasatch Plateau", are believed to be potential inhabitants of the biogeographic area in which the permit area is located. However, only 92 bird species are categorized as potential, likely, or known inhabitants of the permit area. Of these 92 species, 11 are on the Utah Sensitive Species List, and have been discussed in Table 2A.

Waterfowl (ducks and geese), all of which are considered to be of high interest to the State of Utah due to their status as "gamebirds", are represented by 21 species that may, on occasion or seasonally, occur as minor inhabitants or transients in the general permit area. Of these, only nine (9) species could reasonably be expected to occur in the permit area, other than on an occasional basis. In general, the limited riparian and wetland vegetation types encompassed by the proposed permit area and adjacent areas provide marginally suitable habitat values for these nine (9) and possibly other waterfowl species. Each species has different life prerequisites. The nature and frequency of use of the riparian and wetland habitats found in the area may vary

significantly. The importance, however, of these habitats for breeding purposes results in their being ranked as high-priority if utilized during the breeding period though such use is not expected.

The mine plan area provides substantial potential habitat for a variety of raptor species including the: turkey vulture, golden eagle, bald eagle, osprey, prairie falcon, peregrine falcon, American kestrel, northern goshawk, sharp-shinned hawk, Cooper's hawk, red-tailed hawk, Swainson's hawk, rough-legged hawk, ferruginous hawk, northern harrier, barn owl, great-horned owl, northern pygmy owl, long-eared owl, burrowing owl and northern saw-whet owl. Many of these species are of high federal interest pursuant to 43 CFR, 3461.1 (n-1), and all are considered of high interest to the State of Utah. There is some potential, though minimal, for incidental use of the permit area by bald eagles, which is considered a sensitive species in Utah. High-priority and/or critical habitat for certain raptor species exists within the permit area during the nesting/breeding period (February - July). For these species, construction activities within one-half mile of a nest site during the species specificing/breeding period should be avoided.

Because certain raptor species may be sensitive to disturbance during their active nesting periods, surveys of those portions of the permit area where surface disturbance has or is anticipated to occur have been implemented intermittently during the period from 2005 through 2007. As a result of these efforts several nest sites have been located in and near the permit area. Locations for these sites are provided on Map 2, Raptor Map. A table on the map shows the determination of species for each nest, and nesting activity if known. As indicted on Map 2, one nest (No 1541) was observed south of the proposed disturbed area in the southwest quarter of Section 33, T12S, R7E. This nest was categorized during the 2005 helicopter survey as being either goshawk or red-tailed hawk. As discussed further in this Chapter, goshawks prefer conifer stands for nesting and therefore nest No. 1541 is more likely a red-tailed hawk nest. No nesting activity was observed at this nest site during the 2007 nesting period.

**Raptor Nest Deterrent**

Coal Energy Group 3 has entered into consultation with the US Fish and Wildlife Service , the Utah Division of Wildlife Resources and the UDOGM regarding nest No. 1541.

Coal Energy Group 3 made application to the US Fish and Wildlife Service, for permission to conduct nesting deterrent actions at nest No. 1541 for the 2011 nesting season only (details of the deterrent plan are given below) . A copy of the application can be found in Exhibit 4, Other Permits. The UDOGM is a consulting agency along with the Utah Division of Wildlife Resources. Any mitigation plans will be approved by the US Fish and Wildlife Service, the Utah Division of Wildlife Resources and the UDOGM. Approval from the US Fish and Wildlife Service was received on April 26, 2011. In the approval letter, the USFWS made their approval contingent on approval from the Utah Department of Natural Resources (later qualified by phone conversation to be the Utah Division of Wildlife Resources). Verbal approval was given by Leroy Mead of the UDWR and later confirmed by email dated April 28, 2011. Copies of the USFWS approval and UDWR email approval are included in Exhibit 4, Other Permits.

As a condition to the nesting deterrent action approval CEG3 commits to mitigation for the deterrent action including a plan approved by the Utah Division of Oil, Gas and Mining, U.S. Fish and Wildlife Service, and the Utah Division of Wildlife Resources. The mitigation plan will be limited to a total of $3000.00 as agreed by the agencies. The mitigation plan will consist of any one or a combination of the following, Purple martin nesting boxes, Osprey nesting platforms, purchasing

non-lead hunting ammunition and making it available to hunters to help prevent raptor lead poisoning. The mitigation plan will be completed during the 2011 season (by the end of October), or in a time frame determined and approved by the agencies. Refer to details of the plan including the three alternatives with additional information on each alternative in Exhibit 8, Fish and Wildlife Information.

The final mitigation may include one or more of the alternatives discussed and presented. Details presented in Exhibit 8 provide the basis for preparing cost estimates for each alternative. From the cost estimates, the agencies and Coal Energy Group 3 will select the alternative or alternatives for implementation based on getting the most benefit from the money.

Basis for Request for Deterrent Action

Because the construction season at the mine site elevation is very short, and because nesting activity would delay start of construction until fledgelings leave the nest, Coal Energy Group 3 LLC petitioned the US Fish and Wildlife Service, for permission to conduct nesting deterrent actions to discourage the birds from nesting within a one-half mile buffer prior to the start of mining activity during the 2011 nesting season. It is believed that the birds will use other sites for nesting. There is ample opportunity for nesting in the general area. This will allow Coal Energy Group 3 LLC to start construction activities during the middle of the nesting season and reduce (or eliminate) the risk that the birds would abandon eggs or young at the nest.

After construction has started or at the end of the 2011 nesting season, Coal Energy Group 3, LLC will remove the nest deterrents. It is our experience that Red-tailed Hawks are very adaptable to mining operations. For example, a pair of Red-tailed Hawks successfully nested for several years at the Star Point Mine in Carbon County, Utah within 30 feet of the main access road to the mine, and within 40 feet of an overland conveyor belt which ran for approximately 20 hours per day.

Deterrent Plan

The deterrent plan includes two components:

1. Preventing, or discouraging the birds from using this particular nest by placing one or more orange construction cones in the nest as long as no eggs are present. Coal Energy Group 3 LLC will obtain a Letter of Authorization from the U.S. Fish and Wildlife Services' Migratory Bird Permits office in Lakewood, Colorado before placing nest deterrents. If placing a construction cone is not possible, Coal Energy Group 3 will consult with the USFW Service and the Utah Division of Wildlife Resources to find another, non-destructive, method of deterrent.
2. If the birds decide to build another nest within the restricted one-half mile zone placing orange construction cones (or other methods as above) in those nests also as long as no eggs are present.

The construction cone/s will be placed by using a long ladder, by climbing the tree, or other methods as needed. Every effort will be taken to avoid disturbing the nest.

Upon completion of the 2011 nesting season, the construction cone/s, or other deterrent methods will be removed so the birds will have use of the nest/s again.

Monitoring Plan

1. Monitoring nest #1541 and the area within the restricted one-half mile zone for raptor activity during the 2011 nesting season from mid-March to mid-August (details to follow).

Monitoring will be conducted by observing any visible raptor activity in the nest #1541 area as well as observing activity in the general area that may indicate the raptors start constructing another nest. Observations will be conducted from Highway 96 at the entrance to the mine site using spotting scopes and binoculars or from the closest pad on the hillside across from the nest. Observations will be made from first light until 3 hours after daylight once per week from April 1, through May, 2011. After May, monitoring will be conducted every two weeks. This schedule is based on preliminary discussions with Nathan Darnall of the USFW Service and may be adjusted as necessary. Further monitoring may be necessary and will be determined in consultation with the agencies.

The observers will have a digital camera with a telephoto lens to take photos if possible, of raptors in the area. The observers will also have raptor identification guide books at their disposal to help identify raptors.

A detailed record will be made during each monitoring session, including date, times, raptors observed, species, details of their movements, observers' name, and photographs taken. A report of weekly monitoring will be e-mailed to the U.S. Fish and Wildlife Service in Utah after each survey. A summary report will be provided to UDOGM at the end of the nesting season.

Schedule

Nesting activities can begin as early as March by Red-tailed Hawks, and April for Goshawks, however due to heavy snow cover this year no activity was observed during the first visit to the nest site by Mr. Greg Hunt of Coal Energy Group 3 LLC on March 3. During the first formal monitoring session conducted on March 30, 2011, no bird activity at the nest site was observed.

Future Mining Operations

Construction of the mine facilities and operation of the mine will proceed as planned and detailed in the Utah Division if Oil, Gas and Mining, Mining and Reclamation Plan. We believe that Red-tailed Hawks are particularly adaptable (refer to example given above) to disturbance by mining operations. It is very possible that the subject nest will be used in the future while mining activities are ongoing. Coal Energy Group 3 is committed to operating in an environmentally responsible manner. We commit to monitoring the subject nest in the future to document activity at the nest.

Noise will inevitably result from the mining operation, however, we believe noise levels will be acceptable. It should be noted that the town of Scofield is located only 1500 feet from the subject nest, as well as Utah Highway 96, which has a rather high volume of truck traffic.

Construction activities at the mine site will include earth moving and typical construction of buildings, conveyor belts, mine openings and associated mine facilities. Normal construction equipment will be used such as dozers, scrapers, track hoes, and cranes. Blasting may be necessary, but we believe it will be very minimal, if necessary at all.

Avoidance

Coal Energy Group 3 has a raptor proof power pole design included in the Utah Division of Oil, Gas and Mining, Mining and Reclamation Plan. Every effort will be made to minimize any risks to raptors in the area of the mine. Employees at the mine will be instructed to avoid harassment of all wildlife and particularly raptors.

For more information about raptor species of special status including the ferruginous hawk, bald eagle and northern goshawks, refer to Table 2A.

The long-billed curlew is listed by the UDWR as a species of concern, and is rare to the Wasatch Plateau. This species has a strong affinity for riparian and shoreline areas. For more information about this species, refer to Table 2A.

The whooping crane is listed by the UDWR as exterminated in the Wasatch Plateau. For more information about this species, refer to Table 2A.

The yellow-billed cuckoo is a federally listed Candidate species. It has also been described as rare in the Wasatch Plateau. This species prefers woodland areas, and is thought to nest primarily in the eastern United States. For more information about this species, refer to Table2A.

The burrowing owl is listed by the UDWR as limited in the Wasatch Plateau, sensitive and a Species of Concern. This species prefers open, dry grasslands, agricultural and range lands associated with burrowing animals, particularly prairie dogs, ground squirrels and badgers. For more information about this species, refer to the above (R645-301.220) and also Table 2A.

The black swift is listed by the UDWR as a Species of Concern, and as uncommon in the Wasatch Plateau. For more information about this species and its presence in the project area, refer to Table 2A.

The three-toed woodpecker is listed by the UDWR as a Species of Concern, and as uncommon on the Wasatch Plateau. This species exhibits a strong preference for the bark insects of spruce trees, and inhabits coniferous forests at submontane and montane elevations, and therefore is considered to be uncommon to the mine plan area. For more information about this species and its presence in the project area, refer to Table 2A.

White pelicans can be found in and near Scofield Reservoir to the north of the mine site, however, due to this birds requirement to be very near water bodies, it is unlikely that they would be found in the mine area. For more information about this species and its presence in the project area, refer to Table 2A.

## Mammals

Sixty-six (66) species of mammals, as listed by Table 2, "Potential Wildlife Species of the Wasatch Plateau", are believed to be potential inhabitants of the biogeographic area in which the permit area is located. However, only 32 mammal species are classified as known, likely, or potential residents of the permit area. Of the 32 potential state high-interest species possible in the region, the occurrence of 17 are either known, likely, or possible in the permit area. Seven (7) species are listed by the UDWR on the Utah Sensitive Species List include: fringed myotis, Townsend's big-eared bat, spotted bat, white-tailed prairie-dog, kit fox, black-footed ferret, and Canada lynx. These species have been addressed in the above and also Table 2A.

Although not listed by the UDWR as sensitive species, mule deer, elk, and moose are very important species in the State of Utah and have been discussed above in "High-Value Habitats" (R645-301.220).

**Special Status Wildlife Species of the Wasatch Plateau**

Table 2 shows the species of the Wasatch Plateau and the likelihood of encountering these species in the Kinney No. 2 Mine project and adjacent areas. The table also lists the special status of these species, or whether they are threatened, endangered or otherwise sensitive by federal and state law. Finally, Table 2 shows potential habitat for fourteen (14) species that have been listed as "Wildlife Species of Concern" (C3), one (1) species listed as a "Conservation Agreement Species" (C2), two (2) as "Candidate" species (C), two (2) listed as extirpated (EXT) and one (1) listed as "threatened" (T) according to UDWR records and based on current listings. The following Table 2A lists these sensitive wildlife species and describes their relevance to the Kinney No. 2 Mine permit and adjacent areas.

**Table 2A: Utah sensitive wildlife species of the Wasatch Plateau with notes regarding potential presence and impacts as a result of the proposed Kinney No. 2 Mine.**

| Common Name | Scientific Name | Status* | Site-Specific Notes |
|---|---|---|---|
| Smooth greensnake | Opheodrys vernalis | C3 | Seventeen (17) species of reptiles, as listed on Table 2, "Potential Wildlife Species of the Wasatch Plateau", are believed to be potential inhabitants of the biogeographic area in which the permit area is located. Only 5 reptile species are categorized as likely or possible inhabitants of the permit area. The other 12 species are considered unlikely to inhabit the permit area due to their affinity for riparian areas. The only species listed on the Utah Sensitive Species List that may inhabit the area is the smooth greensnake (*Opheodrys vernalis*), but it is considered uncommon to the area. This species prefers meadows and riparian areas and thus is unlikely to inhabit the mine operations area east of Highway 96. |

**Table 2A: Utah sensitive wildlife species of the Wasatch Plateau with notes regarding potential presence and impacts as a result of the proposed Kinney No. 2 Mine.**

| | | | |
|---|---|---|---|
| Western toad | *Bufo boreas* | C3 | Eight species of amphibians, as listed on Table 2, "Potential Wildlife Species of the Wasatch Plateau", are believed to be potential inhabitants of the biogeographic area in which the permit and adjacent areas are located. However, only one amphibious species is categorized as possible, or a likely inhabitant of the permit area. The western toad is the only species listed on the Utah Sensitive Species List that has the potential to inhabit the mine permit area. The UDWR considers the western toad as uncommon in the Wasatch Plateau and it is unlikely to inhabit the mine permit area because of its affinity for riparian habitats. Since the mine site disturbance area is dry, with no permanent, or intermittent water areas, and no perennial or intermittent streams, the likelihood of significant numbers of amphibians inhabiting the area is low. The other amphibians included in Table 2 are potential residents of the mine site, however, these species are not considered to be of high interest and the limited size of the disturbed area reduces the potential for substantial impact from mining disturbance. |
| White pelican | *Pelecanus erythrorhynchos* | C3 | White pelicans can be found in and near Scofield Reservoir to the north of the mine site, however, due to this birds requirement to be very near water bodies, it is unlikely that they would be found in the mine area. This bird only visits the area during the open-water seasons, and is not found in the area during the winter. |

| | | | |
|---|---|---|---|
| Northern goshawk | *Accipiter gentiles* | C2 | The UDWR lists the northern goshawk as an uncommon species in the Wasatch Plateau, and is listed on the Utah Sensitive Species List as a Conservation Agreement Species. Because this bird prefers the interiors of extensive, remote, mature and old-growth forests dominated by large trees, high canopy closure, on moderate slopes, with an open understory (Falk 1990, Speiser and Bosakowski 1987, Squires and Reynolds 1997) it is unlikely that nesting occurs in the mine disturbed area, or near it. According to Speiser and Bosakowski 1987, Basakowski and Speiser 1994, Bosakowski and Smith 1997 and Falk 1990, goshawks nest further from areas of human habitation than would be expected by chance. They found that the average distance to human habitation in New Jersey sites was about 1050 m or (3,445 feet), with a distance to the nearest paved road of about 1170 m (3,839 feet).<br><br>The following Northern Goshawk Habitat Model is presented in the USFWS web site at http://www.fws.gov/r5gomp/gom/habitatstudy/metadata/northern_goshawk_model.htm:<br><br>Several models were developed and the resulting habitat maps were compared to known goshawk occurrences in the study area. The best fit was achieved by regarding goshawk habitat as patches of forest, of adequate size, and which include areas likely to be suitable for nesting.<br><br>Goshawk nesting areas were identified as: 1) having suitable forest cover; 2) situated at least 460 m (1,509 ft) from developed (based on Bosakowski and Speiser, 1994) average distance of nests from roads and dwellings of 1,100 m (3,609 ft), 1 s.d. of 640 m (2,099 ft); 3) situated within 500 m (1,640 ft) of a pond or shrub swamp, and; 4) having north, northeast, northwest, or flat aspect. These areas were scored 1.0. Other contiguous forest within 500 m, or (1,640 ft) of the nesting habitat was<br><br>scored 0.5. The sizes of the habitat patches then was computed, and only clusters having at least some nesting habitat and an area of 8 ha (19.77 acres) or larger were retained.<br><br>This model and the other factors presented above would seem to preclude goshawks from choosing to nest in the location of Nest No. 1451. |

**Table 2A: Utah sensitive wildlife species of the Wasatch Plateau with notes regarding potential presence and impacts as a result of the proposed Kinney No. 2 Mine.**

| | | | |
|---|---|---|---|
| Ferruginous hawk | *Buteo regalis* | C3 | The ferruginous hawk is listed by the UDWR as rare in the Wasatch Plateau. This species may use the area in the summer, and inhabit submontane and desert elevations and therefore the mine area may be on the extreme upper end of their affinity area. They rarely nest in Utah and prefer open country, primarily prairies, plains and badlands. Because of the above factors, the ferruginous hawk is unlikely to be found in the mine plan area. |
| Bald eagle | *Haliaeetus leucocephalus* | C3 | The bald eagle is listed sensitive by the UDWR and is uncommon in the Wasatch Plateau, however Scofield Reservoir is a favorite gathering place for this bird primarily during their southern migration during the winter. Many bald eagles can be seen near the reservoir during the winter, and may spend the entire winter in the area. It is unlikely that this species would spend a lot of time in the mine permit area, however, road killed deer and other large mammals may lure them to this food source along Highway 96 in the vicinity of the mine site. Although there are a few nesting pairs in Utah, there are no known bald eagle nest sites in the area of the mine site. |
| Sage-grouse | *Centrocercus urophasianus* | C3 | Sage-grouse are listed on the Utah Sensitive Species List as a species of concern, and are year-round residents of the high plateau and adjacent portions of the permit area which lie east of the mine site. However, within their crucial winter habitat at the site is also crucial brooding habitat. Sage-grouse only occur in sagebrush dominated vegetation types or communities in close proximity to sagebrush types within the submontane life zone. Open areas (e.g., wet meadows) surrounded by sagebrush are often utilized as strutting grounds during the critical breeding period from March 15 through June 15. Sagebrush stands within a two-mile radius of such sites are also classified as crucial value areas due to their use as brooding habitat following nesting. Following the brooding period, the sage-grouse disperse over the entire substantial use area until about mid-November. No leks have been identified in the mine area. |
| Whooping crane | *Grus americana* | EXT | The whooping crane is listed by the USFWS as extirpated, but formerly passed through eastern Utah. It is highly unlikely that this species would be found in the mine plan area. |

**Table 2A: Utah sensitive wildlife species of the Wasatch Plateau with notes regarding potential presence and impacts as a result of the proposed Kinney No. 2 Mine.**

| | | | |
|---|---|---|---|
| Long-billed curlew | *Numenius americanus* | C3 | The long-billed curlew is listed by the UDWR as a species of concern, and as rare to the Wasatch Plateau. This species has a strong affinity for riparian and shoreline areas, but may forage in pastureland, and may nest in pastureland habitats. Because of these factors, this species is unlikely to inhabit the mine plan area. |
| Yellow-billed cuckoo | *Coccyzus americanus* | T | The yellow-billed cuckoo is a federally listed candidate species. It has also been described as rare in the Wasatch Plateau (Table 2), but it is not on the current Carbon County list of threatened, endangered and candidate species. This species prefers woodland areas, and is thought to nest primarily in the eastern United States. Due to the above factors, it is unlikely that this species can be found in the mine plan area. |
| Burrowing owl | *Athene cunicularia* | C3 | The burrowing owl is listed by the UDWR as limited in the Wasatch Plateau, sensitive and a Species of Concern. This species prefers open, dry grasslands, agricultural and range lands associated with burrowing animals, particularly prairie dogs, ground squirrels and badgers. Because of these factors, this species is considered as unlikely to inhabit the mine plan area. |

**Table 2A: Utah sensitive wildlife species of the Wasatch Plateau with notes regarding potential presence and impacts as a result of the proposed Kinney No. 2 Mine.**

| | | | |
|---|---|---|---|
| Black swift | *Cypseloides niger* | C3 | The black swift is listed by the UDWR as a Species of Concern, and as uncommon in the Wasatch Plateau. The Audubon Society states that the "black swift is considered primarily a mountainous species, occurring over a range of highland habitats, particularly over rugged terrain and coastal cliffs. Nests on canyon walls near water and sheltered by overhanging rock or moss, preferably near waterfalls or on sea cliffs. It occasionally occurs in lowlands during migration or in bad weather conditions. It breeds in California from May to September. Autumn migration from northern portions of the breeding range begins as early as late August. The species' wintering grounds are not definitively known. The nests are shallow cups made of moss bound with mud. Lays one to two eggs. Feeds on flying insects."<br><br>Due to the above information, and the fact that no cliffs exist in the mine plan area, it is thought that this species in unlikely to inhabit the mine plan area. |
| Three-toed woodpecker | *Picoides tridactylus* | C3 | The three-toed woodpecker is listed by the UDWR as a Species of Concern, and as uncommon on the Wasatch Plateau. This species exhibits a strong preference for the bark insects of spruce trees, and inhabits coniferous forests at submontane and montane elevations, and therefore is considered to be uncommon to the mine plan area. There is very limited conifier habitat in the mine plan area, with only a few isolated conifer trees interspersed within the aspen communities. For these reasons, it is very unlikely that this species can be found in the mine plan area. |
| Fringed myotis | *Myotis thysanodes* | C3 | A small bat called the fringed myotis is listed by the UDWR as a Species of Concern on the Utah Sensitive Species List, and as uncommon on the Wasatch Plateau. This species prefers oak, pinyon, juniper forests and desert scrublands. It roosts in caves, mines, buildings, and other protected locations, and therefore is thought not to inhabit the mine plan area. |

**Table 2A: Utah sensitive wildlife species of the Wasatch Plateau with notes regarding potential presence and impacts as a result of the proposed Kinney No. 2 Mine.**

| | | | |
|---|---|---|---|
| Townsend's big-eared bat | *Plecotus townsendii* | C3 | The Townsend's big-eared bat is also listed by the UDWR as a Species of Concern on the Utah Sensitive Species List, and as common to the Wasatch Plateau. Habitat use has not been evaluated in detail, but seems to be similar to other localities in the western United States. Caves and abandoned mines are used for maternity roosts and hibernacula (Worthington 1991, Hendricks et al. 1996, Hendricks 2000, Hendricks et al. 2000, Foresman 2001, Hendricks and Kampwerth 2001); use of buildings in late summer has also been reported (Swenson and Shanks 1979). Habitats in the vicinity of roosts include Douglas-fir and lodgepole pine forests, ponderosa pine woodlands, Utah juniper-sagebrush scrub, and cottonwood bottomland.<br><br>Due to the preceding factors, this species is considered as unlikely to inhabit the mine plan area. |
| Spotted bat | *Euderma maculatum* | C3 | The spotted bat is another species listed by the UDWR as a Species of Concern on the Utah Sensitive Species List, and as uncommon on the Wasatch Plateau. Spotted bats may be found in a variety of habitats, ranging from deserts to forested mountains; they roost and hibernate in caves and rock crevices. Spotted bats occur state-wide in Utah, but have probably never been abundant in any particular location. Current data suggest that the species may be becoming even more rare in Utah than it was in the past. Due to these factors, it is thought that this species is unlikely to inhabit the mine plan area. |

**Table 2A: Utah sensitive wildlife species of the Wasatch Plateau with notes regarding potential presence and impacts as a result of the proposed Kinney No. 2 Mine.**

| | | | |
|---|---|---|---|
| White-tailed prairie dog | *Cynomys leucurus* | C3 | The white-tailed prairie-dog is listed by the UDWR as a Species of Concern on the Utah Sensitive Species List, and as common to the Wasatch Plateau. According to the UDWR publication, Species on the Edge, the white-tailed prairie-dog inhabits mountain valleys, semi-desert grasslands, agricultural areas, and open shrublands, but the map included in the publication does not show any populations in Pleasant Valley. There are no observed prairie dog populations in the mine plan area, and therefore it is thought that they do not inhabit the mine plan area. |
| Kit fox | *Vulpes macrotis* | C3 | The kit fox is listed by the UDWR as a Sensitive Species on the Utah Sensitive Species List, and as rare on the Wasatch Plateau. The species most often occurs in open prairie, plains, and desert habitats, and therefore is thought to be uncommon in the mine plan area. |
| Black-footed ferret | *Mustela nigripes* | E-EXT | The black-footed ferret, a federally listed endangered species, is listed by the UDWR as endangered and extirpated, and is primarily dependent upon prairie-dogs as a prey source, therefore, crucial value use area for this species is restricted to prairie dog colonies which do not occur within the permit area. The re-introduced populations have been classified as "nonessential-experimental" by the U.S. Fish and Wildlife Service. In addition to Utah's re-introduced black-footed ferret population, unconfirmed sightings of naturally occurring ferrets persist throughout eastern Utah. Because there are no known prairie-dog populations in the mine plan area, it is highly unlikely that the Black-footed ferret is found in the area. |

**Table 2A: Utah sensitive wildlife species of the Wasatch Plateau with notes regarding potential presence and impacts as a result of the proposed Kinney No. 2 Mine.**

| | | | |
|---|---|---|---|
| Canada lynx | *Felis canadensis* | T | The Canada lynx, is listed as a threatened species by the UDWR and the U.S. Fish and Wildlife Service. The range of the lynx extends from Canada and Alaska south to Maine, the Rocky Mountains, and the Great Lakes region. Although sightings of the Canada lynx in Utah over the past twenty years are exceedingly rare, the U.S.D.A. Forest Service recently announced that Canada lynx hair was found in the Manti-La Sal National Forest during 2002.<br><br>Although sightings of the Canada lynx in Utah over the past twenty years are exceedingly rare, the U.S.D.A. Forest Service recently announced that Canada lynx hair was found in the Mani-La Sal National Forest during 2002. The preferred habitat of the Canada lynx is montane coniferous forest. The Canada lynx is listed by the UDWR as rare in the Wasatch Plateau, and therefore it is highly unlikely that it can be found in the mine plan area. |
| | | | STATUS<br>E = Endangered<br>C = Candidate<br>C3 = Species of Concern<br>T = Threatened<br>C2 = Conservation Agreement<br>EXT = Extirpated |

**R645-301.322.300 Fish & Wildlife Service Review**

Project biologists have conducted onsite field studies on the vegetation and wildlife habitats of the Kinney No. 2 Mine. Additionally, the biologists have consulted with the State of Utah, Division of Oil, Gas & Mining (UDOGM) and the Utah Natural Heritage Program (UNHP) regarding the plants, wildlife and habitat of the Kinney No. 2 Mine. Upon request by the UDOGM the project biologist will also provide the resource information required under R645-301-322 and the protection and enhancement plan required under R645-301-333 to the U.S. Fish & Wildlife Service Regional or Field Office for their review. This information will be provided herein and can be provided to the USFWS within 10 days of receipt of the request from them.

For this document, UDOGM did, however request protection and enhancement plans as required under R645-301-333. These plans have been provided in that below.

**Utah Division of Wildlife Resources Review**

On August 9, 2007 a request was made to the UDWR for a list of T&E species for the mine plan area (See Exhibit 8, Fish, and Wildlife Information for this request and UDWR's response).
The UDWR responded by letter dated August 13, 2007 with the following:

> *The Utah Division of Wildlife Resources (UDWR) has records for sandhill cranes and bald eagles within the project area noted above. In addition, in the vicinity there are records of occurrence for northern flying squirrels and northern river otters.*
>
> *The only species noted by the UDWR in this letter that is on the Utah Sensitive Species List is the bald eagle, which has been addressed previously. Since the UDWR indicated that records show occurrence of sandhill cranes, northern flying squirrels and northern river otters, they will be discussed below as species of high interest.*
>
> *The sandhill crane is listed by the UDWR as uncommon on the Wasatch Plateau. According to UDWR information:*
>
> *The sandhill crane breeds primarily in Alaska, northern Canada, and in the Great Lakes, but small, scattered breeding populations are also found in the northwestern United States (including northeastern Utah), the southeastern United States, and Cuba. With the exception of populations in the southeastern United States and Cuba, breeding populations migrate south to wintering grounds in the southern United States and northern Mexico.*
>
> *The sandhill crane is usually found foraging in open grasslands, meadows, and marshy portions of lakes, ponds, and rivers. Its diet is diverse, consisting of roots, tubers, seeds, grain, berries, small vertebrates, and invertebrates. At night, flocks roost in open expanses of shallow water.*
>
> *The sandhill crane is migratory bird and occurs primarily seasonally in Utah and as noted by the UDWR is usually found foraging in open grasslands, meadows and marshy areas. Occurances of sandhill cranes in the mine operations area would be very rare, and therefore no impact from mining is anticipated.*
>
> *The northern flying squirrel is a year-long resident of the Wasatch Plateau, however, its relative abundance is unknown, and listed as rare by the UDWR. Its substantial use area is restricted to spruce-fir or mixed conifer habitats of the montane ecological association. Critical use periods occur during the bi-modal breeding season, from April through May and from August to September. Since this species prefers mature conifer habitats it is not expected to occur in the mine operations area, or the mine general geographic area since there are no conifer stands in the area.*
>
> *The northern river otter is listed by the UDWR as being rare on the Wasatch Plateau. Since this species habitat is associated very closely with rivers, streams and water bodies, it is very unlikely that it would be found in the mine disturbed area, or the general mine area. It may be found along Mud Creek west of the mine area, and in or near Scofield Reservoir north and west of the mine permit area.*

## Utah Natural Heritage Review

On August 12, 2010 a response to a request by the Utah Natural Heritage Program (UNHP) for an updated list of threatened, endangered or otherwise sensitive (TES) plant and animal species for the mine plan area. GIS shape files for the following species were provided. The shape files show general locality data that were masked to within one square mile of the Kinney No. 2 Mine permit area. No plant species were within this range. The following wildlife species were within the one square mile area:

- Northern River Otter (*Lontra canadensis*)
- Bald Eagle (*Haliaeetus leucocephalus*)
- Sandhill Crane (*Grus canadensis*)
- Northern River Otter (*Lontra canadensis*)
- Osprey (*Pandion haliaetus*)
- Purple Martin (*Progne subis*)
- Northern Flying Squirrel (*Glaucomys sabrinus*)

With the exception of the purple martin, the potential of the species above to be present in the study area have been described previously.

The purple martin breeds throughout eastern North America, as well as on the Pacific coast and in parts of interior western North America and Mexico (UDWR). It winters in South America.

Although many populations now inhabit cities and towns, it is possible that this bird could be found within the permit area because its current breeding habitat in Utah are natural habitats such as aspen and coniferous forests near mountain lakes. As mentioned, the permit and adjacent areas have aspen communities (though very few conifer stands) and Scofield Reservoir is nearby.

An request for updated information from the UNHP has been requested (November 9, 2018). Results from this request are forthcoming.

## Wildlife Summary

A review of the high interest wildlife species and their habitats that have been mapped by UDWR biologists was accomplished for the Kinney No. 2 Mine permit area. Seven (7) maps were created showing the following species' habitats:

- Black Bear
- Blue Grouse
- Moose
- Mule Deer
- Rocky Mountain Elk
- Sage-Grouse
- Snowshoe Hare

Additionally, a review of all species known to exist on the Wasatch Plateau was reviewed. A summary of those species that have the potential to occur within or adjacent to the Kinney No. 2 Mine site was also made. The permit area provides potential habitat for approximately 329 species of vertebrate wildlife, including; 7 fish species, 8 amphibians, 17 reptile species, 231 birds, and 66

mammals. Table 2, "Potential Wildlife Species of the Wasatch Plateau", identifies those species known to occur in this general area as well as the likelihood of occurrence in the permit area. Included on this list are several species of wildlife considered to be of high interest to the State of Utah, and/or are listed on the Utah Sensitive Species List. High interest wildlife are defined as all game species; any economically important species; and any species of special aesthetic, scientific, or educational significance. Included in this category are those species of wildlife listed as Federally Endangered or Threatened.

Although wildlife occurrence and habitat values in the general permit area may be typical for this part of Utah, the surface disturbance areas (main facilities area) have generally been extensively disturbed by previous mining and other related activities. Therefore, the value and utility of these areas to indigenous wildlife has already been somewhat reduced. Because the mine operations area is in very close proximity to both the town of Scofield and Highway 96, use of the area is likely affected and probably reduces to some degree. In effect, the potential for any adverse impacts to wildlife habitats in the previously disturbed areas has already been largely realized and re-disturbance of these areas is not expected to result in any significant incremental impacts.

## R645-301.323 MAPS & AERIAL PHOTOGRAPHS

Maps or aerial photographs of the permit area and adjacent areas have been provided that delineate:

- The location and boundary of any proposed reference area for determining the success of revegetation;
- Elevations and locations of monitoring stations used to gather data for fish and wildlife, and any special habitat features;
- Each facility to be used to protect and enhance fish and wildlife and related environmental values; and
- Each vegetative type and plant community, including sample locations. Sufficient adjacent areas have been included to allow evaluation of vegetation as important habitat for fish and wildlife for those species identified under R645-301-322.

## R645-301.330 OPERATION PLAN

### Biological Resources Protection Plan

The following describes the operation plan to minimize impacts or protect the vegetation, fish and wildlife resources for the life of the mine.

- Provisions to Minimize Habitat Disturbance. Although the potential exists for indirect impacts on vegetation, fish, and wildlife due to equipment operations, noise and human activity associated with mining operations, mine related traffic, electrical equipment, and water discharges, habitat disturbance will be minimized because the mine facilities area will be the only area where direct surface disturbance will occur as a result of the mining and related activities. In other words, the smallest practicable footprint to conduct the mining operations has been designed to minimize habitat disturbance.

- New Disturbance to be Restricted to Previously Disturbed Areas. As previously noted, the majority of the mine facilities area has been extensively disturbed by previous historical mining and related activities. This disturbance has resulted in the elimination or significant modification of natural vegetation communities and fish and wildlife habitat values within the disturbed area. The operation of the mine will be conducted mostly in areas that have been disturbed previously. In other words, little new land disturbance will be made on native plant communities and wildlife habitat.

- Limit Wildlife Barriers. Mine site design, construction, and facility operations will minimize biological impacts including barriers that limit wildlife movement.

- Protection from Electrocution Hazards. Design and installation of electrical equipment will be made that minimize electrocution hazards.

- Control Water Discharges. Control and monitoring of surface water discharges for water quality will be implemented.

- Areas Hazardous to Wildlife. Exclusion of wildlife will be made from potentially hazardous areas on the mine site.

- Contemporaneous Reclamation. Reclamation and revegetation of disturbed areas will be conducted when they are no longer needed to support ongoing mining and related activities.Avoidance and/or Enhancement of Wetlands, Riparian Areas and Aquatic Habitat. No areas were identified as potential jurisdictional wetland areas (regulated by the U.S. Army Corps of Engineers) during the baseline field surveys of surface disturbance areas, therefore, the mining and related operations are not expected to impact any jurisdictional wetlands. Disturbance of riparian areas and aquatic habitat will not occur since none exist in the proposed mine disturbance area.

- Avoidance and/or Enhancement of Wetlands, Riparian Areas and Aquatic Habitat. The U.S. Fish & Wildlife Service's Information for Planning and Consultation (IPaC) database suggested the potential for the following wetland types in the general location of the study area: Freshwater Emergent Wetlands (PEM1C, PEM1A, PEM1F), Freshwater Pond (PABFh) and Riverine (R4SBC). Although some of these wetlands may occur in the bottomlands west of the project area and north of Scofield Reservoir, none of the ~~No~~ areas were identified or other ~~as~~ potential jurisdictional wetland areas (regulated by the U.S. Army Corps of Engineers) during the baseline field surveys proposed~~of~~ surface disturbance area~~s.s.~~ That said~~therefore~~, the mining and related operations are not expected to impact any ~~jurisdictional~~ wetlands. Disturbance of riparian areas and aquatic habitat will not occur since none exist in the proposed mine proposed disturbance area~~s~~.

- .Vegetation, Wildlife Habitats & Sensitive Species. Comparisons of the mining related surface disturbance with previous surface disturbance due to historic mining and related activities and more recent disturbances associated with construction of transportation and electric transmission facilities suggests that there is little potential for any significant new fish, wildlife habitat, vegetation or sensitive species impacts. This conclusion is based on the fact that most potentially significant terrestrial biological impacts have already occurred given the extent and nature of previous development in the surface disturbance areas.

  In addition, while Utah AML reclamation has been successful in re-establishing vegetative

cover and some habitat values, but the limited age of reclaimed vegetation and proximity to human activity continue to limit wildlife use. As stated previously, most of the anticipated surface disturbance for mining and related activities will involve previously disturbed areas. Mining related disturbance of previously undisturbed areas will be negligible. Furthermore, the potential for aquatic impacts is very limited since there are no water sources in the immediate area of the proposed mining surface facilities area. The following sections provide additional details relative to potential mining related impacts on individual biological resource values.

**Potential Impacts to the Biological Resources**

Although attempts have been made to limit impacts on terrestrial vegetation, wildlife, and habitat values resulting from the mining and related operations, the following impacts are anticipated:

- Redisturbance of approximately 20.4 acres of disturbed vegetation and habitat occurring on previously disturbed areas.
- Temporary loss of approximately 6.9 acres of previously undisturbed vegetation and habitat.
- Displacement of mobile resident wildlife to nearby areas providing similar habitat and adequate carrying capacity.
- Direct mortality of less mobile wildlife.
- Increases in indirect wildlife disturbance due to increased human activity in the area.
- Increased potential for accidental wildlife losses traffic related mortality.
- Localized reduction or elimination of certain non-native vegetation types.

**Impacts to Sensitive Species**

With regard to sensitive species of vegetation or terrestrial wildlife, the only known species that have the potential to exist within or adjacent to the Kinney No. 2 Mine are the greater sage-grouse and bald eagle, both of which have been designated as "species of concern" by UDWR. No other known threatened, endangered, or otherwise sensitive plant or wildlife species exist within the study area.

**Impacts to High Interest Species**

Other species of high interest have been identified and described for the study area [see "Fish &

Wildlife Information" (R645-301.322)]. The potential for specific species that may have any adverse mining related impacts has been explained in that section.

**Discussion of the Impacts and Enhancement Measures to Upland Vegetation and Wildlife**

The potential for significant adverse impacts to wildlife due to re-disturbance of previously disturbed areas is low due to existing vegetation and habitat conditions in the proposed disturbance areas. The Utah AML reclamation efforts have resulted in effective reestablishment of vegetation on portions of the previously disturbed areas. These areas currently provide some cover and forage values, but the area is close to Highway 96 and the town of Scofield. The noise, highway traffic, and human presence currently impact resident wildlife species. These proximity factors and resulting level of human activity in the area are also important factors which tend to preclude significant long-term use by large mammals, raptors, and many other terrestrial wildlife species with current use being limited to opportunistic or seasonal migratory use. The temporary mining related impacts will be effectively enhanced by the comprehensive reclamation program including all surface disturbance areas which will be implemented when the mine facilities are no longer needed to support ongoing operations.

The potential impact of losses of existing vegetation and habitat in previously undisturbed areas will be minimized by the limited aerial extent (approximately 6.9 acres) of any new disturbance. Areas of potential new disturbance are immediately adjacent to previously disturbed areas, and as such exhibit some inherent limitations relative to their value as wildlife habitat.

Minor vegetation and habitat impacts for any new disturbance areas will be a temporary result of the mining and related operations, however, proposed site reclamation measures will result in effective enhancement of any temporary impacts and in most cases offer the potential for overall enhancement of vegetation and habitat conditions.

Field surveys of potential new disturbance areas did not result in identification of any unique habitat characteristics (e.g., nests, wetland pockets, bat roosts, etc.) within these areas, although one raptor nest (No. 1541) was identified approximately 650 feet southeast of the proposed disturbed area. This nest is likely a red-tailed hawk nest as discussed earlier in this chapter.

Displacement of mobile wildlife due to mining related surface disturbance will largely affect only those species and individual animals which utilize the limited area encompassed by the mine surface facilities area. At this time, terrestrial wildlife use of this area appears to be limited to rodent species and a number of bird and bat species with occasional opportunistic and migration use by mule deer and occasionally elk, although very few elk droppings were observed in the area. Most other terrestrial wildlife have already been displaced by prior disturbance and do not appear to have reestablished in the area due to reduced habitat values and existing levels of human activity. Given that the numbers of potentially displaced wildlife will be small due to limited populations and the small total surface disturbance area, the ability of the surrounding habitats to absorb these immigrants should be adequate. The greatest potential for significant impacts of this type may be associated with the displacement of any small mammals and birds utilizing the area. Disruption of raptor species will likely not be considered significant due to the close proximity of Highway 96 and the town of Scofield, with their associated noise, and other human activity.

During initial site earthwork and subsequent facility construction, less mobile wildlife which occupies previously disturbed and adjacent undisturbed habitats affected by the surface disturbance activities may be lost. Affected wildlife could include species groups such as lizards, snakes, small rodents, and younger or older individuals of other small mammal groups whose mobility may be limited by age. The loss, however, of a few individual animals within the much larger animal populations and distribution may not represent a significant impact. None of the affected species are known sensitive species and any resultant impacts will be compensated over the short and long term by normal animal reproduction.

Increased levels of human activity may result in indirect wildlife impacts including some alteration of diurnal and seasonal animal movements. Another impact frequently associated with mine development activities is the increased potential for illegal harvest of game animals due to localized human population increases. This impact is not anticipated for the proposed operations since the required workforce will be composed primarily of local employees who already live in the Scofield/Price/Helper area. There may be some increase in wildlife disturbance due to the noise, lights, and human activity levels required for surface support activities. Use of existing ancillary roads to access environmental monitoring sites may also result in minor localized wildlife disturbance.

Another potential mining related impact would be the direct mortality of individual wildlife due to contact with live electrical lines or other electrical equipment and traffic related mortality in either mine areas or due to mine related traffic on public roads. Both types of accidental occurrence are a potential impact of any large-scale development activity but the effectiveness of specific protective measures and a low overall incidence rate render any related impacts inconsequential.

Generally, the basic biological resource protection measures which will be implemented in conjunction with all mining and related activities outlined in this chapter will provide the necessary level of protection to achieve full compliance of state and federal regulations for the Kinney No. 2 Mine site.

**Potential Impact on Aquatic, Riparian Resources & Sensitive Species**

The primary potential impact on fish and aquatic species, aquatic habitat, and riparian vegetation which may result from the mining and related activities would be from drainage from the proposed sedimentation pond, or from alternative sediment control measures used where drainage from small areas does not report to the sedimentation pond.

Prior to reclamation, stormwater runoff from disturbed areas would be a potential source of additional sediment contributions to Mud Creek. Sediment contributions will be, however, effectively controlled by construction, operation, and maintenance of an integrated drainage and sediment control system including diversion and collection ditches, sedimentation ponds, and alternative sediment control measures. Implementation of drainage and sediment control measures as described in R645-301-731, “Hydrologic Resource Protection”, will limit any increase in suspended sediments to levels corresponding to general background concentrations. Mining

related sediment contributions would, therefore, result in little or no significant incremental impacts on fish and macroinvertebrate communities or aquatic habitat values in and near Mud Creek, and Scofield Reservoir.

Coal stockpiling and conveyor transport of coal will result in minor contributions of coal dust to both the atmosphere and area surface drainage which could potentially be transported to Mud Creek and Scofield Reservoir. Wind-blown dust from coal stockpiles could result in deposition of small amounts of coal dust near the mine site. Operating practices for stockpile areas including material placement in coal stockpiles and coal recovery have been designed to minimize dust generation. These practices, as described in R645-301-421, "Air Emission Controls", include controlled discharge to or placement in stockpiles (coal stacker tubes), the use of surfactants where necessary to control fugitive dust, and enclosed draw points and BACT dust controls on coal reclaim systems.

The conveyor system will be covered to minimize exposure and dispersion of coal fines during transport; all transfer points will be partially or fully enclosed and will incorporate BACT emission controls. Small amounts of coal dust or fines may escape from the conveyor system and minor spillage may occur in the area immediately adjacent to the conveyor. The Kinney No. 2 Mine has received Approval Order DAQE-AN0141180001-08 from the Utah Department of Environmental Quality to operate the Kinney No. 2 Mine and thus meets all applicable air regulations.

Mine water supply requirements for sanitary use, surface dust control, firefighting reserve, and operational mine water amounting to 30.7 acre-feet per year depleted from the Colorado River system, from 61.4 acre-feet per year diverted from the Colorado River System. Depletion allowance for mining use at Scofield is 50% per personal communication with Mark Stilson, Utah Division of Water Rights. The water will be obtained primarily from the town of Scofield, and secondarily from water encountered in the mine. Depletion from collected water encountered during mining would remove a negligible amount of water from the system. For this reason, it is anticipated that the incremental mining related withdrawals will have no measurable effect relative to potential downstream surface water depletion in the Price River or Green River drainages.

A Section 7 consultation process under applicable USFWS regulations will be conducted as part of the inter-agency review of the UDOGM permit application. In the unlikely event that consultation results in a determination that the proposed water use represents a new depletion, a biological assessment of potential effects on endangered fish species and associated critical habitat designations in the Green and Colorado Rivers would be completed. Three fishes that are on Utah's Sensitive Species List (roundtail chub, leatherside chub, and flannelmouth sucker) for which the Price River may provide potential habitat would also be included in any biological assessment. However, since the mine area is a tributary to Mud Creek and then Scofield Reservoir, no incremental impact can be experienced in the Price, Green, and Colorado Rivers, because of the water retention in Scofield Reservoir. There are no T&E species in Mud Creek or Scofield Reservoir.

**Measures to Stabilize and Minimize Erosion from Mine Disturbance Areas**

All construction and operation activities will require the application of drainage and sediment control measures to minimize erosion, control surface runoff, and limit additional contributions of suspended solids to Mud Creek and Scofield Reservoir. Specific proposed drainage and sediment control methods and practices are discussed in detail in R645-301-731, "Hydrologic Resource Protection". Temporary controls for construction activities will include the use of protective berms, silt fences, sediment traps, straw bales, and other suitable control measures. It should be noted that the designed operational drainage and sediment control systems and structures will be established prior to most surface disturbance and construction activities. These systems and structures will include diversions to route drainage from undisturbed areas around disturbance areas, collection ditches to intercept and route disturbed area drainage to the sedimentation pond, culverts, and sediment traps, which will retain disturbed area runoff allowing settlement of suspended solids prior to discharge to area drainages. Drainage and sediment control structures will be operated and maintained until effective revegetation has occurred and surface drainage quality is restored to a condition comparable to baseline conditions. To assure the continuing effectiveness of the drainage and sediment control measures, water quality monitoring will be conducted during active operations, site reclamation, and the reclamation liability period.

Other erosion control and stabilization measures to be utilized for selected disturbance areas will include asphalt surfacing of the main access road and parking areas, surfacing of other roads and operation areas with gravel or similar material, and temporary revegetation or the use of synthetic erosion control materials on exposed cut/fill slopes. All active operating areas will be inspected on a periodic basis for evidence of erosion or instability and any significant problems will be addressed in a timely manner by modifying or repairing the area to eliminate or control the problem.

**Subsidence Potential and Related Impacts on Renewable Resource Lands**

Coal Energy Group 3' (CEG3's) mining operations will use conventional room development mining, with no pillar extraction and thus no subsidence will occur. Coal outcrop barriers will prevent subsidence of near-surface shallow cover areas. Mine portals and entries have been designed to be stable, and to prevent subsidence. Portal and entries near the surface will be designed with steel, and concrete face-up materials, and tunnel support structures that will support the roof and near-surface overburden.

Baseline hydrologic field investigations during 2005 through 2010 included ground surveys designed to locate and characterize all existing surface and ground water resources. Prior to the field surveys, available topographic mapping and the Utah State Engineer's water rights records for the area were reviewed and water right locations plotted on the topographic maps. The surveys included site specific inspections of all areas shown on the topographic maps where either recorded water rights or surface or ground water occurrences were believed to exist. The surface and ground water resources identified as a result of the baseline field investigations are shown on the Map 7, Regional Hydrology Map. No material damage or diminution of values are anticipated due to the proposed mining activities.

**Provisions to Minimize Raptor Electrocution Hazards**

CEG3 will design and construct any mine related power transmission lines as shown on Figure 22, "Typical Raptor Proof Power Pole Configuration" (or equivalent) for protection of raptors from

potential electrocution hazards in accordance with the guidelines set forth in "Environmental Criteria for Electric Transmission Systems" (USDI, USDA, 1970) and/or REA Bulletin 61-10 "Powerline Contacts by Eagles and Other Large Birds". These guidelines specify pole and transmission line configurations which isolate the ground wire minimizing the potential for simultaneous contact with a live and ground wire by a raptor or other bird approaching or landing on the support poles or cross beams. An existing powerline traverses from south to north immediately east of the proposed mine facilities and belongs to Rocky Mountain Power.

## Fish and Wildlife Monitoring

### Terrestrial Wildlife

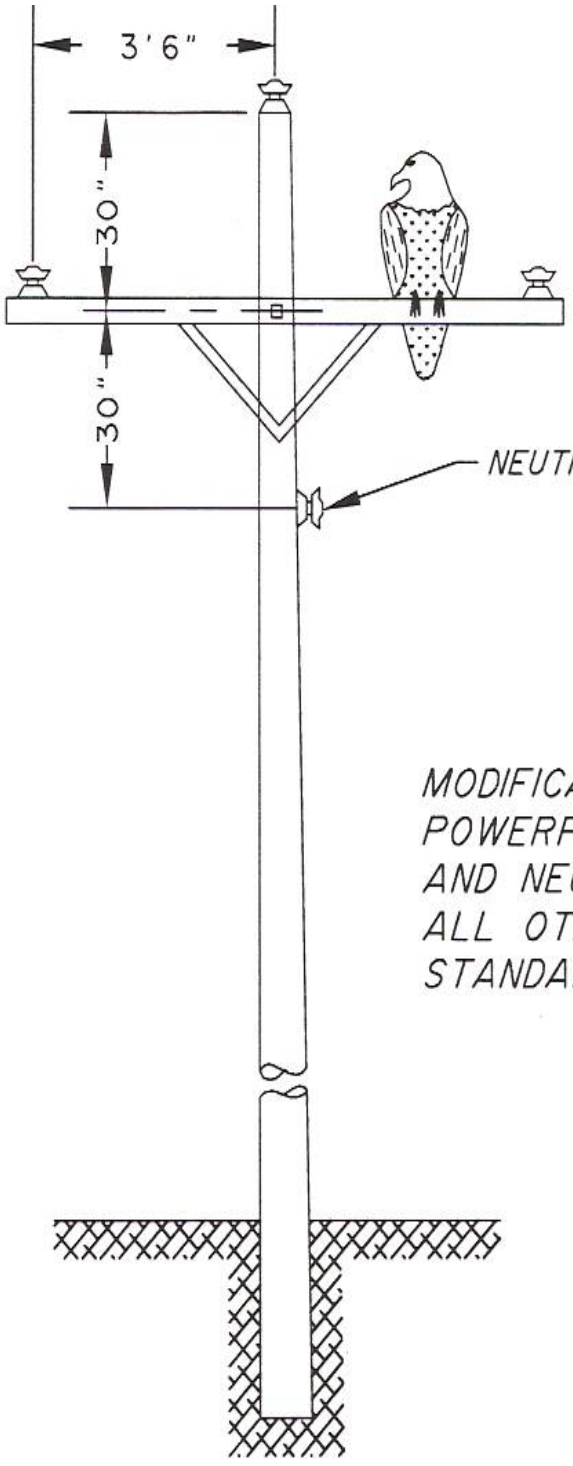
During the period of active operations, CEG3 will work closely with UDWR biologists from the local Price office to develop and maintain a program for reporting any significant wildlife observations in the proposed permit area. As part of an ongoing employee training and communication program, CEG3 employees will be instructed to report any incidents of accidental wildlife mortality or eagle sightings to the Kinney No. 2 Mine Environmental personnel. CEG3 will also coordinate with UDWR and private sector biologists to perform periodic raptor monitoring surveys if it is determined that mining and related activities have significant potential to adversely affect raptor breeding in the area.

### Aquatic Resources

Since no aquatic species have been found in the permit area, and since there is no riparian habitat, or standing water sources within the permit area, no aquatic resources will be impacted by mining operations.

## Measures to Minimize Barriers to Large Mammal Movements

Site-specific evaluation of the facilities area resulted in the conclusion that the proposed conveyor location parallel to the base of the natural valley slope would not represent a significant barrier to large mammal movements. An additional important consideration relative to potential animal movements is the existence of Highway 96 and the city of Scofield which have probably already eliminated most large mammal movements in the mine facilities area. Although the likelihood of large mammal movements through the facilities area is small, CEG3 has made provision for any potential movements by designing conveyor structures to provide a minimum clearance of approximately 40 inches and will establish a maximum speed limit for mine roads of 15 miles per hour. Several areas of the conveyors will have clearances well over 40 inches where the conveyors are elevated for mechanical reasons or for vehicular underpasses as shown on the Map 13, Surface Facilities Map. These elevated areas provide crossing areas for larger animals. In addition, the relatively short length of the overland conveyor system would allow animals to go around the site if they feel threatened.




MODIFICATION OF STANDARD POWERPOLE LOWER CROSSARM AND NEUTRAL CONDUCTOR. ALL OTHER FEATURES ARE OF STANDARD R.E.A. DESIGN.

**Figure 22 Typical Raptor Proof Power Pole Configuration**

## Protective Measures for the Facilities Area and Any Open Ponds Containing Potentially Hazardous or Toxic Materials

CEG3 has no plans to store, utilize, or generate any materials or wastes classified as hazardous or toxic in conjunction with the proposed operations. The surface facilities have been designed and will be operated in such a way that any materials such as petroleum products which would represent a potential hazard to wildlife will be contained within closed areas or containers. There will be no open ponds which would contain any potentially hazardous substances.

Potential petroleum related risks will be limited by operation of the drainage and sediment control system. The sedimentation pond has been designed with a decant structure which incorporates an oil skimmer to minimize the potential for discharge of any petroleum products which might accidentally enter the drainage control system. Regular pond and discharge monitoring will include visual inspection for any oil sheen. CEG3 has designed the mine water handling system as a closed-loop system with recycled or underground storage of mine water and no discharge to surface systems or drainages. In the unlikely event that it becomes necessary to discharge excess mine water to the surface, the water will be sampled prior to discharge and will be routed through the sedimentation control system to assure that it will meet all applicable effluent limitations and standards. All construction activities, as well as future operational activities, will be managed and monitored consistent with an approved Spill Prevention, Control, and Countermeasures (SPCC) Plan to address the potential for accidental petroleum spills and petroleum-related contamination of surface waters.

## Provisions for Protection of Threatened, Endangered or Sensitive Species

As discussed in previously, Threatened, Endangered, and Sensitive Species of this permit application to UDOGM will result in review of appropriate species by UDWR and the USFWS and issuance of a current listing of proposed and listed threatened and endangered species potentially affected by the proposed mining and related activities. These actions, which are part of the 7 consultation process of the Endangered Species Act of 1973, will be followed by a determination by the agencies of whether or not a biological assessment will be required to identify and evaluate the potential effects of the proposed action on threatened and endangered species. Given the nature and scope of the information presented in this permit application, the very limited amount of associated surface disturbance, and the absence of any known threatened, endangered, or sensitive species in the permit area, preparation of a biological assessment may not be necessary. Completion of the required procedural steps, as described above, and preparation of a biological assessment, if required, will assure full compliance under applicable provisions of the Endangered Species Act.

## Compliance with the Bald Eagle Protection Act

The permit area provides minimal potential for wintering bald eagle roosts since there are no conifer trees, or typical roost trees that would be utilized by eagles in the area of the mine facilities. Summer eagle utilization in the immediate area of the mine facilities is unlikely since Scofield

Reservoir, and Mud Creek would be preferred feeding habitat for bald eagles. There is little or no potential for nesting by golden eagles within the permit area since there are no cliffs, and very few large conifers in the area. Under applicable provisions of the Bald Eagle Protection Act, CEG3 will either not initiate new activities including surface disturbance or exploration drilling within one-half mile of any active golden eagle nest during the spring breeding season or will, in consultation with UDOGM and UDWR, initiate appropriate mitigation measures. In addition, if golden eagle nesting activity is observed anywhere within the permit area but especially in close proximity to any mining related surface disturbance such activity will immediately be reported to the local UDWR office. If it is determined that the proposed mining activities have significant potential to adversely affect raptor breeding, CEG3 as part of a cooperative program with the UDWR, will conduct periodic raptor surveys of any specific areas of concern.

**Reporting and Consultation Procedures**

Reporting procedures in conjunction with the consultation process under applicable state and federal wildlife protection laws and regulations will involve documentation of all contacts and correspondence regarding threatened, endangered or sensitive (TES) species. All telephone conversations and meetings regarding TES species will be documented in written form. If it is determined that preparation of a biological assessment is necessary, an outline will be developed and reviewed with the UDWR and the USFWS in order to establish the required organization and content of the report. The outline will incorporate any specific applicable requirements identified in the Endangered Species Act.

### R645-301.322.333 Protection & Enhancement Plan

The **Protection Plan** for the current biological resources is part of the OPERATION PLAN above (R645-301.330). The **Enhancement Plan** will be implemented at the time of final RECLAMATION & REVEGETATION of the site.

The proposed mine facilities area is located in an area that has been impacted by historical and recent mining activities, as well as residential development, commercial development, transportation corridor, and electrical power transmission facilities and operations. Of the 27.6 acres proposed for disturbance by mine related activities, 20.6 acres (74%) has been disturbed previously. That means there will only be 6.9 acres (25%) of new disturbance by the proposed new mine. With 74% of the mine area currently disturbed, the vegetation and wildlife habitat have a great deal of potential for enhancement and improvement at the time of final reclamation. Thus, revegetation will be accomplished by establishing vegetative cover that is native to the area, diverse, effective and permanent. This will greatly improve the current wildlife habitat in the area

During a site visit in the growing season of 2011 that included biologists representing Coal Energy Group 3, DOGM, DWR and/or USFWS (see "Specific Resources Requiring Special Protection Measures" below), suggestions were formulated about recommendations for planting tree species at the time of final reclamation near the remaining highwall for aesthetic reasons as well as to provide additional wildlife habitat and cover. Below is a summary of specific habitat that will be improved by successful revegetation.

**Specific Resources Requiring Special Protection Measures**

Within the general permit area, several areas have been designated in the UDWR GIS database as ~~crucial or substantial~~ habitat for black bear, blue grouse, moose, mule deer, Rocky Mountain elk, sage-grouse, snowshoe hare, and bald eagle. An onsite field investigation was conducted on June 1, 2011 by biologists representing Coal Energy Group 3 (Patrick Collins, Mt. Nebo Scientific), UDOGM (Joe Helfrich) and UDWR (Leroy Mead). The purpose of the field visit was to confirm or verify the general habitat assumptions made in the UDWR database (as described below) with a site-specific critique. With some follow-up communications suggested by Mr. Mead with his colleagues at UDWR regarding some minor components of the existing GIS data, the information below for each wildlife species appears appropriate and accurate.

Eagles and certain other raptors ~~are known to~~ to inhabit or utilize portions of the permit area at various times of the year. High priority habitat areas and golden eagle or certain other raptor nesting sites may require special protection in compliance with applicable State and Federal laws and regulations. Generally, the basic biological resource protection measures which will be implemented in conjunction with the mining and related activities will provide the necessary level of protection to achieve full compliance.

Below is a description of some additional protection and enhancement plans for the wildlife species that have been described as occupying crucial or substantial habitat within and adjacent to the Kinney No. 2 permit area.

**Black Bear**

Substantial year-long habitat for black bear (*Ursus americanus*) has been mapped within and adjacent to the permit area. Additionally, critical year-long habitat has been designated within the project area by the UDWR database (Map 2A).

Understanding black bear biology, habitat and food requirements along with being cognizant of problems that may occur with their interactions with humans will be instrumental for construction and operation of the Kinney No. 2 Mine. The black bear is considered to be an omnivore and, depending on the season, food sources can be as diverse as grasses, forbs, insects, fruits, berries, carrion, aspen buds, pine seeds, acorns, rodents and new-born deer.

The proposed new Kenny No. 2 Mine will disturb very little land that has not already been disturbed by previous mining or other activities. Even though the previous disturbed area is shown to be substantial year-long habitat for black bear, the habitat is marginal at best. The area within the permit that has been outlined as critical year-long habitat has, for the most part, not been disturbed previously nor will it be disturbed by the current mine operation plan. Therefore, habitat protection of the critical area will be to disturb very little of it. Enhancement measures will be employed to restore those areas that have previously been disturbed and are currently planned for new disturbance to habitat that existed prior to disturbance. Plant species used for revegetation will include native grasses and forbs as well as woody species that provide hard and fleshy fruits to augment food source for the black bear.

**Blue Grouse**

Year-long crucial habitat for blue grouse (*Dendragapus obscures*) was mapped by UDWR within and adjacent to the project area in 2010 (Map 2B) but not in 2018 or 2019. Blue grouse are native to Utah and prefer stands of aspen and conifer for their habitat. Very few conifer stands are present in the permit area, but aspens are common. Winters are often spent in upper elevations in conifer stands, whereas in spring and summer they spend more time at lower elevations in meadows, brushlands and open timber stands for mating.

Mating of blue grouse in Utah occurs in April and nesting is in May and June. Food sources range from herbaceous vegetation, seeds, berries, buds and insects in the summertime to needles and buds of conifers in the winter.

The entire region including the permit area was mapped before as year-long habitat for this species. Most of the proposed new mine has already been disturbed by previous mining or other activities. Final revegetation will then enhance habitat for blue grouse by restoring native plant communities that were supported there before the area was disturbed. Plant species used for revegetation will include native grasses and forbs as well as woody species that will provide better more diverse forage for the blue grouse. This should also increase the amount and diversity of insects available as food for blue grouse.

**Moose**

Crucial winter habitat for moose (*Alces alces*) has also been designated within and outside the permit area. Additionally, crucial year-long habitat has been mapped within some of the riparian zones of Mud Creek and Woods Canyon just outside the permit area (Map 2C).

Moose are primarily browsers and depend often on woody vegetation such as shrubs and deciduous trees for their dietary needs. Moose in Utah are often associated with riparian plant communities, but have also done well in drier habitats such as those dominated by mountain mahogany, Gambel oak, serviceberry, quaking aspen and burned over coniferous forests (Utah Moose Management Plan, 2009, UDWR). The breeding season or rut for moose begins in early September and peaks near the end of that month. The gestation period is about eight months and calving reaches its high point in late May. The crucial riparian habitat mentioned above will not be disturbed by the Kinney No. 2 Coal Mine development and little, if any, impact will occur to them by subsequent coal mining activities and operations. Moreover, because habitat improvement projects favor early seral stages and increased shrub growth, which can be very beneficial to moose habitat, revegetation with native plants and restoration of favorable habitat on the currently disturbed areas at the site will increase and enhance the habitat for moose in the study area.

**Mule Deer**

The subspecies Rocky Mountain mule deer (*Odocoileus hemionus hemionus*) is the largest and only subspecies found in Utah. Its habitat has also been mapped within the permit and adjacent areas by UDWR biologists. The habitat has been classified as crucial summer fawning habitat. This designation included the entire permit area as well as those areas adjacent to it (Map 2D).

Deer are browsers, and rely on many different plant species in their diet. Woody plants such as sagebrush, bitterbrush, mountain mahogany, cliffrose, rabbitbrush, scrub oak and willow make up a major part of their diet, mule deer will eat a variety plants. Researchers have documented Rocky Mountain mule deer feeding on close to 800 different plant species (UDWR, Wildlife Notebook Series No. 13, 1999). The same source states that of these, over 60% are forbs, 25% are shrubs or trees, and 12% are grasses.

In Utah, the mule deer breeding season is during the months of November and December. The fawning period is from late spring to early summer. The does (females) often produce one or two fawns.

Operations of the proposed Kinney No. 2 Mine may impact some fawning activities by moving them further from noise caused by the mining activity, but is not likely to have an overall negative impact on the resident deer populations. Like the species mentioned above, enhancement of the mule deer habitat will be realized once following final reclamation of the mine site by restoration of those plant communities that are currently in poor condition due to past mining and other activities. Plant species used for revegetation will include native grasses and forbs as well as woody species that provide important browse and fawning cover for the mule deer in the area.

**Rocky Mountain Elk**

Rocky Mountain elk (*Cervus canadensis*) habitat has been mapped in the area. Crucial summer habitat was mapped throughout the entire area including the permit area (Map 2E).
Elk are ungulates but are "generalist" and have a diverse diet that consists of woody plants, forbs and grasses. Their flexible diet allows them to live in a variety of habitats but seem to prefer summers at higher elevations in aspen and coniferous forests and winter in lower elevations in plant communities such as mountain shrub and sagebrush. Elk in Utah are most closely tied to aspen communities than any other habitat type where they are provided forage and cover in the summer and are used for calving in the spring (Utah Elk Statewide Management Plan, UDWR, 2010). Relatively close proximity to a permanent water source is also an important component to elk habitat (e.g. within 0.33 miles). Although no permanent water source is available within the permit area, Mud Creek, Winter Quarters Creek, Wood's Canyon Creek and Scofield Reservoir are close by.

In Utah, the breeding season of elk begins in early September and continues through the middle of October. Calving usually occurs from mid-May until early June, or after a gestation period of 8 or 8½ months. Calves are usually born in singles; twins are very rare.

Aspen is an important component within the Kinney No. 2 Mine permit area. Very little aspen stands will be disturbed associated with construction and operation of the mine. Noise and close proximity of the mining activities may impact calving activities in the nearby aspen stands, but elk will probably move during mining operations. The mining activities are not likely to have an overall negative impact on the elk population in the area. Like the species mentioned above, enhancement of the elk habitat enhancement and mitigation will be accomplished following final reclamation of the mine site by restoring of those plant communities that are currently in poor condition due to past mining and other activities. Plant species used for revegetation will include native grasses and forbs as well as woody species that provide important browse and fawning cover for the Rocky Mountain elk in the area.

**Sage-Grouse**

Greater sage-grouse (*Centrocercus urophasianus*) are native to Utah and have been listed as a sensitive species by the UDWR a. Sage-grouse populations have been declining in western U.S. over the last 100 years as a result to loss of habitat, mainly the sagebrush communities.

Sage-grouse habitat has been documented in and around the project area. UDWR biologists have mapped much of the area to be ~~occupied and crucial brooding habitat as well as crucial winter habitat~~ winter and summerfor this species (Map 2F). No leks are known to occur within a one-mile radius.

Leks are areas where sage-grouse congregate to conduct courtship rituals and mating activities where the birds return to each year. It is common for sage-grouse to revisit the same leks for many decades. The mating activities are usually conducted from mid- March through late- April. For a few weeks prior to nesting and after mating, the birds move away from the lek and concentrate on foraging. Food sources during this time period are dominated by sagebrush leaves.

Nests are then selected, often within 2 miles of the lek. Female birds show a high-fidelity rate for nest location relative to their leks (Utah Greater Sage-Grouse Management Plan, UDWR, 2009). Nesting primarily occurs under the cover of sagebrush plants and may occur until the first part of June. Clutch sizes are extremely variable, but the average size is 6.0 – 9.5 (Utah Greater Sage-Grouse Management Plan, UDWR, 2009). To survive, sage-grouse chicks must consume insects for at least 3 weeks following hatching, but their diet later consists of forbs, grasses, and shrub leaves.

The sagebrush community necessary for successful sage-grouse habitat is the most important plant community by extent within the Kinney No. 2 Mine permit and adjacent areas. That which has been described above as "previously disturbed by mining or other activities" was mostly within this community type. That said, most of revegetation for all disturbances (past and future) will occur within this community type. In other words, when the mine site is reclaimed, it will primarily be re-seeded to restore sagebrush communities with a good component of forbs and grasses also in the seed mixture. This will ultimately enhance and increase habitat for the greater sage-grouse of the area. This should also increase the amount and diversity of insects available as food for sage-grouse.

Revegetation seed mixtures have been designed to enhance habitat for sage-grouse. In addition, the areas that are disturbed my mining activities and lie within the Sage-Grouse Management Area (SGMA) will be mitigated at a 4:1 ratio, or for each one acre disturbed compensatory mitigation will occur on four acres. This mitigation could be handled through the State of Utah, Department of Natural Resources (DNR) Credit Exchange Mitigation under consultation with DOGM and DWR.

**Snowshoe Hare**

Not a threatened, endangered or sensitive species, the snowshoe hare (*Lepus americanus*) is included here because of public interest and its relevance as a primary food source for the federally listed threatened Canada lynx (*Lynx canadensis*). This species has year-long crucial habitat in a portion of the permit area as well as adjacent to it (Map 2G).

The snowshoe hares often occur in coniferous forests (there are very few stands in the permit area), but also occur in aspens (which is important in the permit area) and other woody plants such as alder, willow and other species.

No nests are built by snowshoe hares because the young are born with fur with their eyes open. Usually litter sizes are from two to four with three to four litters common from April through August. With very little disturbance planned in the existing aspen stands of the Kinney No. 2 Mine permit area, little or no impact is expected to occur to the resident snowshoe hare population.

## R645-301.331 INTERIM RECLAMATION PLAN

To stabilize disturbed areas after initial construction, including stabilization during the life of the mine, all areas will be seeded with the temporary seed mixture included in Table 21 Temporary Seed Mixture. All temporary areas including cut slopes, fill slopes, and any other disturbed areas will generally be steeper than 3:1 and therefore will be seeded by hand or by spraying on the seed mixture with a hydro-seeder, followed by spraying on an approved organic mulch at the rate of 1.5 tons per acre with an organic tackifier to stabilize the mulch. Any areas that have poor germination or that do not revegetate in the first year will be reseeded and mulched. The topsoil stockpiles will be seeded in the same manner, and in addition, alternative sediment controls as discussed in Chapter 7 will be implemented as necessary. These topsoil stockpile treatments may include, toe ditches, silt fences, straw bales, and additional silt fence rows along the contour at intervals up the topsoil stockpile slopes as may be warranted to control topsoil loss from the piles.

The interim reclamation will also provide browse, food, and habitat for wildlife during the life of the mine and will help offset the impacts of the mining operation on wildlife and birds.

## R645-301.340 RECLAMATION PLAN

This section of the Kinney No. 2 Mine Permit Application provides both general and specific information relative to the plans and practices which will be utilized to reclaim and restore surface

disturbance areas resulting from mining and related operations to a condition and productivity comparable to or better than their condition prior to the Kinney No. 2 Mine disturbance consistent with a postmining land use of wildlife habitat, and the Carbon County Land Use Zone designated "Watershed". *Although this chapter address specifically coal exploration as it relates to wildlife and vegetation, the basic principles and practices of reclamation presented apply to general mining disturbances which are also addressed in Chapter 5, Engineering under R645-301-540, and in Chapter 200, Soils under R645-301-234.240.* Revegetation of the Kinney No. 2 Mine site will focus on re-establishing plant communities that were native to the area prior to disturbance by historical mining, future mining and other related activities. Simply stated, the revegetation plan will reestablish sagebrush and aspen communities that will include plant species that enhance habitat for high interest wildlife species as well as those other wildlife species that are associated with these plant communities. The high-interest wildlife habitat as described by findings from the State of Utah, Division of Wildlife Resource (UDWR) geographical information system (GIS) include:

- Black Bear (Crucial, Year-Long & Substantial Year-Long Habitat)
- Blue Grouse (Crucial, Year-Long Habitat)
- Moose (Crucial, Winter)
- Mule Deer (Crucial, Summer and Crucial Fawning Habitat)
- Rocky Mountain Elk (Crucial, Summer Habitat)
- Sage-Grouse (Crucial Brooding & Crucial Winter Habitat)
- Snowshoe Hare (Crucial, Year-Long Habitat)

Information sources utilized in developing the reclamation plans presented in this chapter include the baseline environmental investigations, detailed mining plans, conceptual and detailed facility layouts and designs, detailed drainage and sediment control plans, and any specific plans for control, monitoring, and mitigation of mining related impacts. The reclamation design information and discussions of reclamation practices presented in this chapter have been prepared in compliance with applicable provisions of the State of Utah Coal Mining Rules and are intended to provide a reasonable description of the nature, timing, and anticipated results of planned reclamation activities. The reclamation plans presented in this chapter reflect consideration of the environmental resource information presented in R645-301-200, 300, 400 and 700, Environmental Information, and the mining plans presented in R645-301-500, "Engineering Design and Operations Plans", and are designed to effectively mitigate to the extent operationally practicable the potential effects of mining.

The various information categories addressed in the subsections which make up the Reclamation Plans are consistent with the information categories outlined in the State of Utah Coal Mining Rules. The following are the sub titles and designations included in this section:

- Reclamation of Exploration Disturbance
- Soil Replacement Plans
- Habitat Restoration Plans
- Reclamation of Mining Disturbance
- Hydrologic Restoration

Each subsection identifies the applicable regulatory provisions addressed and sources for the information presented and includes related supporting tables and figures. Other supporting documentation, including maps and exhibits, is referenced in the text and provided in the separate map and exhibit volumes.

Reclamation will be an integral part of any exploration and related activities. Reclamation of surface disturbance areas resulting from exploration activities will occur as soon as reasonably feasible following the completion of exploration drilling and other related activities.

Objectives of the planned reclamation activities will include stabilization of disturbed areas, minimizing erosion, limited potential surface water impacts, and restoring disturbed areas to a safe, stable condition. Plans for reclamation of exploration disturbance have been designed to successfully meet these objectives and will result in effective stabilization, and a reclaimed configuration which blends with the surrounding terrain and provides for effective surface and erosion control.

Reclamation will involve a logical sequence of activities designed to achieve the overall reclamation objectives in an organized progressive manner. The following represents the general steps for reclamation of any exploration disturbance areas:

- Completion of the borehole as a monitoring well or plugging and sealing the borehole
- Drainage and backfilling of any mud pits
- Collection and removal of any trash or debris
- Grading of pad areas to establish the final configuration
- Drainage reestablishment
- Road removal
- Soil replacement and stabilization
- Revegetation

These activities are discussed in detail in the following sections.

**Reclamation Plans and Practices**

The specific reclamation plans developed for exploration areas and the proposed reclamation practices reflect the overall reclamation objectives, site specific conditions and constraints, and the best current reclamation techniques and methods. The following sections describe the timing and sequencing of reclamation activities, general reclamation requirements, and specific reclamation practices.

CEG3 will reclaim exploration related surface disturbance areas as soon as operationally practicable following completion of exploration activities. Typically, reclamation will be initiated immediately on completion of all exploration activities under a given exploration program to accommodate effective mobilization and use of reclamation equipment or an independent reclamation contractor. CEG3 will normally schedule all exploration activities under a given exploration program during the same field season and reclamation would occur on completion of the program or at the end of the field season and no later than the next normal field season (typically May through October). It is anticipated that final reclamation of exploration areas would be completed within 3 to 6 months from the time exploration activities at any given site are completed.

Final reclamation will involve removal of all exploration equipment and materials, closure and sealing of any boreholes not completed as monitoring wells, backfilling and grading of pad areas and roads, drainage reestablishment, road removal, placement of soil materials, and revegetation. Generally, soil replacement and revegetation efforts will be coordinated so that soil materials are revegetated as soon as practically possible following placement. Normally this will involve placement of soil and immediate reseeding at the end of the exploration project or field season in late fall. This approach allows the seed to "winter over" with germination in the spring

when soil moisture conditions are elevated due to winter snow accumulations and spring melt.

### Reclamation Plans and Practices

The reclamation plans and practices described in this chapter reflect consideration of site reclamation potential and any important limitations, and application of the best current reclamation technology and both CEG3's and other coal operators extensive operating experience in this area. The following sections describe the specific reclamation practices proposed for exploration surface disturbance areas.

### Completion as a Monitoring Well or Plugging and Sealing Boreholes

As described in R645-301-631, Casing and Sealing Exploration Holes and Boreholes, a determination will be made either prior to or during completion of any exploration holes or boreholes of whether or not the hole will be utilized for ground water monitoring purposes. If the hole is to be utilized for monitoring it will be cased, completed, and developed as a monitoring well consistent with Figure 21 Typical Well Completion Diagram, and as described in R645-301-225, 323.200, 325, 202-235, and 236, Completion as Ground Water Monitoring Wells. If the hole is not to be utilized as a monitoring well or when an existing well is no longer required for ongoing monitoring, it will be sealed by filling the borehole or casing with cement to form a plug from the bottom of the hole to at least 20 feet above any zone of completion or water-bearing zone; filling the remainder of the hole to within 20 feet of the ground surface; and filling the remainder of the hole to the ground surface with cement to form a surface plug. A steel fence post will be placed in the center of the surface plug before the cement sets-up to provide a permanent marker for the hole location.

### Drainage and Backfilling of any Mud Pits

If mud pits were utilized during Drilling, they will be allowed to dry out and will be backfilled with drill cuttings and/or the material originally excavated from the pits. Fill material will be placed and compacted by normal equipment traffic to minimize voids and provide and limit any potential future settlement. Any remaining excess drill cuttings will be spread over the drill pad surface.

### Collection and Removal of any Trash or Debris

Any trash or debris resulting from drilling operations including used drill bits, mud or additive bags, core boxes and other materials will be collected and removed from the drill site for disposal in the local municipal landfill. In addition, all exploration equipment and related materials and supplies will be removed from the site.

### Grading of pad areas to establish the final configuration

Drill pad surface areas will be regraded to their approximate original configuration. Grading will involve the use of a tracked dozer, wheel loader, or backhoe to move, place, and grade fill materials. Generally, the material utilized in constructing the pad will be pulled back onto the cut bench from downslope fill areas and the fill will be graded and contoured to blend with the surrounding terrain and provide for effective drainage. On completion of grading the regraded surface will be ripped along the contour to control drainage and provide a good bond with the replaced soil material. Fill slopes will be limited to a maximum slope of approximately 3H: l V and

graded slopes in native material will vary dependent on material from less than 5H: l V to as much as O.5H: 1 V in competent rock.

**Drainage Reestablishment**

In conjunction with grading activities, CEG3 will establish a drainage configuration which is compatible with the natural drainage pattern of the surrounding terrain. If upgradient drainage would pose a potential erosion hazard for the regraded area, drainage will be routed around the regraded surface or erosion control materials will be utilized as appropriate.

**Road Removal**

Where existing roads are utilized for exploration access, water bars will be constructed where appropriate to minimize erosion and natural drainage patterns will be reestablished. Any new road segments constructed specifically for exploration access will be reclaimed by ripping the road surface and grading to reestablish the approximate original configuration and drainage pattern. Cut/fill areas will be reclaimed by pulling the fill material upslope into the cut and grading any remaining cut slope, the fill material, and disturbed downslope areas to a stable configuration consistent with natural drainage patterns and blending with the surrounding terrain.

**Soil Replacement**

Following completion of backfilling, grading, and drainage reestablishment, available soil material will be replaced on the regraded areas as a growth medium for subsequent revegetation. Soil will be replaced as soon as operationally practicable following completion of the other necessary activities in the reclamation sequence, however, the timing of soil placement will also reflect the need to reestablish vegetation as soon as possible to stabilize and prevent loss or erosion of the soil. Soil bladed off the pad area and roads during construction will typically be windrowed along the perimeter of the disturbance areas. This material will be recovered and spread across the regraded areas to establish a relatively uniform thickness of growth medium.

As the final step in the reclamation process, all exploration surface disturbance areas will be revegetated. Typically revegetation seeding will occur immediately. Seeding may occur at other times where appropriate to minimize erosion due to location, aspect, or other site specific factors. Any required shrub or woody species transplanting will occur in late spring to minimize the potential for frost-kill.

Seedbed preparation will involve ripping, or deep gouging the resoiled surface to prepare the surface to receive seed. Seed may be placed using either a rangeland seed drill or broadcast methods. Following seed placement, weed free straw or native hay mulch or other erosion control materials will be placed and crimped or anchored to protect the soil, minimize erosion, prevent seed loss and help trap and retain moisture. Exploration areas will be seeded with the permanent seed mixture as discussed in R645-301-340, Habitat Restoration Plans.

**General Habitat Restoration Requirements**

The Kinney No. 2 Mine surface facilities area will be the only surface disturbance area resulting from the planned mining and related activities. As described in R645-301-312 and 313, General Biological Resource Protection Requirements, the majority of the mine facilities area has been extensively disturbed by previous mining related activities resulting in destruction, elimination, or significant modification of vegetation and habitat values. Beyond the practical limitations on habitat value and use relating to the previous disturbance, wildlife use of both existing and

proposed surface disturbance areas is also limited by current levels of human activity in the immediate area due to the proximity of Highway 96, and Scofield Town.

From a practical standpoint, the mine surface facilities area, because of the extensive previous disturbance and their proximity to other development activities, are not particularly well suited for many uses other than mining. Given, however, that these areas and the surrounding lands were in all probability undeveloped lands utilized for wildlife habitat, CEG3 will reclaim surface disturbance areas to a postmining land use of wildlife habitat and watershed, which is a Carbon County Zoning designation. Consistent with the proposed postmining use, backfilling and grading will focus on restoration of a land configuration consistent with applicable provisions for remining of previously disturbed areas with a preexisting highwall (R645-301-553.500 through 524) and the general configuration which existed prior to mine development, soil and substitute materials will be replaced to provide a vegetative growth media similar to the natural soils existing in the area, and planned revegetation efforts are designed to provide a self-sustaining postmining vegetation community which will effectively stabilize disturbed areas and provide suitable wildlife forage and browse. In addition to site revegetation measures, CEG3 will also implement specific habitat mitigation and enhancement measures, as further described in this chapter, to effectively address potential mining related impacts and provide some long-term mining related benefits.

## R645-301-341 Revegetation

CEG3's planned revegetation practices are specifically designed to provide or promote:

- Rapid vegetative reestablishment following completion of soil/substitute replacement
- Establishment of adequate plant density and cover to effectively control runoff and erosion
- Establishment of a reclaimed plant community consisting primarily of indigenous plant species with any introduced species having proven adaptability for site conditions
- Adequate plant species diversity and vigor to assure effective ongoing vegetative propagation and a self-sustaining vegetation community
- Palatable wildlife browse and forage species consistent with the postmining land use

Revegetation seed mixtures, and stabilization/management practices have all been selected and designed to achieve these objectives. Generally, revegetation methods will be similar for all surface disturbance areas and will typically include the following specific activities:

- Seedbed preparation
- Seeding
- Mulching and surface stabilization
- Management and revegetation success monitoring

### Timing of Revegetation Activities

Interim revegetation has been addressed previously in this chapter. Generally, seeding of areas where soil/substitute materials have been replaced will occur as soon as practically possible following the cessation of mining activities in order to minimize the potential for both soil/substitute loss and erosion. Normally this will involve placement of soil/substitute and immediate reseeding, and soil stabilization.

### Revegetation Practices

As previously described, revegetation of surface disturbance areas will involve a logical sequence of activities including seedbed preparation, seeding, woody species transplanting, mulching and surface stabilization, and management and revegetation success monitoring. Localized adaptations of specific revegetation practices will be utilized where appropriate to address any limiting site conditions and constraints such as steep slopes, rocky soils, increased erosion potential, and other factors.

### Seedbed Preparation

Prior to seeding, CEG3 will prepare regraded and resoiled areas to provide a firm but uncompacted seedbed. As described in R645-301-243, Soil Suitability and Testing, and in R645-301-542.300 through 800, 550 through 553.900, and 560, Reclamation Practices, under the sub-headings of Backfilling and Grading to Establish Final Configuration, Soil/Substitute Replacement, and Revegetation; backfilling, grading, and soil/substitute replacement activities will be conducted so as to minimize compaction.

Soil materials will be left in a roughened condition to control runoff, limit erosion and soil loss, and promote moisture infiltration. CEG3 will also selectively apply alternative sediment control measures as described in R645-301-730, Hydrologic Resource Protection Plan. Revegetation seeding will occur immediately following soil material placement so additional stabilization measures will not be required prior to seeding. In conjunction with seeding operations, the soil material will be deep ripped (up to 3 feet deep), plowed or disked to prepare the seedbed in areas where the slopes are 3:1 or flatter. Where the slopes are steeper than 3:1, deep gouging, or plowing along the contour will done to prepare the seedbed. The reclaimed ground surface will be very similar in topography to the pre-mining surface as shown on Map 29, Mine Surface Facilities Area – Postmining Topography and Interim Drainage Control Map.

Reclaimed ground gradients can be seen on Map 29, Mine Surface Facilities Area – Postmining Topography and Interim Drainage Control Map. Deep gouging is the preferred method, with plowing along the contour as an alternative where slope angle allows. In all cases, UDOGM will be consulted prior to seedbed preparation to insure that the reclamation plan is being followed. Following seeding, the reseeded areas will be mulched with straw or native hay at a rate of two tons per acre and the mulch will be crimped, plowed, or disked into the soil on slopes at 3:1 or steeper to minimize wind loss. Another method of soil stabilization that may be used on areas with slopes steeper than 3:1 is spray on organic mulch at a rate of 2 tons per acre with a tackifier to stabilize the mulch and seeds. Again, UDOGM will be consulted prior to seeding and soil stabilization to insure the reclamation techniques used are the best for the particular slope, soil type and surface aspect, and that the application rates are appropriate for the slope and time of season when reclamation is done.

Hay purchases will be based on specifications which minimize the potential for introduction of any noxious weed species. While this treatment is intended primarily to increase soil organic content and provide soil biota, it will also be effective in alleviating compaction and promoting moisture infiltration and retention.

Given that seeding will normally follow soil/substitute replacement within a very short time period and that the soil/substitute surface will be left in a roughened condition, seedbed preparation

requirements will be minimal. In order to limit mixing of soil/substitute and underlying backfilled materials, surface manipulations will be minimized and will generally be limited to appropriate gouging/roughening techniques.

### Seeding

CEG3 will generally use one of three seeding methods, either drill seeding, broadcast seeding, or hydro-mulching dependent on the nature and aspect of the area to be revegetated. Broadcast seeding using a conventional rangeland seed drill will be utilized for reseeding of most areas. For construction disturbance, roadcuts, ditches, sedimentation pond embankments, soil/substitute stockpiles and other areas which require temporary vegetation to stabilize the disturbed surface and control runoff, erosion, and sedimentation, the temporary seed mixture will be drill seeded at a rate of 20.4 pounds of pure live seed (PLS) per acre or broadcast seeded at twice this rate (40.8 lbs. PLS/acre). Similarly, for all areas to be revegetated on a permanent basis, the permanent seed mixture will be drill seeded at a rate of 46.33 pounds of PLS/acre or broadcast seeded at twice this rate (92.66 lbs. PLS/acre). To the extent operationally feasible, CEG3 will drill seed along the contour on sloping areas.

Following deep gouging or other roughening process, the resoiled areas will be seeded with the appropriate seed mixture and rates. Shortly after the seeding, an additional 1 to 1.5 tons per acre of certified noxious weed free straw will be spread over the seeded growth media by mechanical blowers or hand spreading. This mulch will be sprayed with a tackifier and mulch mixture at a rate of 0.25 tons per acre or crimped with the track hoe bucket or shovel following spreading to retain it on the reseeded slopes. Commercial seed purchases will be based on specifications which minimize the potential for introduction of noxious weed species.

### Woody Species

The proposed permanent seed mixture for the Kinney No. 2 Mine surface facilities area includes several woody plant species which can be effectively established from seed including Utah serviceberry, mountain big sagebrush, winterfat, antelope bitterbrush, and mountain snowberry.

### Mulching and Surface Stabilization

Surface stabilization measures have been incorporated as an integral part of CEG3's specific reclamation procedures for backfilling and grading, drainage reestablishment, soil/substitute replacement, seedbed preparation, and revegetation seeding activities. In addition to specific surface stabilization measures, CEG3 will also selectively apply alternative sediment control measures as appropriate to control erosion and apply weed-free straw or native hay mulch to most re-seeded surface disturbance areas and will utilize other surface protection/stabilization measures in conjunction with or as an alternative to mulching for any areas having increased erosion potential. A detailed description of specific surface stabilization and mulching practices is presented in R645-301-341, Mulching and Stabilization Practices.

### Management and Revegetation Success Monitoring

Re-seeded areas will be managed to achieve the revegetation objectives previously noted in this chapter. Management practices will include regular periodic inspection of reseeded areas; appropriate erosion control or repair activities; weed/pest control operations; re-seeding, if required; and revegetation success sampling and evaluations.

As part of the postmining management program, reclaimed areas will be qualitatively inspected on a regular quarterly basis at a minimum for any indications of significant erosion, siltation, surface instability, drainage problems, seeding failure, weed infestations, or other conditions which could adversely impact reclamation success. Inspections will continue throughout the extended liability period to assure effective reclamation. Any problems identified as a result of these regular inspections will be addressed in a timely manner consistent with overall reclamation plans and practices.

The reclamation plan for the Kinney No. 2 Mine has been designed to prevent or minimize erosion and restore disturbed areas to a stable and productive condition. If despite CEG3's best efforts, inspection of the reclaimed areas indicates that natural erosional processes are creating significant rills or gullies, CEG3 will implement appropriate remedial/protective measures. In order to minimize any associated surface disturbance, the proposed erosion mitigation measures reflect consideration of the nature and extent of erosional damage and are designed to be implemented in phases dependent on the severity of or potential for damage. Specific erosion mitigation measures are described in R645-301-542.300 through 800, 550 through 553.900, and 560, Reclamation Practices, under the sub-heading of Post-Reclamation Management and Monitoring.

Any seeding failures or weed infestations identified by the post-reclamation management inspections will be addressed during appropriate time periods to achieve optimal mitigation. Any areas where partial or complete seeding failure is indicated by limited vegetative reestablishment or excessive dominance of one or more species will be addressed by reseeding the affected areas during either the early spring or late fall. Essentially the same seeding methods will be utilized as for initial seeding with the exception of seedbed preparation. Any significant weed infestations will be addressed through consultation with UDOGM to determine appropriate control measures. A detailed description of specific weed and pest control measures is presented in R645-301-341.240 and 357.300, Irrigation and Pest Control.

In addition to regular periodic inspections of re-seeded areas, CEG3 will also implement a revegetation success monitoring program to quantify and document the progression of vegetative reestablishment for all reclaimed areas. The ultimate objectives of the revegetation success monitoring program will be to allow timely identification and remediation of any vegetative reestablishment problems and to provide the verification required for a revegetation success determination and final bond release. A detailed discussion of the revegetation success monitoring program is provided in R645-301-341.250, 300, 353.100 through 300, 356100 through 400, and 357.100 through 300, Revegetation Success - Criteria and Evaluation Methods.

### Revegetation Species and Amounts

CEG3 will use two separate revegetation seed mixtures for the new Kinney No. 2 Mine surface facilities disturbance areas; one for temporary vegetative establishment on construction disturbance areas, roadcuts, ditches, sedimentation pond embankments, soil/substitute stockpiles and other areas requiring interim erosion control and stabilization, and one for permanent revegetation of reclaimed upland areas. The species selected for inclusion in both the temporary and permanent revegetation seed mixtures are native and adapted species which occur within the surface disturbance and adjacent areas and which have a proven adaptability and compatibility to site conditions. Selection of specific plant species for inclusion in the revegetation seed mixtures involve consideration of natural occurrence as documented by vegetative baseline studies, ease of establishment from seed, seed availability, adaptability and vigor, contribution to vegetative diversity, and forage and browse value for various wildlife species.

The proposed temporary seed mixture presented as Table 22, Temporary Seed Mixture, consists of adapted species which germinate rapidly, are effective sod formers, and so are well suited to establish an effective temporary vegetative cover. The temporary seed mixture will be used for those disturbed areas which will not be utilized on an ongoing basis as active operating areas but will be disturbed prior to or in conjunction with final site reclamation. The temporary seed mixture may also be used as a stubble mulch to stabilize areas which are particularly subject to potential erosion.

The proposed permanent seed mixture for the Sagebrush/Grass and Rabbitbrush/Grass Plant Communities is presented in Table 22, Final Revegetation Seed Misture for Sagebrush/Grass and Rabbitbrush/Grass Plant Communities. The permanent seed mixture consists of a variety of predominantly native grasses, forbs, and shrubs with proven site adaptability and good hardiness which have been specifically selected for their value as browse and forage species consistent with the postmining land use of wildlife habitat as recommended by the UDWR. The permanent mixture will be utilized for revegetation of all surface disturbance areas and includes a variety of species found in both the sagebrush/grass and rabbitbrush/grass vegetation communities. Based on their occurrence in natural plant communities in the area, available agronomic and wildlife research, and actual operating experience at coal mines in the Price, Utah area, the selected species included in the permanent reclamation seed mixture will provide an effective self-sustaining vegetative cover which will control surface runoff and erosion, provide sufficient diversity to assure the long-term stability of the revegetated community, and is compatible with CEG3's wildlife habitat mitigation, restoration, and enhancement objectives.

To the extent reasonably feasible consistent with both site stabilization and reclamation objectives, CEG3 has selected revegetation species which are native species. CEG3 will assure acceptable purity and germination standards for all seed mixtures and will require that suppliers certify seed shipments as meeting the standard specifications and being free of noxious weed seed.

In order to assure that seeding and planting stocks are of suitable quality for effective revegetation, CEG3 will attempt to obtain native seed material from those sources which most closely approximate site conditions and will deal only with established reputable seed suppliers. CEG3 will assure acceptable purity and germination standards for all seed mixtures and will require that supplies certify seed shipments as meeting the standard specifications and being free of noxious weed seed.

**TABLE 21 TEMPORARY SEED MIXTURE**

| Group/Species | PLS (Drill) lbs/acre* | Number of Seeds/FT2 |
|---|---|---|
| **Grasses** | | |
| Mountain Brome (Bromus carinatus~~Thickspike Wheatgrass (*Elymus lanceolatus*)~~ | 4.0 | ~~14.14~~9.18 |
| Western Wheatgrass (*Elymus smithii*) | 5.0 | 14.46 |
| Bluebunch Wheatgrass (*Elymus spicatus*) | 6.0 | 19.28 |
| Orchard Grass~~Kentucky Bluegrass~~ (Dactylis glomeratus~~*Poa pratensis*~~) | 0.60~~0.40~~ | 9.01~~19.99~~ |
| **Forbs** | | |
| Utah Sweetvetch (*Hedysarum boreale*) | 10.00 ~~5.0~~ | 7.71 ~~3.86~~ |
| *Yarrow (Achillea millefolium)* | 0.10 | 6.43 |
| Lewis Flax (Linum lexisii | 1.50 | 9.57 |
| Small Burnet (Sanguisorba minor) | 7.00 | 8.84 |
| TOTALS TOTAL | 29.20~~20.40~~ | 69.06~~71.74~~ |
| * Based on drill seeding methods. Rates should be doubled in areas that are broadcast seeded. | | |

**TABLE 22 FINAL REVEGETATION SEED MIXTURE FOR SAGEBRUSH/GRASS AND RABBITBRUSH/GRASS PLANT COMMUNITIES**

| Species | PLS (Drill) lbs/acre* | Number of Seeds/FT2 |
|---|---|---|
| **Grasses**<br><br>Bluebunch Wheatgrass (*Elymus spicatus*) | 1.50 | 4.82 |
| Kentucky Bluegrass (*Poa pratensis*) | 2.00 | 4.0 |
| Sandberg Bluegrass (*Poa secunda*) | 0.20 | 4.25 |
| Needle-and-thread (*Stipa comata*) | 1.00 | 2.64 |
| **Forbs**<br><br>Common Yarrow (*Achillea millefolium*) | 0.03 | 1.91 |
| Utah Sweetvetch (*Hedysarum boreale*) | 5.00 | 3.86 |
| Lewis Flax (*Linum lewisii*) | 0.70 | 4.47 |
| Silky Lupine (*Lupinus sericeus*) | 8.00 | 4.51 |
| Meadow Penstemon (*Penstemon rydbergii*) | 1.50 | 4.54 |
| Small Burnet (Sanguisorba minor) | 6.00 | 7.58 |

| TABLE 22 FINAL REVEGETATION SEED MIXTURE FOR SAGEBRUSH/GRASS AND RABBITBRUSH/GRASS PLANT COMMUNITIES | | |
|---|---|---|
| Goldeneye (*Viguiera multiflora*) | 0.20 | 4.84 |
| **Shrubs**<br><br>Utah Serviceberry (*Amelanchier utahensis*) | 6.00 | 3.55 |
| Mountain Big Sagebrush (*Artemisia tridentata* var. *vaseyana*) | 0.10 | 5.74 |
| Winterfat (*Krascheninnikovia lanata*) | 4.00 | 5.05 |
| Antelope Bitter Brush (*Purshia tridentata*) | 15.00 | 5.17 |
| Mountain Snowberry (*Symphoricarpos oreophilus*) | 3.00 | 5.17 |
| TOTALS | 52.3346.33 | 73.0865.51 |
| * Based on drill seeding methods. Rates should be doubled in areas that are broadcast seeded. | | |

In addition to the specific stabilization practices, following reclamation seeding, straw or native hay mulch will be applied to most re-seeded areas at a rate of approximately 2 tons per acre and crimped or anchored using a disk or similar agricultural implement to protect the soil, minimize erosion, prevent seed loss, and help trap and retain moisture. In certain areas where there may be increased potential for erosion and soil loss due to steep slopes or localized drainage conditions, other suitable stabilization materials and methods including alternative sediment control measures may be substituted for or combined with mulching.

Such methods may include dozer tracking, application of geotextiles, hydromulching (at a rate of approximately 1.5 tons per acre), or other suitable stabilization and erosion control measures.

### 341.230 Mulching Techniques

As described in R645-301-542.300 through 800, 550 through 553.900, and 560, Reclamation Practices, under the sub-heading of Backfilling and Grading to Establish Final Configuration, and Drainage Reestablishment; and in this chapter under R645-301-341 under the sub-heading of Seedbed Preparation; reclaimed areas will be graded to a stable configuration with reestablishment of effective surface drainage patterns. Prior to seeding, CEG3 will prepare regraded and resoiled areas to provide a firm but uncompacted seedbed. Soil materials will be left in a roughened condition to control runoff, limit erosion and soil loss, and promote moisture infiltration. CEG3 will also selectively apply alternative sediment control measures as described in R645-301-730, Hydrologic Resource Protection Plan. Revegetation seeding will occur immediately following soil material placement so additional stabilization measures will not be required prior to seeding. In conjunction with seeding operations, the soil material will be deep ripped (up to 3 feet deep), plowed or disked to prepare the seedbed in areas where the slopes are 3:1 or flatter. Where the slopes are steeper than 3:1, deep gouging, or plowing along the contour will be done to prepare the seedbed. The reclaimed ground surface will be very similar in topography to the pre-mining surface as shown on Map 29. Reclaimed ground gradients can be seen on Map 33, Slope Analysis Map. Deep gouging is the preferred method, with plowing along the contour as an alternative where slope angle allows. In all cases, UGOGM will be consulted prior to seedbed preparation to insure that the reclamation plan is being followed. Following seeding, the reseeded areas will be mulched with straw or native hay at a rate of two tons per acre and the mulch will be crimped, plowed, or disked into the soil on slopes at 3:1 or steeper to minimize wind loss. Another method of soil stabilization that may be used on areas with slopes steeper than 3:1 is spray on organic mulch at a rate of 2 tons per acre with a tackifier to stabilize the mulch and seeds. Again, UDOGM will be consulted prior to seeding and soil stabilization to insure the reclamation techniques used are the best for the particular slope, soil type and surface aspect, and that the application rates are appropriate for the slope and time of season when reclamation is done.

Hay purchases will be based on specifications which minimize the potential for introduction of any noxious weed species. While this treatment is intended primarily to increase soil organic content and provide soil biota, it will also be effective in alleviating compaction and promoting moisture infiltration and retention.

All of these reclamation practices contribute to effective stabilization of the reclaimed surface.

### 341.240 Irrigation

While irrigation can potentially facilitate initial vegetative establishment it is not a practical long-term management practice and may actually reduce long-term revegetation success. For these reasons, and because irrigation is incompatible with both the postmining land use of wildlife habitat and the objective of a self-sustaining vegetation community, CEG3 does not to propose to utilize irrigation in conjunction with site revegetation efforts.

### 341.250 Determination of Revegetation Success Criteria and Evaluation Methods

Measurements proposed to be use to determine the success of revegetation are described in section 341.356 below.

### R645.301-342 Fish and Wildlife Reclamation Plan

Given the proposed postmining land use of wildlife habitat, watershed, and commercial and the extent of existing site disturbance with the related constraints on wildlife habitat values, CEG3 as part of their overall reclamation plans will restore and enhance where reasonably possible site conditions and habitat values which will support and benefit wildlife use, watershed and commercial uses. In addition to the general reclamation measures and practices which will be implemented on completion of mining as described in the preceding s, CEG3 will implement supplemental wildlife habitat enhancement measures as discussed in the following s.

Restoration of surface disturbance areas will ultimately be achieved by backfilling, grading, drainage reestablishment, soil/substitute replacement, and revegetation to a configuration and condition consistent with the postmining land uses. Plans for reclamation and revegetation activities are discussed in the preceding .

### R645.301-350 Performance Standards

### R645.301-351 General Requirements

The UDWR has developed a variety of seed mixes and seeding recommendations for various areas, conditions, and wildlife habitat restoration objectives. These recommendations were reviewed in developing the proposed permanent reclamation seed mixture and a number of the species selected for the proposed seed mix were included because of their value for habitat restoration as outlined by the UDWR recommendations.

Placement of Rock Piles - Piles of rocks and large boulders would be randomly placed on the reclaimed surface to serve as shelter for reptiles and small mammals and temporary perches for raptors and other birds.

### R645.301-352 Contemporaneous Reclamation

The Kinney No. 2 Mine is an underground mine and the surface facilities areas are anticipated to be active through the duration of mining activities and as such there will be little need for contemporaneous reclamation. Any coal exploration sites will be reclaimed as discussed in other sections of this chapter when the drill sites are not longer in use, and in the case where a coal exploration hole is converted to a ground water monitoring well, the site will be prepared as discussed under R645-301-340 earlier in this chapter.

In the event any surface areas are no longer needed for continued operation of the mine, CEG3 will reclaim those areas contemporaneously as discussed in this chapter.

## R645.301-353 Revegetation General Requirements

Reclamation will be an integral part of the Kinney No. 2 Mine mining and related activities, however, because the mine will be an underground mine and the surface facilities and related surface disturbance areas will remain in place until the end of the mine life, mining and reclamation will not occur concurrently or, in the case of progressive mining activities, sequentially. Reclamation of surface disturbance areas will generally occur following the cessation of mining operations to complete the mining and reclamation cycle although CEG3 will implement temporary stabilization measures in certain areas following initial construction or during ongoing operations.

Objectives of the planned reclamation activities will be twofold; 1) For construction disturbance, temporary stabilization and contemporaneous reclamation will serve to stabilize disturbance areas, minimize erosion, and limit potential surface water impacts; 2) For long-term use areas, final reclamation is designed to restore disturbed areas to a safe, stable condition and to reestablish the productivity of the land consistent with the postmining land use(s). The proposed postmining land uses of wildlife habitat, water shed, and commercial use reflects the predisturbance use of this and adjacent areas, existing land use plans and policies, the desires of affected surface landowners, and practical constraints relative to land use capability and condition. Specific land use considerations and constraints are discussed in R645-301-400, Land Use Information. The Kinney No. 2 Mine reclamation plan has been designed to successfully meet these objectives and will result in effective temporary stabilization, and a postmining configuration which blends with the surrounding terrain and provides environmental values consistent with or superior to those which existed prior to mining.

The Kinney No. 2 Mine reclamation plan has been developed utilizing available information on the existing environmental resources as described in R645-301-200, 300, 400, 600, and 700, Environmental Information. In addition, CEG3 has incorporated both available information on current successful reclamation technology and practices and their extensive operating experience in the area. the plans presented in this permit represent what CEG3 feels to be the most effective reclamation practices for this site, it is important to note that successful reclamation must be a dynamic process, incorporating new information to optimize overall effectiveness. In order to meet the reclamation objectives these plans may be modified as appropriate to reflect changing conditions, revised regulatory requirements, advances in reclamation technology, and the results on ongoing research and experience relative to the long-term effectiveness of various reclamation practices. Any future plan modifications will be submitted for approval to the UDOGM through the normal permitting process.

Reclamation will involve a logical sequence of activities designed to achieve the overall reclamation objectives in an organized progressive manner. The following represent the general steps for reclamation of any mine or mine related surface disturbance areas:

- Facility Demolition and Removal
- Stabilization and Sealing of Mine Openings
- Disposal of Non-Coal Wastes, and Mine Waste Materials
- Backfilling and Grading to Establish the Final Design Configuration
- Drainage Reestablishment
- Road Removal
- Soil/Substitute Replacement
- Revegetation

- Post-Reclamation Management, Maintenance, and Monitoring
- Removal and Reclamation of Sedimentation Ponds and Associated Structures
- These activities are discussed in detail in this chapter, in Chapters 2, 3 and 5.

### 353.250 Noxious Weeds

Regular periodic inspections of revegetated areas will include inspection for any noxious weed infestations or insect damage. If noxious weed infestations or insect problems are identified which have the potential to adversely impact revegetation success, CEG3 will consult with both UDOGM and Carbon County Weed Control to develop and implement appropriate control measures. If the controls determined through this consultation process involve the application of herbicides or insecticides, only those chemicals approved for use by the appropriate State and Federal agencies will be considered and control practices will be limited to spot application at the appropriate time period for best control of the problem species.

### R645.301-354 Revegetation: Timing

Generally, seeding of areas where soil/substitute materials have been replaced will occur immediately after seedbed preparation. In areas where the slope is greater than 3:1 where deep gouging, or plowing along the contour is done, seeding, mulching, or other soil stabilization methods will immediately follow seedbed preparation.

While late fall plantings represent the preferred schedule for revegetation and will be implemented in most situations, there may be occasions where prompt revegetation of small construction or other disturbance areas may be desirable to minimize erosion and sedimentation potential. Cases where this exception may apply could include newly established soil/substitute stockpiles, road cuts, newly constructed diversion and collection ditches, and small areas where erosion or other repairs have occurred, and as discussed above. In such cases, revegetation activities may occur at any time provided that site and climatic conditions offer a reasonable potential for successful vegetative reestablishment.

### R645.301-355 Revegetation: Mulching and Soil Stabilizing

Prior to seeding, CEG3 will prepare regraded and resoiled areas to provide a firm but uncompacted seedbed. As described in R645-301-243, Soil Suitability and Testing, and in R645-301-542.300 through 800, 550 through 553.900, and 560, Reclamation Practices, under the sub-headings of Backfilling and Grading to Establish Final Configuration, Soil/Substitute Replacement, and Revegetation; backfilling, grading, and soil/substitute replacement activities will be conducted so as to minimize compaction. Soil materials will be left in a roughened condition to control runoff, limit erosion and soil loss, and promote moisture infiltration. CEG3 will also selectively apply alternative sediment control measures as described in R645-301-730, Hydrologic Resource Protection Plan. Revegetation seeding will occur immediately following soil material placement so additional stabilization measures will not be required prior to seeding. In conjunction with

seeding operations, the soil material will be deep ripped (up to 3 feet deep), plowed or disked to prepare the seedbed in areas where the slopes are 3:1 or flatter. Where the slopes are steeper than 3:1, deep gouging, or plowing along the contour will done to prepare the seedbed. The reclaimed ground surface will be very similar in topography to the pre-mining surface as shown on Map 29. Reclaimed ground gradients can be seen on Map 33, Slope Analysis Map. Deep gouging is the preferred method, with plowing along the contour as an alternative where slope angle allows. In all cases, UGOGM will be consulted prior to seedbed preparation to insure that the reclamation plan is being followed. Following seeding, the reseeded areas will be mulched with straw or native hay at a rate of two tons per acre and the mulch will be crimped, plowed, or disked into the soil on slopes at 3:1 or steeper to minimize wind loss. Another method of soil stabilization that may be used on areas with slopes steeper than 3:1 is spray on organic mulch at a rate of 2 tons per acre with a tackifier to stabilize the mulch and seeds. Again, UDOGM will be consulted prior to seeding and soil stabilization to insure the reclamation techniques used are the best for the particular slope, soil type and surface aspect, and that the application rates are appropriate for the slope and time of season when reclamation is done.

Incorporation of the mulch will occur either by plowing along the contour, deep gouging/roughening, or a combination of those methods. Hay purchases will be based on specifications which minimize the potential for introduction of any noxious weed species. While this treatment is intended primarily to increase soil organic content and provide soil biota, it will also be effective in alleviating compaction and promoting moisture infiltration and retention.

**R645.301-356 Revegetation: Standards For Success**

In order to accurately and objectively evaluate the effectiveness of revegetation efforts and provide qualitative and quantitative determinations of ultimate revegetation success, CEG3 will conduct field revegetation success sampling and will evaluate the resulting field data. The following discussion outlines revegetation success monitoring practices and evaluation criteria for those new disturbance areas associated with the Kinney No. 2 Mine surface facilities area.

Qualitative and quantitative sampling of revegetated areas will be conducted at intervals of three (qualitative), four (quantitative), seven (qualitative), eight (qualitative), nine (quantitative), and ten (quantitative) years following initial permanent revegetation seeding. Consistent with the baseline and reference area approaches for evaluation of revegetation success as outlined in the UDOGM Vegetation Information Guidelines, and the baseline vegetation sampling program as discussed in R645-301-321, Vegetation Parameters, CEG3 will sample total cover, woody species density, productivity and diversity for all permanently revegetated areas and will evaluate revegetation success on the basis of these four primary parameters.

Revegetation success sampling and evaluation methods for ground cover, woody species density and productivity will be essentially the same as previously utilized for baseline data collection. These methods, as described in R645-301-320, Sources of Vegetation Information, will include the use of randomly placed sampling transects; measurements of cover will be done using an inclined ten-point frame or square meter quadrats. Woody species density will be measured employing distance methods such as the point-quarter technique, or when more appropriate, belt transects. Measurements of productivity will be accomplished by clipping and weighing randomly located sample plots.. Sample adequacy for all revegetation success sampling will be evaluated using the formulae presented in Appendix A of the UDOGM Vegetation Information Guidelines and will be based on the objective of achieving a 90 percent confidence interval within 10 percent of the mean.

The purpose of qualitatively sampling during the additional years three, seven and eight of the extended liability period will be to determine and evaluate the effectiveness of site revegetation efforts and to determine trends for vegetative reestablishment. The resulting data and evaluation results will be utilized as appropriate to identify any potential areas of concern and to guide post-reclamation management efforts in order to meet specific requirements for a revegetation success determination and ultimately achieve the overall reclamation objectives. Revegetation success monitoring during years nine and ten of the extended liability period will focus on data collection and development of the necessary documentation to allow for effective comparison of reclaimed and baseline conditions as the basis for a revegetation success evaluations and to determine whether or not final or Phase III Bond Release may be warranted.The original baseline sampling involved collection of cover, and woody species density and production data for two distinct vegetation types: 1) Previously Disturbed AMR (now Rabbitbrush/Grass and 2) native Sagebrush/Grass. All reclaimed areas will be revegetated using essentially the same methods and seed mixture.

Cover and production values resulting from the revegetation success monitoring for the areas will be compared to the reference area values. . The statistical comparison utilized to evaluate revegetation success will be based on the "t-test comparison" method. If the absolute values for cover for the reclaimed areas are greater than or equal to the calculated 90 percent confidence interval for the baseline data then the mean values for the designated revegetation success parameters can be considered to be statistically equivalent and it can be concluded that the applicable revegetation success criteria have been achieved.

For woody plant density, revegetation success monitoring data will be compared with a fixed reclamation standard of 1,700 plants per acre (although rubber rabbitbrush (Chrysothamnus nauseosus) is expected to be present in the restored plant communities at the Kinney No. 2 Mine site, this species will not be included in the 1,700 plants per acre success standard.~~.~~

General revegetation requirements under applicable UDOGM regulations include consideration of erosion control, and vegetative diversity, and permanence. In order to address these secondary considerations relative to revegetation success, CEG3 proposes the following sec

> Erosion Control - Formation of rills and gullies on reclaimed areas will be limited to a maximum of 0.75 feet in depth. General erosion will be evaluated using Mark H. Humphrey's Erosion Condition Classification System (Draft 12/5/90) as adapted from BLM's Erosion Condition Classification System (BLM Technical Note - Number 346)
>
> Vegetative Diversity and Permanence - Premining and postmining values will be compared using Sorenson's Similarity Index or MacArthur's Diversity Index as outlined in the UDOGM Vegetation Guidelines

**R645.301-357 Revegetation: Extended Responsibility Period**

No extended responsibility period is anticipated, however, if an extended period is necessary, all of the requirements of the regulations will be complied with as set forth.

# Chapter 4

# R645-301-400 Land Use and Air Quality

## Kinney No 2 Mine

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## R645-301-400 Land Use and Air Quality

### Sources for Land Use Information

Land use history, designations, capabilities, and values in the permit and adjacent areas have been characterized in this section using information from local land use records, studies and reports, existing environmental documents, and previous and ongoing baseline characterization efforts. Available land use information and relevance to this site are summarized below.

Carbon County Assessor's Office, Zoning and Land Ownership Records, Recorders Office, and Information – The County records provided zoning designations for the proposed permit area and surrounding areas as well as documentation of both present and historical ownership.

Scofield Town Zoning information – Town records providing zoning designations for the proposed permit area and surrounding area within Scofield Town.

The wildlife documentation describes wildlife use and habitat values in the Project and adjacent areas. Rather than create both a baseline report and the related permit section, all wildlife baseline information was prepared and formatted for inclusion in the permit.

## R645-301-410 Land Use

### General Land Use Patterns of Permit Area and Adjacent Areas

Land uses in the permit area and adjacent areas are presently and have historically been constrained by location, topography, climate, and availability of important resource values. Rugged terrain, limited soil resources, low precipitation, high elevation, and seasonally harsh weather conditions, limited water resources, and existence of significant high quality coal reserves are the primary factors which determine land use capabilities in this area. Generally, these factors limit land use options to mining, scattered oil and gas production, low-intensity grazing, wildlife habitat, limited timber production at the higher elevations, and dispersed recreational uses including hunting, fishing, hiking and similar activities. The Scofield Reservoir, located north and west of the permit area, represents a unique land use which is indirectly tied to the surface water and the coal resources available in the area. With the exceptions of the Scofield Reservoir, historic and current mining activities, and limited grazing, there are no significant residential, commercial, or agricultural land uses in the permit area. A portion of the permit area has been annexed into the boundaries of Scofield Town.

The land uses and zoning designations shown on Map 4, Regional Land Use and Zoning Map includes a much larger area than the permit area in an effort to describe uses in the broader general area. All of the uses, and legislated zoning designated areas shown do not necessarily apply to the Kinney No. 2 Mine.

Land uses in the Kinney No. 2 Mine permit area consist of legislated uses by Carbon County and Scofield Town, as well as land uses of wildlife habitat, grazing and dispersed recreation on private property. The Carbon County and Scofield Zoning Codes both have common language such as, "This Ordinance shall be known as, and shall be entitled the LAND USE CODE of Scofield Town, Utah, and may be so cited and pleaded." Therefore, zoning codes are land uses as set forth in the Zoning Codes. These Zoning Codes will be discussed in more detail later in this chapter.

## R645-301-411 Environmental Description

### 411.100 Pre-Mining Land Use Information

Land uses and capabilities in the permit and adjacent areas have been determined through historical records and evaluation of baseline soils, vegetation, wildlife, and hydrology information.

### 411.110 Use of Land Existing at Time of Filing

**Mapping of Land Use Information**

Information presented on the Regional Land Use & Zoning Map (Map 4) includes

- Current land use designations and areas
- Locations of identified cultural, historic, and paleontological resource values
- Boundaries of any public parks, or units of the National System of Trails or Wild and scenic Rivers System
- Any cemetery located within 100' of the permit area
- Locations of existing and historic mining related surface disturbance.
- Legislated Zoning designations of the permit and adjacent areas.
- Proposed Kinney No. 2 Mine disturbance footprint.

Information presented on the Previous Mining Activity Map (Map 5) includes:

- The location and extent of historic mine workings in the proposed Kinney No. 2 Mine permit area.

Consistent with applicable provisions of R645-301-512, information on previous mining activities has been prepared under the direction of, and certified by a qualified, registered professional engineer or land surveyor with assistance from experts in the related field.

Existing Land Uses

Land uses in the permit area at the time of filing consist of the following:

Land uses in the permit area at the time of filing this application are shown in Table 3, Historic Land Use, Land Use During Mining Operation and Post Mining Land Use. The land uses will not change from existing uses, they will be exactly the same during mining and for post mining. Zoning Ordinances in the Carbon County Water Shed Zone, Mountain Range Zone and in the Scofield Town Commercial Zones have been established by the County and Town under authority of Utah State Law Title 17, Chapter 27a. This State Law gives authority to local authorities to establish land uses. In addition, wildlife use lands as they will according to the resources available to them.

**TABLE 3**
**HISTORIC LAND USE, LAND USE DURING MINING OPERATION AND POST MINE LAND USE**
**LAND USES PROPOSED FOR POST MINING ARE THE SAME AS PRE-MINING**

| Land Uses | Water Shed Zone<br><br>*No Kinney No 2 Mine Facilities in this zone | Mountain Range Zone<br><br>*Kinney No 2 Mine Facilities in this zone | Scofield Commercial Zone<br>*Kinney No. 2 Mine Facilities in this zone |
|---|---|---|---|
| **Wildlife Habitat** | X[1] | X[1] | X Historic,Mining,PMLU |
| **Grazing** | X[1] | X[1] | X Historic,Mining,PMLU |
| **Recreation** | X[1] | X[1] | X Historic,Mining,PMLU |
| **Mineral Extraction** | X[1] | X[1] | X Historic |
| **Ranching** | X[1] | X[1] | X Historic |
| **Mining** | X[1] | X[1] | X Historic |
| **Water Shed** | X[1] | X[1] | |
| **Railroads** | X[1] | X[1] | X[2] |
| **Heavy Equipment Storage** | | | X[2] |
| **Loading & Storage of Minerals** | | X[1] | X[2] |
| **Heavy Equipment Repair** | | | X[2] |
| **Storage Warehouse** | | X[1] | X[2] |
| **Welding, Metal Fabrication & Machine Shop** | | X[1] | X[2] |
| **General Business or Professional Offices** | | | X[2] |
| **Electrical Utilities** | X[1] | X[1] | X[2] |

1. ***Carbon County Zoning Ordinance 4.2.16 Water Shed Zone*** states. "The WS Water Shed Zone (formerly CE-1 Zone) covers the canyons, mountains, and other lands above 7,000 feet in elevation, and of environmental concern in the County. Because of limitations imposed by topography, climate, soil conditions and other natural features, use of the land within this zone has been limited primarily to livestock grazing and related uses, wildlife habitat, certain outdoor recreation activities and facilities, and limited mineral extraction."

   "The land within this zone has functioned historically as part of the watershed for a majority of the irrigation, culinary, and industrial water supply for the Price River Valley and East Carbon City area. It is also recognized that the landscape is constantly changing due to natural occurrences such as fire, flood, insect infestations and landslides. Human activities such as logging, grazing, hunting, camping and other uses affect the landscape, and are accepted as normal in this zone. Experience has shown this watershed area to be fragile; its confirmed function as a water source is of critical importance to the County."

   ***Carbon County Zoning Ordinance 4.2.17 Mountain Range Zone*** states."Historically, lands within this zone have been used for livestock grazing, ranching, mining, logging, and other productive uses. These lands also function as a part of the watershed that supplies nearly all the irrigation and culinary water for the Price River Valley and East Carbon City areas."

   "Because of a combination of factors, including accessibility from existing roads, railroads, availability of water, suitable topographical, soil and vegetative conditions, and aesthetic

attractions, the territory included within this zone is capable of accommodating irrigated agricultural and certain mining, recreational and summer housing developments without due adverse effect on the quality of the watershed, provided that such developments are constructed and maintained under regulated conditions."

2. The Scofield Town zoning ordinance language is not as detailed as the Carbon County zoning language, and does not discuss historic land uses. No mention is made of use of the subject land for grazing, recreation or wildlife habitat. From observation by the author, wildlife utilize the area, the area has been used for recreation (campsites on flatter areas are evident), and grazing has been done evidenced by sheep observed and tracks and droppings observed. The zoning ordinance allows 134 separate land uses in this zone as shown on Table 2 of the ordinance. Zoning ordinances specifically include these land uses.

   Only the land uses pertinent to the Kinney No. 2 Mine are listed here.

### 411.120 Capability of Land to Support a Variety of Uses

### Land Use Capability and Condition

The primary constraints relative to the condition and capability of lands within the permit and adjacent areas to support various land uses are the rugged terrain of the area, high elevation, short spring and summer seasons, and long winters. The rugged natural topography of the area may generally be characterized as a small, high elevation valley, with high plateaus to the east and west, narrow ridgelines cut by deep drainages with steep, narrow drainage valleys over most of the proposed permit and adjacent area. The area is semi-arid with mean annual precipitation of only 14.56 (Scofield Dam) inches. Most of the precipitation occurs as either snowfall during the winter months or as brief high-intensity thunderstorms during late summer and early fall. Generally, mining and other development in the area has been limited to valley bottoms and the adjacent lower valley slopes with little or no significant development of high plateau and steep ridge and valley areas. In recent years, summer home construction has become a major development on the ridges west and north of Scofield Reservoir.

Upper plateaus on the east and west of the permit area receive slightly greater amounts of precipitation and because they are typically higher in elevation. Access problems due to the rugged surrounding terrain and harsh climatic conditions during portions of the year have limited both disturbance and use of these areas. The land east of the mine site is private property and has historically been heavily used for sheep and cattle grazing. Generally, potential land uses for the high plateaus in this area are limited by topography and resource constraints to wildlife habitat, low intensity grazing, recreational uses, and scattered timber production. The mining and related activities will not directly affect upper plateau areas since no surface disturbance is proposed or anticipated in these areas.

Land use capability and condition for the permit area is a direct reflection of the rugged terrain. Because the rugged natural terrain makes access and development so difficult and most of the area remains in a natural, undisturbed condition, except for cattle and sheep grazing as mentioned previously. The potential for alternative land uses in these areas is also affected by shallow, poorly developed soils with low water holding capacity and high erosion potential, and by a general lack of adequate surface or ground water resources. The mining and related activities will not directly affect steep ridge and valley areas since no surface disturbance is proposed or anticipated in these areas.

Most existing and historical development in the general area has occurred in the valley bottoms and adjacent lower valley slopes. These areas offer the benefits of practical access, proximity to surface water sources, and more extensive and fertile soil resources. Extensive historical mining and related activities have occurred in the Pleasant Valley within the permit area. Generally these

activities have resulted in extensive surface disturbance and alteration of natural conditions in the effected areas. Specifically, within the proposed disturbed area historic mining has affected approximately 74% of the area. Existing and potential uses in the valley bottom areas include mining, transportation, wildlife habitat, low intensity grazing, and undeveloped and developed recreational uses, as well as development of private property in and around the Town of Scofield. While areas do exist outside of the permit boundary where valley bottom soil resources are adequate to support limited agricultural activities, these areas are limited to the Mud Creek (Pleasant Valley), in the flatter valley bottom. Due to the high elevation of Pleasant Valley, this agricultural use is limited to grass-type pasture use. The short warm season limits crops to grass and grass-hay production, and therefore row crops are not possible.

Production of the valley bottom adjacent to the permit area is discussed in detail in Chapter 9, where an alluvial valley floor may exist. Although there is adequate irrigation water, the climatic conditions and elevation of the valley as discussed above severely limits crops to very short season types. Only grass and grass hay are produced in the valley, with an estimated tonnage of 3500 tons per year in a good year. The area can support 1 AM U per acre according to the Utah State University Extension Service in Price, Utah. Range land, or grazing land higher in elevation than the valley floor can be expected to produce less vegetation for livestock due to steepness of the terrain, generally thinner soils, and more competition by trees and brushy species of plants with plants that are palatable to grazing animals. In turn, less AMU's would also be expected.

The area of the mine is all private property, which limits use by the general public. Private property owners use the lands for a variety of uses including cattle grazing, sheep grazing, hunting, and recreation. Carbon County zoning ordinances and Scofield Town zoning ordinances place restrictions on the type of land use possible in the area. There are no private property developments such as cabin sites or private recreation areas in the mine permit area.

The Town of Scofield is located adjacent to the mine site, and there are a number of homes and cabins in Scofield that are used as vacation or summer homes. The town has a small park that is used for town functions and is available to the public. This park is located at the northern entrance to town and is approximately 500 feet south of the permit boundary.

## 411.130 Land Use Classification Under Local Law

### Description of Existing Land Uses

Existing land use zones and land designations in the proposed permit area and adjacent areas, are illustrated on the Regional Land Use & Zoning Map, (Map 4), including the following classified under specific land use categories as defined by Rule 645-100-200, and are discussed below. Only the land uses and legislated zoning designated areas in close proximity to the Kinney No 2 Mine area are discussed below.

**LEGISLATED ZONES:**

**Carbon County Zoning Regulations 4.1.1 Zone Designations - From Carbon County Zoning Ordinance, Section 4, Zoning and Regulations Within Zones**

***4.2.16 Carbon County Water Shed Zone (WS) #16***

*"The WS Water Shed Zone (formally CD-1 Zone) covers the canyons, mountains, and other lands above 7,000 feet in elevation, and of environmental concern in the County. Because of limitations imposed by topography, climate, soil conditions and other natural features, use of the land within this zone has been limited primarily to livestock grazing and related uses, wildlife habitat, certain outdoor recreation activities and facilities, and limited mineral extraction."*

There are no planned facilities associated with the Kinney No. 2 Mine within the WS Zone. The coal reserves controlled by CEG3 are located beneath this zone.

### *4.2.17 Carbon County Mountain Range Zone (MR) #17*

*"The Mountain Range Zone (formerly CE-2 Zone) covers the mountain lands of the County generally which, because of the presence of less severe physical conditions, have experienced historic settlement and are of less critical water shed concern than the WS Zone, and are suitable for limited levels of development activity. These lands are situated over the elevation of 7,000 feet."*

A 22.88-acre portion of the surface facilities for the Kinney No. 2 Mine are located on lands within this zone. As shown on Map 4, Regional Land Use & Zoning Map, the eastern portion of the facilities are located in Carbon County, and in this zone. This area allows major underground and surface mine developments (4.2.17.C.6.). The mine portals, coal loadout, coal stockpiles, and sediment pond are in this zone.

**Scofield Town Zoning Regulations Chapter IV, 4-1 Zone Designations**

**5-2.2 Scofield Residential Zone (R-1)**

"The Residential (R-1) Zone has been created to provide suitable areas within Scofield Town for the development of residential neighborhoods."

None of the Kinney No. 2 Mine permit area lies within this zone. A small neck of this zone approaches the southwest corner of the permit area but does not connect with the permit boundary.

**5-3.1 Scofield Commercial Zone (C)**

"The Commercial (C) Zone has been created to provide a suitable area within Scofield Town for the establishment of retail commercial and service uses, light industrial uses. The C Zone is characterized by a mixture of dwellings and commercial uses such as retail stores, banks, restaurants, office structures, a wide variety of specialty ships, light industrial facilities, located in surroundings which are aesthetically pleasing and conveniently and safely accessible. In general, this zone should be located adjacent to collector or arterial roadways. The specific regulations necessary for the accomplishment of the intent of the zone are hereinafter set forth."

Permitted uses are shown in Table 2 in the code. Number 131 of the permitted uses is "Loading and Storage of Sand, Gravel, Earth, Stone, Gas, Minerals, Petroleum or Similar Resources." The Kinney No. 2 Mine facilities located within this zone are comprised of the mine operating facilities, including bath house, shop/warehouse, storage sheds, and the fueling facility. The mine portals, coal piles, loadout facility and sediment pond are located in the Carbon County Mountain Range Zone (MR).

***Scofield Agricultural Zone (A)***

"The Agricultural Zone (A) has been created for the purpose of providing suitable areas within Scofield town for the establishment of uses that involve the tilling of soil and raising of crops, or keeping or raising domestic animals, for the purpose of commercial food production. The A Zone shall have the further purpose of providing suitable sites for the placement of dwellings and other uses consistent with a rural lifestyle."
This zone abuts the permit boundary on the west side as can be seen on Map 4, Regional Land Use & Zoning Map, however, there is not A zone within the permit boundary.

## CARBON COUNTY PLEASANT VALLEY PLANNING AREA – GENERAL PLAN

Carbon County has adopted the Pleasant Valley Planning Area – General Plan, with the stated purpose of, "Carbon County adopts this General Plan for the Pleasant Valley Planning Area, and as also described by the map materials, and all other necessary maps and other illustrative materials, consistent with purposes of the State of Utah's County Land Use, Development, and management Act, Section 17-27a et. seq. Utah Code Annotated, 1953, as amended. Carbon County also adopts this Pleasant Valley General Plan to achieve the additional purposes of the County including the protection of the various qualities of the Planning Area, including the appropriate development of existing resources, the provision of necessary services in a coordinated and efficient manner, protection of the Planning Area's environmental qualities and the promotion of recreation and tourist activities."

### Resource Development

The Resources Development section states the following:

"Carbon County will support appropriate natural resource development within the Planning Area, including the exploration and development of natural gas, coal and other resources, consistent with best management practices to protect the natural environment and physical qualities and features of the Planning Area."

and,

"Carbon County will require and work with all-natural resource development operators to achieve necessary site rehabilitation and reclamation actions necessary to protect the water resources of the planning area."

## Discussion

The Kinney No. 2 Mine is consistent with the Pleasant Valley Planning Area General Plan as can be determined from the first Resource Development value stated above. In addition, all of the coal in the initial mining plan is owned by Carbon County, which collects a yearly lease fee, and will collect a tonnage fee upon sale of the coal. Carbon County defers regulatory authority for environmental protections to the Utah Division of Oil, Gas and Mining, and accepts the Mining and Reclamation Permit as the definitive plan for environmental protection and reclamation of the site. The County requires a Conditional Use Permit (CUP) for the mining operation. The permit application for the CUP includes some of the information from the DOGM permit application, and states that the operator commits to adhering to the DOGM permit for environmental protections and for final reclamation. The CUP from Carbon County has been approved, a copy of which can be found in Exhibit 4, Other Permits.

Runoff from the Kinney No. 2 Mine operation will be routed through a sedimentation pond, which will protect the environment from degradation, and will meet the requirements of the Carbon County Pleasant Valley Plan. In addition, culinary water, mine dust suppression water, and sewer services will be provided by Scofield Town through an agreement, which has been approved.

**LAND DESIGNATIONS:**

***Pre-SMCRA Mining Disturbance***

The Kinney No. 2 Mine permit area, and the general area has an extensive coal mining history. The mine site to be developed by CEG3 has been used by at least three mines in the past, the Kinney Mine, the Jones Mine and the Columbine mine. All of these mines were closed before 1980, and the area was reclaimed by the Utah Division of Oil Gas and Mining Abandoned Mine Reclamation program in the early 1980's. Very little is left of the historic mining, and since the area is private property, there has been little public interest, or visitorship of the site. Approximately 74% of the area to be disturbed by CEG3 has previously been disturbed and reclaimed.

***BOR – Bureau of Reclamation Property Scofield Reservoir***

The Bureau of Reclamation (BOR) is responsible for the Scofield Dam and oversees maintenance of the dam. Regulation of the lake level is done in a joint effort by the BOR and the irrigation water users. The BOR does not own any land adjacent to the reservoir near the Kinney No. 2 Mine permit boundary. The BOR does not conduct or maintain any other facilities in the area.

The State of Utah maintains the Scofield Lake State Park, which is located near the dam and at the northern end of the reservoir, but there are no facilities at the southern end of the reservoir.

***BLM Property***

According to the Carbon County records, the Bureau of Land Management owns a small area of land (80 acres) at the south end of Scofield Reservoir as can be seen on Map 4, Regional Land Use & Zoning Map. This area is small, adjoins the high-water line of the reservoir, and is of little use other than for wildlife habitat. The land is surrounded by private property so it cannot be developed for other uses, nor would it be possible since the land is subject to lake flooding in very high precipitation years.

***Kinney Mine Proposed Disturbance Footprint***

The Kinney No. 2 Mine facilities have been designed to be very efficient, and will occupy a small footprint. The disturbance area will be comprised of 27.6 acres on fee land, and on land leased from a private property owner. There is no public land involved with the mine.

***Industrial/Commercial Uses***

- Underground Coal Mining
- Scattered Oil and Gas Production
- Transportation and Utilities

**Undeveloped Lands**

- Low-Intensity Grazing

- Fish and Wildlife Habitat
- Dispersed Recreation
- Limited Timber Production
- Watershed

**Developed Lands**

- Residential – (Within Scofield Town)
- Mountain Homes & Lake Front Homes – Several developments are located on the east and west sides of the Scofield Reservoir. These developments consist of cabins and homes developed near the lakeshore north of the dam on the east side; on the lakeshore on the west side of the reservoir about one third of the way north from the south end of the reservoir; in the mountains on the west side of the reservoir. The closest developments to the Kinney No. 2 Mine other than in Scofield Town are on the west side of the reservoir approximately 2.2 miles, and 2.7 miles from the mine site. The developments on the east side of the reservoir are located approximately 4.4, 4.9 and 5.5 miles north of the mine site.

Of these multiple uses, watershed, grazing, and wildlife habitat are the dominant use for undeveloped lands and mining constitutes the primary developed land use in the immediate area. Residential and a few commercial uses are located within Scofield Town. The following descriptions characterize the nature of and areas associated with each of these land use categories.

Underground Coal Mining - Extraction of reserves of high quality coal using underground mining methods has resulted in extensive historical mining related development and use within the permit boundary and adjacent areas. Generally, mining related surface disturbance has been limited to that disturbance associated with mine openings, surface facilities, coal processing facilities, transportation systems, and housing for miners and their families. While locally extensive, the underground mine workings have not resulted in significant surface disturbance or other impacts on overlying surface areas or associated land uses. There are some relatively minor subsided areas in the permit boundary resulting from historic mining near the outcrop. Several sink-holes and areas of mine portal areas that collapsed due to very thin overburden, and apparently inadequate roof support. Previous mining activities are discussed in greater detail in R645-301-411. Given the configuration of the coal seams and access constraints imposed by the relatively rugged terrain of the area, most mining related development has been limited to valley bottoms and adjacent lower valley slopes.

The period of active mine development and operation in this area extended from the late 1880's through the early 1970's. At the present time there are no active mining operations in or near the proposed permit boundary. Within the proposed permit planned disturbance area, approximately 74% has been previously disturbed by historic mining activities. The State of Utah AMR Program completed extensive work involving the removal of multiple piles of coal fines and coal material in disturbed areas paralleling Highway 96 in the area planned to be used for the Kinney Mine facilities. This coaly material was placed in areas of the previously disturbed areas, covered with soil, graded, and revegetated. Extensive remaining coal reserves offer the potential for future mining related development and use.

Scattered Oil and Gas Production - Oil and gas production activity in the general permit area and adjacent areas is very limited with no active wells in the permit area. Based on available information, there are no known plans for development of oil and gas wells in the proposed permit area vicinity and the potential for future oil and gas development is limited.

Transportation and Utilities - The rugged terrain of the area limits routing options for major roads and utility transmission lines, consequently roads and utility lines typically follow the existing natural drainage valleys. Within the general permit area, State Highway 96 follows the Pleasant Valley from it's northern head, starting at Highway 6 junction, and running west and south to the old mining community of Clear Creek. A north-south rail line follows generally the eastern toe of Pleasant Valley from the Scofield dam southward to the Skyline Mine load out. Due to access considerations and practical construction constraints, transportation and utility related development is also concentrated in the valley bottom and adjacent lower valley slope areas. The narrow configuration of area drainage valleys and existing developed transportation and utility infrastructures generally preclude any significant additional development or use for this land use category.

Low-Intensity Grazing - Effective grazing use of portions of the permit area and adjacent areas is limited by the rugged terrain and lack of adequate water sources. Small cattle ranching and sheep grazing operations do, however, utilize some of the high plateau areas on a seasonal basis. Since the property in the permit boundary and adjacent areas is privately owned, no formal animal number limits are imposed, and the area is heavily grazed. Grazing use will not be significantly impacted by proposed mining operations since very little surface disturbance will occur in potential grazing areas and underground development will not significantly impact overlying areas or uses. The potential for future expansion of grazing use is generally constrained by topography, and vegetation and water availability.

Fish and Wildlife Habitat - As described in R645-301-300 of this permit application, the permit area and adjacent areas provide habitat for a wide variety of fish and wildlife species. Generally, any areas not utilized for other designated uses are considered to be undeveloped lands, which are utilized to varying degrees, dependent on the availability of other resource, values as wildlife habitat. Given this consideration, wildlife habitat is one of the two primary land uses for the permit and adjacent areas and these areas are subject to low-intensity management for wildlife use by the responsible wildlife management agency. Various species are associated with one or more of the habitat zones which occur throughout the area. Portions of the permit area have been designated by the UDWR as critical and high-priority habitat for mule deer and elk, and sage grouse as shown on the wildlife maps, (Maps 2A through 2G). Species occurrence and habitat values have been impacted to some degree in those areas affected by previous mining related surface disturbance. Historic mining disturbances typically remain in a partial state with varying levels of plant reestablishment and resultant restoration of habitat values. In those limited areas where more recent mining activity has occurred, full-scale reclamation efforts have resulted in effective vegetative reestablishment and general restoration of many of the premining habitat values.

Historic mining operations resulted in disturbance of relatively limited surface areas generally, although much of the disturbance was near the valley bottom areas associated with high-value habitat. Generally, surface disturbance for the Kinney Mine mining and related activities will be in previously disturbed areas (20.7 acres previously disturbed = 74% of total Kinney No. 2 Mine disturbance) so incremental disturbance (6.9 acres) and associated wildlife habitat impacts will be negligible. Although, the reclaimed areas of historic mining by the Utah AML project in the 1980's have provided some habitat for local wildlife species. On completion of the Kinney Mine proposed mining and related activities, affected surface disturbance areas will be reclaimed, resulting in restoration of the premining habitat values.

Dispersed Recreation - Generally, these activities occur on a seasonal basis primarily on public lands in the area, such as the Scofield Reservoir area. Since all of the permit boundary area, and adjacent areas are privately owned, recreation activities are limited to those private land owners and their guests. The recreational activities associated with Scofield Reservoir are limited to the

lake itself and a narrow band along the shore of the lake where the general public has access. These activities will not be affected by mining at the Kinney Mine. Availability of and proximity to much more desirable recreational areas along the Wasatch Front and in the canyonlands to the south are also limiting factors. Given existing low use levels and the various limiting factors, the potential for expanded recreational use of the mine area is small, and limited to developments on private property.

Limited Timber Production - The scattered coniferous forest growth in the general area supports limited logging on private property in the general area. Limited public lands available for logging and access constraints generally make large-scale logging activities economically infeasible. The permit area, and adjacent areas north, south and east of the mine area do not contain significant stands of conifers that would support timber production. Given the limited importance of logging use in this area and the practical operational and economic constraints, there is little potential for expanded future logging use.

Watershed – A majority of the general area is zoned by Carbon County as Watershed Zone (WS). The entire permit area is tributary to Scofield Reservoir, a Bureau of Reclamation project that serves water users in the Price and Carbon County areas. The main source of irrigation and one of the main sources for culinary water for Carbon County, and Price City is Scofield Reservoir. Impacts from livestock grazing adjacent to Scofield Reservoir has been a problem to water quality in the reservoir, as well as human uses in the area. These water impacts are well known and well documented in the literature and are not presented in this application other than a general reference. Also refer to a discussion of the Carbon County Pleasant Valley Planning Area – General Plan presented previously in this Chapter.

**Land Use Constraints Due to Other Environmental Values**

As previously noted, topography and climate are the primary environmental constraints on potential land uses in the permit and adjacent areas. In addition, the following specific environmental constraints may limit potential land uses either generally or in specific areas:

Soils - Potential soil constraints correspond to three general soil groupings; 1) Upland soils; 2) lowland and riparian soils; and 3) Disturbed soils. Upland soils are commonly shallow, poorly developed, and have moderate to high erosion potential and low to moderate water holding capability. Given these considerations combined with the rugged terrain, upland soils are generally not suitable for intensive agricultural uses or commercial/industrial/residential development and may be a limiting factor for grazing, logging, and wildlife habitat. The areal extent of lowland and riparian soils is typically limited by high drainage gradients and narrow stream valleys. Limited occurrence and a high proportion of coarse fragments are limiting factors for lowland soils relative to any intensive agricultural uses. Given poor soil development in many areas, soil disturbance may not significantly impact overall soil productivity. Disturbed soils in the permit area, do, however, frequently contain coal materials and coarse fragments which may affect soil handling activities and soil productivity relative to any intensive agricultural uses. A more thorough discussion of soils in the mine area can be found in Chapter 2, Soils, and in Chapter 9, Special Categories, specifically in the AVF area west of the mine development site.

Vegetation - Site vegetation is generally a reflection of soils, water availability, elevation, and topographic configuration and aspect. Vegetation type and occurrence are natural constraints relative to potential grazing and wildlife habitat uses. No threatened, endangered, or sensitive plant occurrences have been identified in mining and related activities surface disturbance areas.

Wildlife - Wildlife is a constraining land use factor only to the extent that certain development activities may be precluded or otherwise limited in areas identified as critical habitat for certain species of high interest. These areas would include breeding and rearing areas, animal migration routes, and areas in close proximity to active raptor nests. Significant habitat areas for most wildlife species do not exist in the planned permit disturbed area. There have been no identified eagle nests in the area. Since prime nesting habitat for eagles does not exist in the mine plan area, no specific habitat mitigation measures are proposed for eagle nests in close proximity to active surface disturbance or operating areas. There are no riparian habitat areas within the proposed disturbance area or the immediate adjacent area.

Hydrology - As a critical component of both intensive agricultural practices and grazing activities, and an important element relative to fish and wildlife uses, water availability may limit these uses in most portions of the permit area. The only identified riparian habitat in the general area of the mine is a narrow band of riparian vegetation along Mud Creek, which is approximately one quarter mile west of the permit area. There are no identified riparian habitat areas within the permit boundary.

### Restricted Use Areas

With the exception of the existing public right-of-way for Highway 96 that borders the permit area on the west, and the watershed area tributary to Scofield Reservoir there are no public parks, components of either National river or trail systems, renewable resource lands, areas designated unsuitable for mining, or other restricted use areas within the proposed permit area or immediately adjacent areas. The mining and related activities have been planned and designed to maintain a minimum distance 300 feet from any occupied dwelling. There are Identified cultural/historic resource sites within or adjacent to the mine permit area that are addressed in other sections of this application, however, none of these sites are significant and should not preclude mining. The mining activities will occur within 100 feet of the outside right-of-way line of Highway 96 and CEG3 has complied with applicable public notification and comment requirements as described in R645-300-100.

### Land Use Classifications and Zoning Restrictions

The majority of the eastern portion of the permit area in Section 33, T12S, R7E, and Section 4 T13S, R7E, Salt Lake Base & Meridian as shown on the Regional Land Use & Zoning Map, (Map 4) is zoned by Carbon County as Watershed, which does not allow coal mining surface facilities. A small area encompassing the proposed disturbed area as shown on Map 4 has been rezoned by Carbon County to Mountain Land, effective October 17, 2007, which does allow surface facilities associated to coal mining. The area shown on Map 4 in Section 32, T12S, R7E lying within Scofield Town boundaries has been rezoned to Commercial, effective January 2008, which allows coal mining facilities. The designated land use classifications and any related zoning restrictions are consistent with both existing land use activities and those activities proposed in conjunction with the Kinney No. 2 Mine mining and related activities operation and reclamation plans.

## 411.140 Cultural and Historic Research Information

### Cultural and Historic Resources

This section describes existing cultural, historic, and paleontological resource values identified within the permit and adjacent areas which could potentially be impacted by mining and related operations. Cultural/historic/paleontological resource values in the permit and adjacent areas

have been identified and characterized through review of previous studies and reports, conversations with individuals familiar with the history of the area, and site specific field investigations of surface disturbance areas. The Regional Land Use & Zoning Map (Map 4) shows the area included within the detailed study area boundary.

Site specific field inventories of the proposed surface disturbance areas were conducted during the month of May 2007. Field inventory work followed extensive research and review of previous studies of the area, and historical accounts. Field surveys involved coverage of an area of approximately 395 acres by a qualified archaeologist using parallel pedestrian transects spaced at intervals of up to 10 meters to search for any evidence of cultural, or historic values. Detailed discussion of site-specific field inventories and descriptions of any resources identified as a result of the field investigations are presented in Exhibit 3, Cultural Resource Information (included in the confidential information section).

**Cultural Context**

Although human habitation of the area may have occurred as early as the Clovis Period (12000 to 9000 B.C.), the majority of prehistoric cultural resource sites identified in this part of Utah date from the Black Rock (4000 B.C. to A.D. 500) or more recent periods. The dominant prehistoric cultures known to have inhabited the general area are the Fremont and Numic/Shoshonean Cultures. The Fremont Culture (A.D. 400 to 1300) was characterized by a settled horticultural lifestyle with well developed construction practices (laid masonry), distinctive ceramics, and advanced farming methods. The Fremont Culture appears to have been supplanted by semi-nomadic Numic/Shoshonean speaking Indians which migrated into Utah from the northern Great Basin of Nevada and Idaho. These Numic/Shoshonean peoples are probably the ancestors of the Northern and Western Utes which now inhabit the Uintah-Ouray Indian Reservation located to the northeast of the proposed permit area. The Numic/Shoshonean habitation extended from approximately A.D. 1200 to 1400 with individual family groups or larger multi-family bands migrating seasonally within semi-fixed territories in response to the availability of various food sources.

The Ute descendants of the Numic/Shoshonean peoples continued to reside in the general proposed permit area vicinity until shortly after the arrival and initial settlement of the area by Mormon settlers in 1847. At that time the Timpanogots, a subgroup of the Western Ute, were displaced from the Utah Valley and Spanish Fork Canyon and resettled on a reservation at the south end of Utah Lake. They subsequently abandoned this reservation in favor of a larger reservation established in the Uintah Basin, although they continued to return to their original lands through the early 1900's to fish during the spawning season. While the proposed permit area and adjacent areas are not known to have been primary settlement areas for either prehistoric or historic native peoples they were probably utilized on an occasional or intermittent basis for migrational food gathering activities.

**Historic Context**

The first non-native exploration of this general area occurred in approximately 1776 when members of the Dominguez-Escalante expedition passed through Spanish Fork Canyon to the north on their way to California. While exploration and fur trapping in the 1820's and 1830's covered large areas to both the north and south, John C. Fremont's exploration of this general area in 1844 is the only other known occurrence of non-native exploration or use of the area prior to the arrival of Mormon pioneers in 1847.

Following initial settlement of Salt Lake City by the Mormons, Mormon settlement began expanding southward to the Utah Valley and adjacent areas. The settlements of Palmyra and Spanish Fork were founded at the mouth of the canyon adjacent to the Spanish Fork River in 1852. Settlement of the very desirable rich open farmlands of the Utah Valley delayed settlement of other nearby areas until much later. The early settlers did, however, utilize the natural resources of the nearby mountains, establishing a rough road up Spanish Fork Canyon prior to 1869 which was apparently used to access logging areas and by settlers to move their herds to summer range areas near Colton and Soldier Summit.

The more modern history of the Scofield/upper Pleasant Valley area is diverse and dramatic, despite the fact that Europeans did not firmly establish themselves until the early 1870's (Madsen 1947). The earliest settlers in Pleasant Valley came not for coal, but the abundant grasses that covered the valley floor, with which they grazed herds of cattle. Timber was another early resource found in the area, and b the early 1880's numerous mills were in operation. However, neither of these industries brought as many people to the valley, however, as coal mining. Coal deposits in the region were recognized by the Beckwith-Gunnison Expedition a early as the mid-1870's. Near Scofield, at least one mine was in operation as early as 1877 and several others began operations during the first few years of the 1880's (Madsesn 1947).

A narrow-guage railroad between Pleasant Valley and Springville, started in 1877, was completed in 1879; the Utah and Pleasant Valley Railway made the transportation of coal much more cost-effective than hauling the material by wagon (Carr and Edwards 1989). In 1881 the Denver and Rio Grande Western purchased the Utah and Pleasant Valley Railway, which helped to break Union Pacific's monopoly on railroad transportation to and within Utah (Watt 1997). In 1877, Peter Morgan located the Winter Quarters Mine near Scofield. Until 1900, coal mining was extremely prosperous in the Scofield area and the small town prospered. The coal mining industry's demand for labor required the recruitment of men from outside the state and resulted in the emigration of varied nationalities including Italians, Greeks, Chinese, Finns, Japanese, Mexicans, and Yugoslavians (Watt 1997). Labor conflicts and strikes were recurrent after the turn of the century, with the largest occurring in 1901, 1902-1903, 1922, and1933. Unionization attempts and strikes during this period attracted the attention and support of Charles DeMolli and Mother Mary Jones, prominent American labor and community organizers (Watt 1997). A recurrent labor demand was for safer working conditions.

The most deadly mining accident in Carbon County occurred at the Winter Quarters Mine. On May 1, 1900 a coal mine explosion commonly referred to as the Scofield Mine Disaster occurred. In Number 4 Mine of the Winter Quarters Mine, a spark ignited coal dust, ultimately resulting in the death of 200 miners (Madsen 1947, O'Neil 1981, Watt 1997). After the May 1 mine accident, coal mining began a series of boom and bust cycles resulting from political and economic factors in an ever-shrinking world market. Boom cycles occurred in conjunction with World War 1, World War II, and to a smaller degree the Korean War. Coal production has fallen dramatically since the 1950's as natural gas and oil began to fulfill the nation's energy needs.

### Paleontological Context

Within the permit area, the Upper Cretaceous Blackhawk Formation of the Mesa Verde Group is the only geologic formation which is exposed at the surface within the existing or proposed surface disturbance areas. The Blackhawk Formation has been characterized as a representing a wave dominated delta system (Chan et. al., 1991) with a broad, flat marshy belt along a shoreline coastal plain. Vegetation included marginal coniferous forests, scattered deciduous trees such as gum, walnut, fig, and cottonwood, and numerous grass and sedge species. Dinosaurs roamed the marshy areas as evidenced by numerous dinosaur tracks. Generally, known fossils occurring

in the Blackhawk Formation include plants, palynomorphs (pollen), occasional mollusks, dinosaur tracks, animal tracks, and other trace fossils. Actual bone or skeletal fossils are rare and most of the known fossils are found in association with the coal seams. A listing of paleontological Sensitive Formations in Utah (Madsen, 1985) ranks the Blackhawk Formation as second for trace fossils, third for fossil plants, twenty-seventh for vertebrate fossils, and does not present a ranking for this formation for invertebrate fossils. Generally, trace fossils, and specifically dinosaur tracks, are the most common fossils associated with the Blackhawk Formation in this area.

**Cultural, Historic, and Paleontological Resources**

As previous described in R645-301-400, cultural, historic, and paleontological investigations for the permit area included research and review of previous studies and records, conversations with individuals familiar with the area, and site-specific field investigations for surface disturbance areas which generally corresponds to the mine facilities and permit boundary area. Generally, the research and review phase established the context of the area as discussed in the preceding sections and provided some insight relative to the locations and types of resources which might be present. Cultural, and historical, investigations for the proposed permit area resulted in identification of one previously documented site, the documentation of three previously recorded sites, and the documentation of five new sites.

The complete Cultural Resource Inventory report is located in Exhibit 3, Cultural Resource Information and considered to be confidential. The locations of all inventoried sites can be found in Figure 1 of the report, and normally would not be found on any other map in the permit application due to the sensitive nature of cultural, historical information, however due to a requirement by the UDOGM, the sites in the surface facilities area have been added to Map 14, Mine Surface Facilities, Pre-Mining Topography Map.

The Conclusion and Recommendations from the Cultural Resource Inventory Report states:

> "The inventory of Coal Energy Group 3 LLC's proposed Kinney No. 2 Mine resulted in the location of one previously documented site, the documentation of three previously recorded sites, and the documentation of five new sites. Three of these sites are recommended as eligible to the NRHP and the remaining six sites are recommended as not eligible to the NRHP. Sites 42Cb477 (Jones Mine), 42Cb479 (Kinney Mine) and 42Cb1032 (Utah & Pleasant Valley Railway) are evaluated as eligible to the NRHP under Criterion A (associated with significant events in regional history). Therefore, the proposed undertaking will not diminish the integrity of these properties which deems them eligible under Criterion A. Based on the findings archeological clearance is recommended for this project."

Copies of correspondence, permits, or any other documentation will be added to Exhibit 21, Permit Documentation as they become available.

## 411.141 Cultural and Historic Resources Maps

A map showing the inventory of cultural resources is included in Exhibit 3, Confidential Information, Cultural Resource Inventory of Coal Energy Group 3 Kinney 2 Mine. The locations of all inventoried sites can be found in Figure 1 of the report, and normally would not be found on any other map in the permit application due to the sensitive nature of cultural, historical information, however due to a requirement by the UDOGM, the sites in the surface facilities area have been added to Map 14, Mine Surface Facilities, Pre-Mining Topography Map.

There are no cemeteries located within 100 feet of the permit area. The Scofield Cemetery is located approximately 950 feet south and 685 feet west of the permit boundary.

There are no National System of Trails or Wild or Scenic Rivers System resources in the area of the permit boundary.

### 411.142 Coordination with State Historic Preservation Officer

As a component of the initial site investigations the State Historical Preservation Office (SHPO) was contacted to obtain information on existing identified cultural resource sites in the permit area. Following the site-specific field investigations, official site listing forms for any new cultural resource sites identified have been prepared and submitted to the SHPO for review and determination of eligibility.

### 411.143 Identification of Historic and Archeological Resources

Site specific field inventories of the proposed surface disturbance areas were conducted during the month of May 2007. Field inventory work followed extensive research and review of previous studies of the area, and historical accounts. Field surveys involved coverage of an area of approximately 395 acres by a qualified archaeologist and a paleontologist using parallel pedestrian transects spaced at intervals of up to 10 meters to search for any evidence of cultural, or historic values. In addition, accessible rock outcrop exposures around the perimeter of the survey area were examined for any evidence of paleontological values. Detailed discussion of site-specific field inventories and descriptions of any resources identified as a result of the field investigations are presented in Exhibit 3, Cultural Resource Information (included in the confidential information section).

### 411.144 Protection of Historic and Archeological Properties

On September 23, 2010 the UDOGM sent a letter to Lori Hunsaker, Deputy State Preservation Officer, Division of State History with a Decision of No Adverse Effect to Historic Properties, Coal Energy Group 3 Kinney No. 2 Mine. On October 13, 2010 Lori Hunsaker sent a letter to the UDOGM recommending a determination of No Adverse Effect for the undertaking. Copies of both letters have been added to Exhibit 21, Permit Documentation. Also, as recommended in the above referenced letter, CEG3 commits to install fencing along the disturbance boundary closest to the fan house feature of site 42cb477. CEG3 also commits to install fencing, so long as it is practicable for the protection of the resource, along the border of the disturbed area and feature 12 of site 42cb479.

### 411.200 Previous Mining Activities

Previous mining activities within the permit area and adjacent areas are important because they directly impact the coal resource available to support further mining operations and are associated with existing site disturbance and environmental impacts as reflected by baseline environmental characterizations. The nature and extent of previous mining and related activities

in the permit area and adjacent areas have been identified and characterized through review of historical mine maps, records, publications, and reports and conversations with individuals familiar with the history of the area. Old mine maps have been obtained from the Utah Geological Survey Office in Salt Lake City, and from other sources.

### History of Previous Mining Activity

As previously described in R645-301-411, Historical Context, the earliest recorded mining activity in the area was the development of the Winter Quarters Mine in 1877. Extensive mine development and operations continued throughout the area through World War II. After the war, mining in the area experienced a gradual decline due primarily to the shift from coal fired to diesel locomotives. In the proposed permit area and adjacent areas numerous mines operated through the 1970's. The UP (Union Pacific) Mine, with portals located south of the proposed mine permit area mined from 1877 through about 1936. Underground workings from this mine extended well into the area where the Kinney No. 2 Mine is planned. Four other mines operated in the area of the proposed Kinney No. 2 Mine, from north to south in the following order; 1) the Blue Seal Mine, located approximately 1 mile north of Scofield Town, and approximately 500 feet north of the proposed permit boundary operated from 1921 to the 1940's, 2) the Kinney Coal Company operated the Kinney Mine from 1918 to 1956, and was known from 1946 through 1956 as the Monay Mine; 3) the Columbine Mine was operated from 1960 through early 1971; and 4) the Jones Mine was operated by the Spring Creek Coal Company from 1960 to about 1970 (Cunningham 1990).

### Description of Known Historic Mining Operations

All of the previous historical mining operations in the area have been conventional underground room and pillar coal mines extracting coal reserves from one or more of the known coal seams in the Blackhawk Formation. These mines operated in the Hiawatha, UP Upper Split, and UP Lower Split coal seams. Map 5, Previous Mining Activity shows the aerial extent of historic mining in the various coal seams in the area of the proposed Kinney No. 2 mine. This same map shows the locations of the portals for these mines. There is some confusion as to which of these portals actually belong to each mine in some cases because the mines were partially interconnected.

## R645-301-412 Reclamation Plan

This section presents and describes reclamation plans and practices to be used to restore disturbed areas resulting from mining and related activities to productive self-sustaining use. Information in this section was developed in accordance with applicable regulatory requirements (R645-301-500) for coal mine permitting in the State of Utah.

The specific reclamation plans developed for the Kinney No. 2 Mine area and the proposed reclamation practices reflect the overall reclamation objectives, site specific conditions and constraints, and the best current reclamation techniques and methods. The following sections describe the timing and sequencing of reclamation activities, general reclamation requirements, and specific reclamation practices.

### General Reclamation Objectives and Activities

Reclamation will be an integral part of the Kinney No. 2 Mine mining and related activities, however, because the mine will be an underground mine and the surface facilities and related surface disturbance areas will remain in place until the end of the mine life, mining and reclamation will not occur concurrently or, in the case of progressive mining activities, sequentially. Reclamation of surface disturbance areas will generally occur following the cessation of mining operations to complete the mining and reclamation cycle although CEG3 will implement temporary stabilization measures in certain areas following initial construction or during ongoing operations.

Objectives of the planned reclamation activities will be twofold; 1) For construction disturbance, temporary stabilization and contemporaneous reclamation will serve to stabilize disturbance areas, minimize erosion, and limit potential surface water impacts; 2) For long-term use areas, final reclamation is designed to restore disturbed areas to a safe, stable condition and to reestablish the productivity of the land consistent with the postmining land uses of wildlife, grazing and recreation. The proposed postmining land uses of wildlife habitat, water shed, and commercial use reflects the pre-disturbance use of this and adjacent areas, existing land use plans and policies, the desires of affected surface landowners, and practical constraints relative to land use capability and condition. Specific land use considerations and constraints are discussed in R645-301-400, Land Use Information. The Kinney No. 2 Mine reclamation plan has been designed to successfully meet these objectives and will result in effective temporary stabilization, and a postmining configuration which blends with the surrounding terrain and provides environmental values consistent with or superior to those which existed prior to mining.

The Kinney No. 2 Mine reclamation plan has been developed utilizing available information on the existing environmental resources as described in R645-301-200, 300, 400600, and 700, Environmental Information. In addition, CEG3 has incorporated both available information on current successful reclamation technology and practices and their extensive operating experience in the area. While the plans presented in this permit represent what CEG3 feels to be the most effective reclamation practices for this site, it is important to note that successful reclamation must be a dynamic process, incorporating new information to optimize overall effectiveness. In order to meet the reclamation objectives these plans may be modified as appropriate to reflect changing conditions, revised regulatory requirements, advances in reclamation technology, and the results on ongoing research and experience relative to the long-term effectiveness of various reclamation practices. Any future plan modifications will be submitted as permit modifications through the normal regulatory process. Reclamation will involve a logical sequence of activities designed to achieve the overall reclamation objectives in an organized progressive manner. The following represent the general steps for reclamation of any mine or mine related surface disturbance areas:

- Facility Demolition and Removal
- Stabilization and Sealing of Mine Openings
- Disposal of Non-Coal Wastes, and Mine Waste Materials
- Removal and temporary storage of topsoil/substitute materials from long term storage (necessary because of segregation of better quality topsoil on top of substitute topsoil materials in stockpile)
- Backfilling and Grading to Establish the Final Design Configuration
- Drainage Reestablishment
- Road Removal
- Soil/Substitute Replacement
- Revegetation
- Post-Reclamation Management, Maintenance, and Monitoring
- Removal and Reclamation of Sedimentation Ponds and Associated Structures
- These activities are discussed in detail in the following sections.

## 412.100 Post-Mining Land Use Plan

The postmining land use for the mine area is the same as the current land uses, which are Mountain Range, Water Shed, Wildlife Habitat and Commercial within the Scofield Town boundary as well as those uses shown in Table 3 presented previously in this chapter as per the legislated zoning ordinances. Beyond the general reclamation objectives of restoring disturbed areas to a safe, stable condition and reestablishing the productivity of the land consistent with the postmining land use(s), this reclamation plan is designed to achieve the following specific operational and environmental objectives:

- Removal of Mining Related Structures and Facilities
- Eliminate Potential Hazards
- Establish a Stable Postmining Configuration
- Restore Effective Drainage
- Establish a Productive Self-Sustaining Vegetation Community

## 412.110 Methods for Achieving Post-Mining Land Use

### Reclamation Timing and Sequencing

CEG3 will reclaim mining related surface disturbance areas as soon as operationally practicable following completion of mining and related activities. For construction related disturbance, this commitment translates into regrading, establishment of effective drainage and sediment control, and temporary vegetation of the disturbed areas to stabilize these areas and prevent erosion or uncontrolled runoff.

With the exceptions of temporary stabilization of construction disturbance, other mining related disturbance areas are expected to remain in a disturbed condition until after the completion of mining and related activities. Reclamation of mine surface facilities areas following completion of mining will be initiated as soon as operationally feasible after mining ceases and no later than the next normal field season (typically May through October). It is anticipated that final reclamation would be completed within 24 months from the time the last coal is either produced or shipped from the property, whichever is later. Figure 36, Reclamation Timetable - Mine Facilities Area, outlines the specific sequence and anticipated timing of final site reclamation activities.

Final reclamation will involve removal of all mine related structures and facilities, closure and sealing of portals and mine openings, disposal of waste materials, temporary stockpiling of topsoil materials, backfilling and grading, drainage reestablishment, road removal, placement of soil or substitute materials, and revegetation. Generally, soil/substitute replacement and revegetation efforts will be coordinated so that soil materials are revegetated as soon as practically possible following placement. Normally this will involve placement of soil/substitute and immediate reseeding at the end of the field season in late fall. This approach allows the seed to "winter over" with germination in the spring when soil moisture conditions are elevated due to winter snow accumulations and spring melt. Because the main topsoil/substitute stockpile is configured to place the best material on top of lower quality topsoil/substitute, some of the better topsoil may have to be double handled to get to lesser quality material or backfill material beneath the topsoil. If this is the case, the better material will be temporarily stockpiled in a stable location and protected from erosion until it is finally spread. A detailed plan for this topsoil handling plan will be coordinated with the DOGM during reclamation.

Following final reclamation of mine facilities areas, the facilities to remain for postmining land use include the roads shown on Map 29, Mine Surface Facilities Area - Postmining Topography and

Interim Drainage Control Map. Also remaining will be some permanent drainage structures shown on Map 29. These structures will remain in place to provide protection from erosion and degradation of the reclaimed areas and to provide long term protections for the postmining land uses in the area as discussed in this Chapter. The proposed interim drainage and sediment control plan includes four areas where CEG3 proposes to utilize alternative sediment control methods as the primary means of controlling erosion and sediment contributions. The Mine Surface Area - Postmining Topography and Interim Drainage Control Map (Map 29), shows the drainage and sediment control features which will be retained during the reclamation liability period, and for post mining land uses. Components of the interim drainage and sediment control plan are identified and discussed in detail in R645-301-730 Hydrologic Resource Protection and PHC. CEG3 proposes to control sediment contributions during reclamation of the site using a combination of silt fences, straw bales, and other appropriate alternative sediment control measures. These temporary controls will be installed prior to any reclamation activities and serve as a protective barrier between the reclamation areas. The alternative sediment controls will remain in place during backfill/regrading operations, placement of soil material, reseeding, and re-establishment of vegetation, and will be removed following vegetative re-establishment. CEG3 anticipates that reclamation of these features will be completed within 6 to 9 months following receipt of a reclamation success determination, dependent on the time of year that the determination is issued.

**Mapping of Reclamation Information**

Information presented on the reclamation maps and cross-sections includes:

- Anticipated final surface configuration – Map 29
- Postmining drainage features – Map 29
- Location of any structures and facilities which will be retained as permanent structures following the completion of mining – Map 29
- Any roads to be retained in conjunction with the postmining land use – Map 29

## 412.130 Alternative Post-Mining Land Use

No alternative post-mining land uses are proposed for the Kinney No. 2 Mine area.

## 412.140 Consideration of Surface Owners & Local Land Use Plans

The post-mining land use plan considers the use of the land consistent with the current land owners and the post-mining land use designations. A portion of the land is privately owned and leased to CEG3, with the intent of operating a coal mine. The land owner therefore approves of mining as an acceptable land use, and final reclamation for the proposed land uses for post mining. The land owner will construct the bypass road shown just east of the proposed surface facilities area on Map 13, Surface Facilities Map and Map 29, Mine Surface Area – Postmining Topography and Interim Drainage Control Map. This road will replace the existing road running through the mine site that will be destroyed by mine construction. This road and ditch will necessarily serve as an undisturbed area diversion for runoff water from the area upslope from the mine facilities as shown on Map 24, Drainage and Sediment Control Plan – Disturbed Areas.

## 412.200 Land Owner Comments

Chapter 1 addresses land ownership and references the agreement with George Telonis ETAL, which gives CEG3 the right to use the land for coal mining. Only one landowner comment was received during the two public comment periods conducted for this permit application. A formal request was received by DOGM during the initial comment period. This comment was a request for a hearing, which was held and the Division made a finding that the commenter did not make their case.

## 412.300 Suitability and Compatibility

The reclamation plan addresses the suitability of soils materials for reclamation, refer to Exhibit 6, Soils Information.

## 413 Performance Standards

## 413.100 Postmining Land Use

The disturbed areas will be reclaimed in a timely manner to conditions that are capable of supporting the uses they were capable of supporting before mining, or to a better use. The reclaimed area will be compatible with all of the land uses in place prior to mine development, and will be compatible with all zoning ordinances and designations.

## 413.200 Premining Uses of Land

The land in the permit boundary has historically been used as grazing land by the private property owners. No dwellings or other structures exist at the time of this permit application submittal. The planned surface facilities area has historically been used for coal mining by several mining companies, notably, The Kinney Mine, Columbine Mine, and the Jones Mine. The planned surface disturbance area for the Kinney No. 2 Mine comprises 27.6 acres, of which only 6.9 (25%) acres have not been previously disturbed.

The permit area is also wildlife habitat, and falls within the Carbon County Water Shed (WS) zone, the Carbon County Pleasant Valley Zone (PV), the Carbon County Mountain Range Zone (MR), and the Scofield Town Commercial Zone (C) as previously discussed in this Chapter. The land will be returned to the pre-mining condition and will be compatible with both water shed, wildlife, Carbon County Zones, and Scofield Town Zone values.

## 413.210 Premining Uses of Land

The eastern portion of the disturbance area lies within Carbon County and is zoned by Carbon County as Mountain Range (MR) Zone which allows coal mining operations. The western portion of the disturbance area lies within Scofield Town and is zoned by Scofield Town as Commercial (C), which allows coal mining operations. These areas will be returned to the pre-mining condition, or better, and will be compatible with requirements of the regulations.

## 413.300 Alternative Postmining Land Uses

No alternative postmining land uses are planned for the area.

## 414 Alternative Postmining Land Uses

No alternative postmining land uses are planned for the area.

## R645-301-420 Air Quality

## R645-301-421 Compliance with Clean Air Act

## R645-301-422 Coordination and Compliance with Utah Bureau of Air Quality

### Sources of Air Quality Information

Air quality conditions in the proposed permit area and adjacent areas have been characterized in this section using information from studies and reports, previous and ongoing monitoring activities, and existing air emission permit application. Available air quality information and relevance to this site are summarized below.

Gault Group, Inc. Draft Notice of Intent for Kinney No. 2 Mine Project, February, 2008. Draft notice outlines proposed development plans, describes potential emissions and controls, and provides documentation for calculated emissions projections.

No site-specific emission studies or monitoring were conducted given the classification of this area as an "attainment" area and the lack of site-specific monitoring requirements under applicable regulatory provisions.

### Regional Air Quality Conditions

The permit and adjacent areas lie within the central area of the Upper Colorado River Air Basin. The central area has been divided into smaller sub-basins, each of which is characterized by meteorological conditions and related dispersion characteristics which are relatively homogeneous. The sub-basin concept, which assumes contained airflow within the basin, is generally applicable for normal air flow conditions but breaks down under storm conditions or other situations where strong regional air movements result in greater air turbulence and mixing between sub-basins and even major air basins.

Air movements in this area are strongly affected by natural drainage patterns and daily temperature variations. As local air masses cool at night, the denser, cool air flows down valleys and other natural drainage channels. Generally, the winds associated with downslope movements are low to moderate, however, if the drainage alignment parallels the prevailing wind direction or if topographic features concentrate natural air flows, moderate to strong downslope winds and high intensity gusts may result. As natural warming occurs during the morning and early afternoon, warm air masses begin to move up-valley. Differential heating and upper level winds

tend to have a greater impact on the upward air movements resulting in greater mixing and instability with resultant variable winds and greater potential for gusty conditions. Normally, prevailing winds in the area are from the west and northwest, however,
during the winter persistent high-pressure cells which settle above the Wasatch Mountains to the north can shift the prevailing winds to the northeast for extended periods.

The Federal Clean Air Act establishes acceptable levels of air quality based primarily on human health related exposure levels. Quantitatively, air quality exposure levels are defined by the National Ambient Air Quality Standards (NAAQS) as maximum allowable primary and secondary concentration levels for the following specific pollutants:

- Nitrogen Dioxide ($NO_2$)
- Sulfur Dioxide ($SO_2$)
- Carbon Monoxide (CO)
- Particulate matter smaller than 10 microns in size ($PM_{10}$)
- Ozone ($O_3$)
- Lead (Pb)

Based on the standards and available regional air quality monitoring data, specific areas are then evaluated and classified relative to compliance with the NAAQS. Areas where monitoring data indicate exceedances of the standards for one or more of the designated pollutants are designated as "non-attainment areas" for those specific pollutants. Carbon County, which encompasses most of the proposed permit area and adjacent areas, has been designated as an attainment area for all NAAQS primary pollutant levels indicating no significant existing air pollution problems in this area. Available monitoring data does indicate spot exceedances of secondary standards for total suspended particulates (TSP) for the areas of Price, Huntington, and Cedar Mountain, however, these exceedances are generally due to natural conditions of blowing dust and are not related to any specific development or operating activities.

There are specific areas designated by Federal regulation where potential air emission sources are not allowed to result in any significant deterioration of existing air quality. These areas, which include National Parks and designated Wilderness areas, are classified as "Prevention of Significant Deterioration - Class I Areas" (PSD). The only Class I PSD area in the general vicinity of the proposed permit area is Capital Reef National Park, which is located approximately 90 miles southwest of the proposed permit area. Given the combined factors of very limited potential from air emissions, mining and related activities, distance, and prevailing wind direction, the mining and related activities have negligible potential to adversely affect air quality in this area. Other areas under consideration for Class I designation in the general vicinity include Desolation Canyon, the San Rafael Reef, Lower Green River, Mexican Mountain, and Sids Mountain. The closest proposed Class I area is over 45 miles from the permit area and the same limiting factors would apply relative to potential mining related air quality impacts. With the exception of these specific areas, all other areas within and in the immediate vicinity of the permit area are classified as PSD Class II areas.

### Coordination with Applicable Federal and State Air Emission Requirements

Given that the permit and adjacent areas fall within a designated attainment area, the only applicable Federal air emission requirements are those provisions providing for State responsibility for protection of air quality within the State and applicable provisions providing for application of the best available control technology (BACT) for potential emission sources. Applicable State air emission requirements include provisions for air emissions permitting, application of BACT, submission of an annual air emissions inventory, stack height limitations, a 20 percent opacity limitation at all emission points, evaluation of visible emissions, reporting unavoidable control

equipment breakdowns, and emergency episode requirements.

### Coordination and Compliance With UDAQ

All applicable State air emission requirements will be addressed through maintenance of an air permit with the UDAQ. CR submitted a Notice of Intent application for mining and related activities to UDAQ in early 2008. The application was approved by the Utah Department of Environmental Quality, Division of Air Quality on December 11, 2008. This permit has since lapsed. CEG3 submitted a Notice of Intent application in November of 2018. A draft of the AO is expected by April 24, 2019 after which it will be public noticed. It is anticipated that approval will be received prior to approval of this MRP.

# Chapter 5

# R645-301-500 ENGINEERING

# Kinney No 2 Mine

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## R645-301-511 General Requirements

This section describes and presents engineering designs and operating plans for the proposed mining and related operations and associated structures and facilities. It also provides detailed information and designs for the environmental control and mitigation measures which will be utilized to prevent or minimize potential mining related environmental impacts. Information in this section was developed in accordance with applicable regulatory requirements (R645-301-500) for coal mine permitting in the State of Utah.

## R645-301-512 Certification

### Certification, Inspection, Reporting, and Emergency Procedures

Rule R645-301-512 specifies that certain designated cross-sections, maps, and plans be prepared by or under the direction of a qualified Registered Professional Engineer (PE) and that certain maps and design plans be certified by a PE or Registered Land Surveyor. Consistent with this requirement, the following components of this permit application meet the regulatory supervision and certification requirements:

- Previous Mining Activities Map, (Map 5)
- Mine Surface Facilities Map, (Map 13)
- Regional Hydrology Map, (Map 7)
- Drainage and Sediment Control Plan - (Map 24)
- Regional Geology (Figure 4, Chapter 6)
- Hiawatha Overburden Isopachs & Mining Blocks (Figure 10, Chapter 6)
- Geologic W-E X-Section A-A' (Figure 6, Chapter 6)
- Geologic W-E X-Section B-B' (Figure 7, Chapter 6)
- Geologic N-S X-Section C-C' (Figure 8, Chapter 6)
- Geologic N-S X-Section D-D' (Figure 9, Chapter 6)
- Mine Plan Layout & Production Schedule (Maps 15) Drainage and Sediment Control Plan, Map 24
- Sedimentation Pond No. 1, (Map 25)
- Mine Surface Facilities Area, Pre-Mining Topography Map, (Map 14)
- Mine Surface Facilities Area – Pre Mining, Mining & Post Mining Cross-Sections, (Maps 16 – 19)
- Exhibit 14, Geotechnical Investigations

In order to assure that designed structures are constructed according to the design plans and to verify that designed structures and facilities continue to function as designed, Rule R645-301-514 specifies that the following structures and facilities be inspected by a qualified Registered Professional Engineer or a qualified professional specialist under a professional engineer's direction and outlines specific inspection requirements:

- Excess spoil fills
- Coal refuse piles
- Impoundments

No excess spoil fill, or coal refuse pile is planned for the Kinney No. 2 Mine. Specific inspection and reporting practices for the proposed sediment pond is described in detail in the following sections of this operations plan.

Certain situations involving accidents, emergencies, or unforeseen circumstances may require immediate or timely reporting to provide for appropriate coordination of required control and mitigation measures. Under applicable regulatory requirements, these situations are specifically identified as including the following:

- Slides which may have potential adverse effects on public health and safety, property, or the environment
- Excess spoil fills
- Impoundment hazards
- Accidental releases of potentially hazardous or toxic materials including petroleum products
- Temporary cessation of mining operations

Reporting and emergency measures for potential slides are specifically addressed in R645~~6~~-301-600 Geologic Protection; for impoundment hazards and accidental releases of potentially hazardous or toxic materials in R645-301-731.300 Hydrologic Resource Protection; and for temporary cessation of mining operations in R645-301-731.500 - 522 Cessation.

## R645-301-513 Compliance with MSHA Regulations

The proposed mining and related operations have been designed and will be operated and maintained to effect full compliance with all applicable Federal, State, and local laws and regulations. Specifically, ~~CR~~ CEG3 will comply with applicable regulatory requirements relating to the following designated activities/structures under the authority of the noted jurisdictional agencies:

### Federal Agencies

Mine Safety and Health Administration (MSHA) – Compliance with applicable requirements relating to coal processing waste dams; impoundments and sedimentation ponds; plans for underground disposal of underground development waste, coal processing waste, or excess spoil; refuse piles; reclamation and closure of mine openings; any discharges into underground mines; mining within 500 feet of an active underground mine; and plans for extinguishing coal mine waste fires.

~~CR~~ CEG3 will work with MSHA and the state of Utah to devise plans to precisely locate old mine workings prior to approaching them that will safeguard all persons. This may involve drilling ahead with an in-mine drill, possibly injecting concrete into old workings to pre-stabilize them and other measures to prevent inundation and/or the introduction of gob gas to the active mine atmosphere should the drilling reveal the old mine workings will be unavoidably encountered in the planned mains.

Underground development waste backfill will be placed into designated panel areas and will further serve to encapsulate pillars. This will passively stabilize pillars in those areas with some confinement. Underground development waste backfill areas will be ventilated until they are filled and have been monitored for products of combustion for a period of 1 year after backfill operations are complete. If no significant products of combustion have been found the area will be sealed and monitored according to an approved ventilation plan.

**R645-301-514 Inspections**

In order to assure that designed structures are constructed according to the design plans and to verify that designed structures and facilities continue to function as designed, Rule R645-301-514 specifies that the following structures and facilities be inspected by a qualified Registered Professional Engineer or a qualified professional specialist under a professional engineer's direction and outlines specific inspection requirements:

- Excess spoil fills
- Coal refuse piles
- Impoundments

No excess spoil fill, or coal refuse pile is planned for the Kinney No. 2 Mine. Specific inspection and reporting practices for the proposed sediment pond is described in detail in the following sections of this operations plan.

**R645-301-515 Reporting and Emergency Procedures**

Reporting and emergency measures for potential slides are specifically addressed in R645-301-631 - 632 Geologic Protection; for impoundment hazards and accidental releases of potentially hazardous or toxic materials in R645-301-730, Hydrologic Resource Protection; and for temporary cessation of mining operations in R645-301-515.399, Temporary Cessation.

**515.100 Slides**

~~See discussion on reporting slides under R645-301-512 below.~~ Any time a slide occurs which may have a potential adverse effect on public, property, health, safety, or the environment, CEG3 will notify the Division by the fastest available means and comply with any remedial measures required by the Division.

**515.200 Impoundment Hazards**

If any examination or inspection of an impoundment discloses that a potential hazard exists, the person who examined the impoundment will promptly inform the Division of the finding and of the emergency procedures formulated for public protection and remedial action. If adequate procedures cannot be formulated or implemented, the Division will be notified immediately.~~Certain situations involving accidents, emergencies, or unforeseen circumstances may require immediate or timely reporting to provide for appropriate coordination of required control and mitigation measures. Under applicable regulatory requirements, these situations are specifically identified as including the following:~~

- ~~Slides which may have potential adverse effects on public health and safety, property, or the environment~~
- ~~Excess spoil fills~~
- ~~Impoundment hazards~~
- ~~Accidental releases of potentially hazardous or toxic materials including petroleum products~~
- ~~Temporary cessation of mining operations~~

### 515.300 Temporary Cessation of Operation

Designs and plans for the proposed mining and related operations are based not only on geologic, environmental, and engineering information but also on existing coal contracts and conservative projections of future coal market demand. Given this consideration, ~~CR~~ CEG3 does not anticipate any temporary cessation of the proposed mining operations prior to the end of the projected mine life. In the unlikely event that temporary cessation of operations becomes necessary, the mine surface facilities would be secured to minimize potential public health and safety hazards and to prevent or minimize potential related adverse impacts on the environment. Specifically, entrances to the mine, mine facilities, and loadout facilities would be barricaded and locked, buildings, equipment, fuel storage facilities and other support facilities would be locked and the site would be put on extended maintenance and care status until operations could be reactivated or a decision is made to permanently close the operation. In order to prevent unauthorized access to underground mine workings during any period of temporary cessation, mine openings including the mine portals and ventilation shaft will be secured by locked barricades. Dependent on the anticipated period of temporary closure, access to mine portals would be restricted by either temporary concrete block walls or fabricated locking metal gates. Maintenance and care status would involve the use of mine or contract security personnel to control site access, regularly inspect the site to identify any hazardous conditions, and conduct routine maintenance and repair to prevent significant deterioration or damage to the existing structures and facilities.

If temporary cessation of mining and/or reclamation operations for a period of 30 days or more becomes necessary, ~~CR~~ CEG3 will submit a notice of intention to UDOGM. The notice will include a statement of the exact number of acres which have been disturbed prior to cessation, the nature and extent of any reclamation completed, and any reclamation, environmental monitoring, water treatment, or other activities which will continue during the period of temporary cessation. Monitoring will include taking one composite sample of the temporary waste coal processing waste storage pile for each 5,000 tons in the pile, should there be coal processing waste in the temporary pile at time of cessation. The sample(s) will be analyzed for parameters listed on Tables 3 and 7 in the UDOGM January 2008 "Guidelines for Management of Topsoil and Overburden".

The mine site provides access to private property to the north and east, therefore, the private property owners involved will have keys to the site gates to access their property during any cessation period, and during the reclamation bond period. Roads have been designed into the reclamation plan for post mining land use to allow the private property owners access.

## R645-301-520 Operation Plan

In developing the engineering designs and operating plans for the mining and related operations, ~~CR~~ CEG3 has reviewed and evaluated all existing available information on site geology, coal occurrence and characteristics, and environmental resource values. This information along with sound engineering principals has been combined to develop designs and plans which will provide for safe, efficient, and effective mining operations while minimizing potential related environmental impacts and effecting full compliance with all applicable regulatory requirements. The following sections describe the specific design methods, operating measures, and associated control and mitigation practices which will be utilized to accomplish these objectives.

### 521.100 Cross Sections and Maps

Maps presenting all of the information required by R645-521.100 are included in this permit document, including Maps 1 through end of maps. Each chapter of this document refers to

particular maps that present and represent information required. A complete list of maps can be found as the List of Maps at the beginning of the document. Map scales have been chosen to represent the information contained on each map and according to R645-301-141.

In order to assure that designed structures are constructed according to the design plans and to verify that designed structures and facilities continue to function as designed, Rule R645-301-514 specifies that excess spoil fills, coal refuse piles and impoundments be inspected by a qualified Registered Professional Engineer or a qualified professional specialist under a professional engineer's direction and outlines specific inspection requirements:

- Excess spoil fills
- Coal refuse piles
- Impoundments

No excess spoil fills, or coal refuse piles are planned for the Kinney No. 2 Mine. Specific inspection and reporting practices for the proposed sediment pond is described in detail in the following sections of this operations plan. The only impoundment planned is a sedimentation pond for which the water holding capacity is totally incised.

**Engineering and Mine Planning Information**

Information presented on the regional and mine area engineering and planning maps includes:

- Proposed mine permit and disturbance boundaries
- Existing land configuration
- Existing and proposed surface structures and facilities
- Location, extent, and sequencing of proposed underground mine development
- Drainage and sediment control plans and designs for associated structures
- Existing and proposed roads and utility installations

The pre-mining topography of the mine site and area can be seen on Map 14, Pre-Mining Topography.

**521.110 Previous Mine Areas**

As described in R645-301-521.152, Previous Mining Activity, extensive historic mining activity has occurred throughout the proposed permit area with resulting development of underground mine workings in many areas and disturbance of limited surface areas for mine portals; coal stockpiles; coal handling, processing, and loadout facilities; and mine support facilities. Mining related underground workings are shown and labeled on Map 5, Previous Mining Activity Map. The surface disturbance area from the various historic mines is shown on Map 5, Previous Mining Activity, and on Map 4, Regional Land Use Map.

Some of the previous historical mining related disturbance is of particular significance with respect to its relationship to the proposed mining operations. The most obvious area of significance is the previous underground mine development and production which has resulted in depletion of discrete coal reserve blocks in the targeted mineable coal seam. ~~CR~~ CEG3 has utilized available maps of the previous underground workings to eliminate the previously mined reserves from consideration under the proposed mining plans and to establish the proposed mining layout and sequence. Extensive previous surface disturbance was also a factor in selecting the proposed mine surface facilities area. By utilizing an area which has been previously substantially disturbed, ~~CR~~ CEG3 can effectively avoid much of the disturbance and related environmental impacts

associated with any new surface disturbance.

Site 42Cb477, although included in the archeology inventory and in the report is outside of any actual disturbance from mining. Two Clearance Letters, one from SHPO and the Concerence Letter from DOGM are included in Exhibit 4, Other Permits .

### 521.120 Existing Surface and Subsurface Facilities

As discussed in R645-301-410 Land Use Information, the rugged natural topography of the area may generally be characterized as a small, high elevation valley, with high plateaus to the east and west, narrow ridgelines cut by deep drainages with steep, narrow drainage valleys over most of the proposed permit and adjacent area. Existing site topography, structures, and facilities, are shown on Map 4, Regional Land Use Map.

Most of the structures and facilities associated with previous historic mining have been removed and most of the previously disturbed areas have been reclaimed. Those structures which remain include an old fan house, a small, one-room concrete structure, and several foundations and other minor mining related remnants. All of these features are documented in Exhibit 3, Confidential Information, Archeology report. In addition, the features have been added to Map 14, Pre-Mining Topography Map. None of the features or structures, either surface or subsurface, will be used for the Kinney No. 2 Mine, as they are old, dilapidated, and of no value to mining activities. There is only one of the sites included in the Archeology report that will be impacted by mining activities, Site 42Cb479; all of the features within this site will be impacted under permit from the Utah State Historic Preservation Office. A mitigation ("Treatment Plan") is being developed for approval to offset the impact. Documentation of this approval is either in Exhibit 4, Other Permits, or will be inserted as soon as the approval has been received.

### 521.130 Land Ownership and Right of Entry Maps

See discussion on land ownership in R645-301-521.132 below.

### 521.131 Land Ownership Maps

See discussion on land ownership in R645-301-521-132 below, and Map 11, Surface Ownership Map.

### 521.132 Boundaries of Land ~~CR~~ CEG3 Mining has Rights to Enter

The Surface Ownership Map and Coal Ownership Map. (Maps 11 and 12, respectively) show ownership blocks and boundaries. The Kinney No. 2 Mine permit area encompasses an area of approximately 448.14 acres, of which 15.33 is fee surface, 22.8 (less UDOT R-O-W) is leased, and the remaining 410.04 acres are private land.

The proposed Kinney No. 2 Mine will be operated by ~~Carbon Resources, LLC~~Coal Energy Group 3 (~~CR~~CEG3). ~~CR's~~ CEG3's offices are currently located at ~~P.O. Box 954, Sandia Park, New Mexico 87047~~6602 Ilex Circle, Naples Florida 34109. Upon start of operations, temporary office space will be located in Scofield, with permanent offices to be located at the mine site.

The area of surface disturbance is confined within the 38.13 acres (combined Fee and Easement) owned or controlled by ~~Carbon Resources~~Coal Energy Group 3. Only 27.6 acres of the 38.13 acres

will be disturbed for surface facilities. The coal to be mined lies beneath the George Telonis, ETAL. fee surface land and is owned by Carbon County which in turn has been leased it to Western Reserve Coal, Inc, parent company of ~~Carbon Resources~~Coal Energy Group 3.

### 521.133 Protection of Public Interest

Mining operations will be conducted within 100 feet of Utah State Highway 96, which is a public road. In compliance with the applicable regulatory provisions of Rules R645-103-234.100 through 400, ~~CR~~ CEG3 has contacted and obtained approval from the Utah Department of Transportation (UDOT) for access to Highway 96. Opportunity for the public to request a public hearing on use of SR96 was provided in two public notices for the mine published in the Sun Advocate newspaper from June 24, July 1, 8 and 15, 2008,and on June 10, 17, 24 and July 1 2010. No requests for a public hearing were received. ~~CR~~ CEG3 has submitted detailed design plans for the highway intersection to the Utah Department of Transportation. Upon approval of the design, was received on March 14 2011, a copy of which is included in Exhibit 4, Other Permits.

### 521.140 Mine Maps and Permit Area Maps

See discussion on mine maps and permit area maps under R645-301-521.142, and R645-301-160 below.

### 521.141 Disturbed Boundary and Timing of Mining

See discussion on disturbed boundary and timing of mining under R645-301-142, 160, 522, and 523 below.

### 521.142 Underground Working and Subsidence Areas

The disturbed area boundary can be seen on Map 13, Surface Facilities, and the underground mining plan layout and timing can be seen on Map 15, Mine Plan Layout and Production Schedule.

No subsidence is planned for the Kinney No. 2 Mine since no second mining is planned. No pillars will be extracted, therefore no collapse of the strata above the coal seam will occur which creates subsidence.

### 521.143 Mine Waste Disposal Sites

See discussion below under 528.320

The only permanent waste disposal sites planned are in-mine storage of underground development waste.

Underground development waste from underground mining may be temporarily stockpiled in the portal area, off-spec coal pile, until it can be returned to the mine where it will be placed in areas specifically designated for this purpose.
See discussion below under 528.321

### Development Waste Temporary Storage Area (Underground Development Waste)

See discussion below under 528.320

### 521.150 Land Configuration Maps

See maps discussion under R645-301-521.152 below including Map 14, Mine Surface Facilities Area Pre-Mining Topography, Maps 16 through 19, Mine Surface Facilities Area Pre-Mining , & Post Mining Cross Sections, Map 23, Drainage and Sediment Control Plan Undisturbed Drainage Areas, and Map 29, Mine Surface Facilities Area Post Mining Topography & Interim Drainage Control.

### 521.151 Cross Sections and Slope Measurements

See maps discussion under R645-301-521.160 below.

### 521.152 Previously Mined Area

See maps discussion under R645-301-521.160 below.

### 521.160 Maps and Cross Sections of Features of Permit Area

Information presented on the regional and mine area engineering and planning maps includes:

- Proposed mine permit and disturbance boundary – Map 13, Surface Facilities Map
- Existing land configuration – Map 14, Mine Surface Area Pre-Mining Topography, Maps 16 through 19, Mine Surface Facilities Area Pre-Mining & Post Mining Cross Sections
- Existing and proposed surface structures and facilities – Map 13, Surface Facilities Map
- Location, extent, and sequencing of proposed underground mine development – Map 15, Mine Plan Layout and Production Schedule
- Drainage and sediment control plans and designs for associated structures – Map 23, Drainage and Sediment Control Plan Undisturbed Drainage Areas; Map 24, Drainage and Sediment Control Plan Disturbed Drainage Areas; Map 25, Sedimentation Pond 1 Sections & Details; Map 26, Drainage and Sediment Control Plan Disturbed Drainage Sub-Basins; and Map 27, Runoff Control Details
- Existing and proposed roads and utility installations – Map 13, Surface Facilities Map, and Map 14, Mine Surface Facilities Area Pre-Mining Topography
- Previously mined area – Map 5, Previous Mining Activity

The pre-mining topography of the mine site and area can be seen on Map 14, Mine Surface Facilities, Pre-Mining Topography.

Some of the previous historical mining related disturbance is of particular significance with respect to its relationship to the proposed mining operations. The most obvious area of significance is the previous underground mine development and production which has resulted in depletion of discrete coal reserve blocks in the targeted mineable coal seam. ~~CR~~ CEG3 has utilized available maps of the previous underground workings to eliminate the previously mined reserves from consideration under the proposed mining plans and to establish the proposed mining layout and sequence. Extensive previous surface disturbance was also a factor in selecting the proposed mine surface facilities area. By utilizing an area which has been previously substantially disturbed, ~~CR~~ CEG3 can effectively avoid much of the disturbance and related environmental impacts associated with any new surface disturbance.

As discussed in R645-301-410, Land Use Information, the rugged natural topography of the area may generally be characterized as a small, high elevation valley, with high plateaus to the east and west, narrow ridgelines cut by deep drainages with steep, narrow drainage valleys over most of the proposed permit and adjacent area. Existing site topography, structures, and facilities, are shown on Map 4, Regional Land Use Map.

Most of the structures and facilities associated with previous historic mining have been removed and some of the previously disturbed areas have been reclaimed. Those structures which remain include an old fan house, a small, one-room concrete structure, and several foundations. The remaining historic structures are identified and described in R645-301-411.140, Cultural and Historic Resources.

### 521.170 Transportation Facilities Maps

In conjunction with the proposed mining and related operations ~~CR~~ CEG3 will construct, operate and maintain a number of new roads and will operate and maintain several existing roads. Both new and existing roads will be utilized to access existing and proposed facilities and for transportation of personnel, equipment, and supplies. All roads are classified as primary roads. The primary road classification includes any road used for transporting coal or spoil, roads which are used frequently for periods exceeding 6 months, and roads which will be retained to support the post mining land use. All roads will be utilized on a frequent, long-term basis to support the proposed mining and related operations. Proposed roads which will be used in conjunction with the proposed mining and related operations include the following:

Proposed Roads in Kinney No. 2 Mine Facilities Area

P-1 Primary mine access road for the proposed surface facilities area
P-2 Primary mine access road to Mine Office Pad
P-3 Primary mine access road to the Portal Pad
P-4 Primary mine access road to the Storage Area Pad
P-5 Primary mine access road to the Loadout Pad
P-6 Primary mine access road to Sedimentation Pond No. 1
P-7 Primary mine access road to the North Access Road
P8 Primary access road through site for post mining land use only, will replace P-7
P9 Primary access road east to private property on mountain and for post mining land use

All proposed roads, except P-8, are shown on, Map 13, Mine Surface Facilities Map. Road profiles can be seen on Maps 20 through 22, Mine Surface Facilities Road Profiles.

### 521.180 Support Facilities

#### General Description of Mine Construction and Development

The new mine facilities access road will generally follow the alignment of the undeveloped dirt road which begins near the south end of the proposed operations on Highway 96, and Mine construction and development will involve those activities necessary to complete the surface facilities and systems and to develop mine portals, main entries, and the entire underground infrastructure which will be required to support the proposed underground mining operations. From an environmental standpoint, the mine construction and development phase will be important due to the fact that essentially all direct mining related surface disturbance will occur during this phase. Mine construction and development activities will be conducted in a manner that prevents or controls erosion and siltation, water pollution, and damage to public or private property; and to the extent possible using the best technology currently available, minimizes damage to fish, wildlife, and related environmental values, and minimizes additional contributions of suspended solids to streamflow or runoff outside the permit area. Any contributions of suspended solids from mine disturbance areas will not exceed applicable effluent limitations

under Utah or Federal law.

Construction/Development Schedule - Required highway modifications will occur prior to mine development and entirely within the existing Highway 96 right of way and will be conducted under approved plans developed in consultation with the Utah Department of Transportation (UDOT). All other proposed construction and development activities will proceed as soon as operationally feasible following receipt of required permit approvals. Construction and development activities proceeding immediately and continuing over the next 18 to 24 months.

Construction/Development Activities and Associated Control and Mitigation Measures - Required mine construction and development activities will proceed in a logical sequence to assure effective environmental protection and engineering control of these activities. The following general sequence of activities will be applicable for all proposed mine construction and development activities:

- Establish preliminary access
- Construct required drainage and sediment control structures
- Recover and stockpile available soil or substitute materials
- Construct required roads
- Proceed with required site grading, excavation, and cut/fill operations
- Complete required foundation preparation work
- Construct required structures and facilities
- Complete required utility installations
- Develop mine portals, and main entries
- Complete infra-structure for underground operations (includes electrical systems, water distribution, communications, ventilation, mine drainage systems, and conveyors)
- Systems testing and commissioning

The following sections describe each of these construction/development activities and the associated control and mitigation measures which will be utilized to minimize potential related environmental impacts and assure that each activity is conducted in conformance with approved designs and plans.

Establish Preliminary Access - Preliminary access for the proposed construction and development activities will be made at the location of the pre-mining dirt road to the site, and utilizing the other existing roads on the site. Preliminary access routes will only be utilized for a very brief period to facilitate initial drainage construction and soil removal activities, consequently, associated environmental control and mitigation measures will be limited to alternative sediment control such as silt fences, straw bales, sediment traps, berms and watering on an as needed basis.

Construct Required Drainage and Sediment Control Structures - Due to the importance of effective water quality protection, required drainage and sediment control structures will be constructed prior to any other significant site disturbance. Drainage construction will be a phased process with construction of the sedimentation pond, and principal undisturbed drainage diversion ditches and disturbed area collection ditches all of which are temporary ditches occurring as the first activities in the construction phase. Temporary sediment controls to be utilized during initial construction will include the use of silt fence, straw bales, berms, temporary ditches and sediment traps. Temporary controls will be utilized to effectively control runoff and sedimentation until designated structures can be completed. As progressive construction activities are extended to other areas, the associated drainage structures will be developed and connected to the existing drainage system prior to other area disturbance. Detailed descriptions of drainage design and construction procedures are presented in R645-301-526, Mine Structures

and Facilities, and the proposed drainage control system is shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas. These structures have been designed and will be constructed, operated, and maintained to provide effective drainage and sediment control during both construction/development activities and subsequent mining and related operations. Construction of all drainage and sediment control structures will be monitored by qualified individuals under the supervision of a Registered Professional Engineer and specific designed structures including the sedimentation pond will be inspected according to design plans certified as required by applicable regulatory provisions.

Recover and Stockpile Available Soil and Substitute Materials - Once the required drainage structures are in place to effectively control surface runoff and minimize additional sediment contributions, construction will proceed with recovery of available soil and substitute materials from the proposed surface disturbance areas. Soil and substitute recovery will involve removal of existing materials which will be utilized as vegetative growth media during future site reclamation activities. These materials will be removed using either tractor scrapers or an equipment team composed of a tracked dozer, wheel loader, and rear dump truck, and will be transported and placed in temporary stockpiles for future reclamation use. The coal fines identified during the soils investigation will be removed and sold as discussed previously. The previously constructed drainage and sediment control structures will provide effective water quality control for soil removal operations and periodic watering of soil removal areas and haulage roads will be utilized to control dust emissions. A detailed discussion of soil and substitute recovery and stockpiling practices is presented in R645-301-230, Soil Handling Plans, and proposed soil/substitute stockpile locations are shown on Map 13, Mine Surface Facilities Map.

Construct Required Roads - Construction of required roads will be included in a phased manner as the site is developed. Nine primary access roads will be required in conjunction with the proposed mining and related activities as follows:

- Main Access Road – P1 - From Highway 96 to the Operations Pad
- Office Access Road – P2 – From P1 to the Mine Office Pad
- Portal Access Road – P3 – From P1 to the Portal Pad
- Storage Access Road – P4 – From P3 to Storage Area Pad
- Loadout Access Road – P5 – From the Operations Pad to the Loadout Pad
- Sediment Pond Access Road – P6 – From the Loadout Pad to the Sediment Pond
- North Access Road – P7 – From the Loadout Pad to the Private Property to the North
- North Access Road - P8 - Through site for post mining land use only, will replace P7
- East Access Road – P9 - Access road to top of mountain and for post mining land use

Primary roads which will be utilized in conjunction with the proposed mining and related operations as well as existing roads which are not related and will not be utilized in conjunction with the proposed activities are shown on Map 4, Regional Land Use Map, and Map 13, Surface Facilities Map. Roads existing prior to mining, and roads to be left for post mining land use are shown on Map 14, Mine Surface Facilities, Pre-Mining Topography Map. All roads have been designed and will be constructed and maintained to prevent or control damage to property; erosion, siltation, and air pollution; and minimize disturbance and impacts to fish, wildlife, and related environmental values. Construction of primary roads will be monitored and construction according to the design plans certified consistent with applicable regulatory provisions. Detailed discussions of road design, construction, and maintenance practices are presented in R645-301-526, Mine Structures and Facilities, and R645-301-531, Design Standards and Requirements.

Proceed With Required Site Grading, Excavation, and Cut/Fill Activities - Cut/fill operations and grading will be required to establish final design grades for the proposed mine surface facilities. Design grades for the proposed mine facilities area reflect an overall cut/fill balance so that no excess spoil disposal will be required. Cut/fill slopes have been designed at grades of

approximately 0.8H:1V to 3.0H:1V dependent on material to minimize erosion potential and provide for effective long-term stability as recommended by Rollins, Brown and Gunnel Geotechnical Engineers in their geotechnical investigations report, Exhibit 14, Geotechnical Investigations. Required site construction earthwork will involve the use of tracked dozers, tractor scrapers, wheel loaders, backhoes, and trucks to establish final design grades and all earthwork operations will be supervised and monitored by a qualified individual familiar with construction earthwork. Consistency with design plans will be monitored and checked using conventional engineering survey methods. Drainage from areas disturbed or otherwise affected by site grading activities will be controlled by either temporary controls or the previously constructed drainage and sediment control system and watering will be utilized to minimize potential fugitive dust emissions.

Complete Required Foundation Preparation Work - Once design grades have been established through completion of site earthwork and grading, work will proceed with preparation and installation of foundations for all proposed major structures and facilities. ~~CR~~ CEG3 has completed geotechnical investigations to evaluate site foundation conditions as a basis for foundation and facility design. Foundation investigations, as described in Exhibit 14, Geotechnical Investigations, included completion of 6 borings, and 14 test pits at the locations of proposed major facilities, penetration tests, and collection, laboratory analysis, and evaluation of the representative material types encountered by the test borings and pits. Findings and recommendations are presented in the final report found in Exhibit 14. Proposed mine facilities, structures, roads and the sedimentation pond have been designed according to these findings and recommendations.

Foundation preparation activities will generally involve excavation and removal of any potentially deleterious material including but not limited to organic material, debris, coal or carbonaceous materials, and wet or frozen materials and compaction of the upper three feet in the foundation area. In any areas where the surficial materials have been identified as having any limitations relative to use as foundation materials, appropriate remedial measures including over excavation and recompaction or replacement with more suitable materials will be implemented. Foundations will generally be spread footings with floating slabs, which will be used for most of the major buildings and structures, concrete pier type footings for the conveyor support structures, or slab type foundations for the electrical substation and other minor structures. Foundation construction will be monitored under a construction quality assurance program implemented under the ~~CR~~ CEG3 facility construction contract to assure compliance with design plans and specifications. Specific foundation designs are discussed for individual facilities in R645-301-526, Mine Structures and Facilities.

Construct Required Structures and Facilities - Construction of the major required structures and facilities will involve fabrication and erection of the following designed structures:

- Maintenance shop and warehouse building
- Administration/Bathhouse facility
- Coal handling system (includes coal conveyors and transfer points, stacking tubes, coal stockpiles, coal reclaim system, usher building and truck loadout building)
- Miscellaneous structures

All mine support buildings will be constructed with fixed concrete foundations, a structural steel framework, and pre-fabricated sheet steel siding and roofs or will be concrete precast structures. Internal design and construction will vary for each facility dependent on use. Conveyor structures and supports will be pre-fabricated steel frames supported by steel trusses which will be anchored by concrete piers. Conveyor transfer points will consist of a steel framework supporting conveyor head and tail pulleys, drive units, and any required chute work and dust control equipment. The coal stacking tubes will be steel tubes set on heavy reinforced concrete slab foundations. The

coal reclaim system will consist of several steel chutes and vibratory feeders supported by reinforced concrete foundation structures feeding to a heavy steel tunnel structure which will house the coal reclaim conveyor and associated support equipment. Facility construction will be monitored under a construction quality assurance program implemented under the ~~CR~~ CEG3 facility construction contract to assure compliance with design plans and specifications. All proposed mine structures and facilities are shown on Map 13, Surface Facilities Map, and detailed facility descriptions and operating/maintenance plans are presented in R645-301-526, Mine Structures and Facilities.

Complete Required Utility Installations - Concurrently with construction of the major structures and facilities, ~~CR~~ CEG3 will complete required utility installations including electrical power distribution, raw and potable water systems, and the sanitary sewer system. The mine electrical power distribution system will consist of a substation located near the mine portal area; transmission lines running from the substation to each of the major facilities, the mine fan installation, the major conveyor drive installations, and connecting to the underground mine electrical system; and related electrical transformers and switchgear.

Water systems will provide both raw and potable water for sanitary use in the mine facilities, fire-fighting reserve, mine water requirements, and dust control sprays in coal handling areas. A 50,000 gallon raw water storage tank along with associated piping, control valves, and control/monitoring systems will be constructed on the north end of the mine portal area and will connect to a distribution network running through the mine facilities area and connecting to the underground mine water system. Water for this tank and the mine water system will be provided by Scofield Town. The potable water system will connect to the existing Scofield Town water system and will supply potable water to the maintenance shop, warehouse, and administration building/bathhouse facility. All facilities served by the potable water system will also be connected to a main sewer line running from the mine facilities area to the Scofield Town sewer system near the southwest corner of the mine site. The location of all existing and proposed utility installations are shown on Map 13, Surface Facilities Map, and utilities are described in greater detail in R645-301-526, Mine Structures and Facilities.

Develop Mine Portals, and Main Entries - Portal development can be initiated following completion of required drainage and sediment control structures, access roads, and the portal pad area. In order to initiate portal development as early as possible in the construction/development process, temporary electrical connections, a temporary water supply, and temporary ventilation measures may be employed. Portal development will be initiated with erection of pre-fabricated steel portal structures to protect workers from any rocks falling off the steep slope above the face-up area. To the extent operationally feasible, portal and mine development will occur in the Hiawatha Seam from the point where it outcrops in the face-up area. In the event the coal seam does not exist at the face-up area, rock slopes will be constructed to access the coal seam. Portal development will involve development using conventional methods of a five entry system. One or more continuous miners will be utilized to drive the development entries and conventional roof bolters will be utilized to provide roof control during development operations. Blasting may be necessary for development of the portals and will be conducted according to the blasting plan addressed in Exhibit 15, Kinney No. 2 Mine Blasting Plan. Underground Development Waste rock from these activities will be temporarily stockpiled on the off-spec coal pile until it can be returned to the mine, where it will be placed in areas specifically designated for this purpose.

Entry No. 2 will be a Temporary Portal entry and will be used for the installation of a temporary auxiliary fan. This temporary configuration will initially consist of up to 2 - 100 HP auxiliary exhausting fans and ductwork to provide adequate airflow for initial portal face development operations and to sustain mains development until the main mine fan is installed. Intake air will be heated by

MSHA approved propane heaters as needed. All MSHA rules and regulations will be complied with as well as prudent safe operating practice. As lower cost natural gas becomes available to the local area intake air heaters may be converted according to improve the cost economics of the operation.

It is anticipated that these auxiliary fans will be required for an interim period of time while setting up the main mine fan installation and establishing the initial airways of the mine. Once progress has developed airways to the point and construction is complete so that the permanent fan can be placed in service the auxiliary fans will be taken out of service or will be used at the face in series or parallel with the mine fan to assist with face ventilation there.

The main mine fan will be installed on the northern-most portal entry to replace the temporary system (the auxiliary fans) and construction and installation will begin as soon as possible. The mine fan is shown on Map 13, Surface Facilities Map. This fan will be adequate for the duration of mining and will provide statutory fresh air volumes to working areas of the mine within the permit application as shown in Map 15, Mine Plan Layout and Production Schedule. The fans together with full or temporary stoppings and/or curtains will provide adequate ventilation volume and control for all initial portal and main entry development work and draw fresh air to the working places of the mine to places where coal and/or rock is cut mined and loaded.

Upon the completion of all five portal entries, development of the main entries will proceed with extension of the portal entries to the Southeast on an approximate bearing of South 102 Degrees East i.e., "S102E Portal Mains".

At some point during development of the main entries, the main mine fan installation will be completed, ventilation will switch over to the permanent ventilation system, and the temporary mine fan will be removed. All mine development and mine operations activities will be conducted in full compliance with all applicable state and federal regulatory requirements for health, safety, and environmental protection at all times.

Portal No. 5, the southernmost portal, is positioned such that it is not possible to construct the portal pad to include the portal as can be seen on Map 13, Surface Facilities and Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas. Mine entry (No 5) will be constructed from inside the main by cutting back toward the outcrop. At the appropriate location, a short air shaft will be driven to the surface for intake air. The air shaft will be lined with a steel structure to support the walls of the shaft, and the steel structure will be covered with solid steel from approximately 15 feet below the ground surface to approximately 5 feet above the ground surface, and then grouted between the steel and the ground adjacent to seal the annulus from surface water infiltration. Runoff from the very small runoff area covered by the air shaft will be contained by a total containment berm as shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas.

Once development of all five portal entries is completed, development of the main entries will proceed with extension of the portal entries to the east. At some point during development of the main entries, the main mine fan installation will be completed, ventilation will switch over to the permanent ventilation system, and the temporary mine fan will be removed. All mine development activities will be conducted in full compliance with applicable regulatory requirements for health, safety, and environmental protection. ~~CR~~ CEG3 will monitor all mine development activities to assure compliance with both applicable regulatory provisions and mine plans. The location and configuration of the mine portals, and main entries are shown on Map 13, Mine Surface Facilities Map, and ,Map 15, Mine Plan Layout and Production Schedule Map, and additional discussion of development and mining methods and practices is provided in R645-301-522, General Description of Mine Plans, Mining Methods, and Related Design Requirements.

Complete Infra-Structure for Underground Operations - Installation of required mine utility systems, as previously described, will occur during development of the mine portals and main entries. Once these utilities are in place, ~~CR~~ CEG3 will complete and connect the infra-structure required to support underground mining operations. This infra-structure will include the underground electrical power and mine water distribution systems, required communications systems, the mine ventilation system, mine drainage systems, and the underground coal handling system. The systems are identified and discussed in R645-301-526, Mine Structures and Facilities

Systems Testing and Commissioning - As the specific components of the overall mine operations and support system are completed, they will be inspected and tested to assure consistency with design plans and safe and effective operation consistent with both the design plans and their intended purpose. Testing will include both no-load testing to identify any problems and allow repair or modification to address the problems and load testing to verify system reliability and performance under design operating conditions. Where systems rely on or are integrated with other operating systems, progressive testing will be completed to verify that all systems work together as an integrated whole. Final testing and commissioning of all mining and support systems will occur prior to initiation of full-scale mining operations.

### 521.190 Other Relevant Information Required by the Division

Historic mine maps included in this application were obtained from the Utah Geological Survey Office in Salt Lake City, and from other sources.

Table 24, Pertinent Acreages, Land Ownership & Control includes land ownership with the acreages of those lands.

### 521.200 Signs and Marker Specifications

See discussion of signs and markers under R645-301-521.270 below.

### 521.240 Mine and Permit Identification Signs

See discussion of signs and markers under R645-301-521.270 below.

### 521.250 Perimeter Markers

See discussion of signs and markers under R645-301-521.270 below.

### 521.260 Buffer Zone Markers

See discussion of signs and markers under R645-301-521.270 below. There are no streams in the permit area that require buffer zone markers.

### 521.270 Topsoil Markers

~~CR~~ CEG3 will post and maintain all required signs and markers in compliance with applicable regulatory provisions of Rule R645-301-521.200. Signs and markers will be constructed of durable materials and will be posted so as to be clearly visible. Mine identification signs listing the name, business address, and telephone number of the permittee and the permit number for the

permanent program permit authorizing mining and reclamation operations will be posted at each point of access to the permit area from a public road. Perimeter markers will be posted outlining all areas affected by surface operations or facilities prior to initiation of mining, and soil/substitute stockpiles will be clearly marked for identification and to limit access and potential disturbance. Signs reading "Blasting Area" will be posted along the edge of any blasting area which comes within 100 feet of any public road right-of-way and at the point where any other road(s) provides access to the blasting area. All required signs and markers will be maintained or replaced during the period of active operations, site reclamation, and until final bond release is approved for all areas within the permit boundaries.

## R645-301-522 Coal Recovery

The mine plans and proposed mining methods described in this section reflect ~~CR's~~ CEG3's detailed review and evaluation of all existing available geologic and coal quality data, consideration of related environmental factors such as hydrologic considerations. This broad base of relevant information was utilized to develop a number of conceptual mine plan alternatives which were then evaluated relative to consistency with ~~CR's~~ CEG3's overall project objectives. These objectives include the following:

- Maximize recovery and utilization of the available coal resource
- Optimize coal production efficiency and economics
- Facilitate potential future development of nearby coal reserves
- Provide a safe, healthy, secure working environment
- Minimize potential adverse environmental impacts

Based on ~~CR's~~ CEG3's detailed review and evaluation of possible alternative mining scenarios, the plans presented in this section were selected as the best combination of mine layout, mining method,

and mine sequencing in order to achieve the noted objectives and provide for organized sequential mining operations.

### Areas and Sequencing of Mine Development

The proposed mining operations will target recovery of remaining minable coal reserves contained in the Hiawatha coal seam. This coal seam and other seams in the area have been previously mined in the area with access to the seams from portals at the coal outcrop. Previous mining areas are delineated for each seam on both Map 5, Previous Mining Activities Map, and Map 15, Mine Plan Layout & Production Schedule Map. Target minable coal reserves identified in this plan reflect consideration of practical mineral ownership, geologic, environmental, and mining constraints which may limit access to and recovery of coal reserves which otherwise might be considered as recoverable reserves. Generally, the proposed coal extraction limits are shown on Map 15, Mine Plan Layout & Production Schedule Map exclude all previously mined areas, any areas where ~~CR~~ CEG3 does not have existing rights to mine the coal. Proposed mining limits and the alignment of mine entries reflect consideration of those areas where historic mining removed the reserves and geological features that dictate mine layout and design. As indicated, considerable minable coal reserves remain in the area which can be effectively recovered while avoiding the existing abandoned mine workings. A maximum effective cover of approximately 1,000 feet exists in the permit boundary area and therefore there is no limit to coal recovery due to cover depth.

The proposed mine development and production sequence, as illustrated by Map 15, Mine Plan Layout & Production Schedule Map reflects orderly sequential development of available minable

reserve areas, and the development/production requirements necessary to meet ~~CR's~~ CEG3's current overall annual coal production targets. It should be noted that coal production requirements as outlined by Table 17, Projected Annual Coal Production, are based on current marketing projections for the first permit term. Additional coal reserves east and south of the proposed permit boundary are controlled by ~~CR~~ CEG3 as shown on Map 12, Regional Coal Ownership Map. These reserves are planned to be mined at a future date under a major permit revision completed as soon after the first permit approval as possible. The projected mine life is anticipated to be 20 years including the eastern and southern reserves controlled by ~~CR~~CEG3. Unanticipated fluctuations in coal market demand and other factors may result in some variance between projected and actual annual and total production rates. At the time of the permit mid-term review and permit renewal, ~~CR~~ CEG3 will re-evaluate coal production projections and make appropriate adjustments as necessary.

Proposed coal development and production is expected to occur as shown on Map 15, Mine Plan Layout & Production Schedule Map, and Table 17, and as outlined by the following general sequence:

2011 – Complete permitting and approval.

2011 - Development of the main mine portals in the Hiawatha Seam
Complete MSHA mine and ventilation plans

2011 - 2012 - Development of Hiawatha Seam S102E Portal Mains entries

2012 – Development of N13E Panel A entries
Set-up N13E Panel A
Mine N13E Panel A
Set-up N13E Panel
Mine N13E Panel B
Develop First Fault crossing FC1 Rock Slope Raises and slopes construction
Mine S79W Mains A
N11W Panel A

Ongoing engineering (mine and site design), permitting (permit revision work) for adjacent coal blocks and completion of any remaining backfill work in N13E Panels A and Panel B;

In simplified terms, mining will begin with the Hiawatha Seam (2009 through 2210).

**Use and Conservation of Coal Resources**

Maximum resource recovery has always been and will continue to be one of ~~CR's~~ CEG3's primary objectives as a matter of sound resource management and efficient mining and economic practice. Conservation and maximum utilization of the available coal resource will involve mining to the minimum practical seam thickness and maximizing overall coal recovery consistent with sound engineering and mining practices.

Proposed mining methods will result in extraction of minable coal reserves down to a minimum practical mining thickness of 5 feet which is below the lower limit for the continuous mining equipment which will be utilized. The average mining height in the permit area is expected to be 8 ft. in the Hiawatha seam which is the only targeted mineable seam in the permit area. At the current time, the quality, market price, and effective cost of mining the type of coal that occurs in this area at thicknesses less than 5 feet renders such operations economically infeasible. If, however, future changes in mining technology or market conditions make it feasible to mine seams below the present 5 foot cut-off, mining plans may be modified to accommodate the

resulting expanded mining operations.

### R645-301-523 Mining Method

The mine plans and proposed mining methods described in this section reflect ~~CR's~~ CEG3's detailed review and evaluation of all existing available geologic and coal quality data, consideration of related environmental factors such as hydrologic considerations. This broad base of relevant information was utilized to develop a number of conceptual mine plan alternatives which were then evaluated relative to consistency with ~~CR's~~ CEG3's overall project objectives. These objectives include the following:

- Maximize recovery and utilization of the available coal resource
- Optimize coal production efficiency and economics
- Facilitate potential future development of nearby coal reserves
- Provide a safe, healthy, secure working environment
- Minimize potential adverse environmental impacts

Based on ~~CR's~~ CEG3's detailed review and evaluation of possible alternative mining scenarios, the plans presented in this section were selected as the best combination of mine layout, mining method, and mine sequencing in order to achieve the noted objectives and provide for organized sequential mining operations.

#### Areas and Sequencing of Mine Development

The proposed mining operations will target recovery of remaining minable coal reserves contained in the Hiawatha coal seam. This coal seam and other seams in the area have been previously mined in the area with access to the seams from portals at the coal outcrop. Previous mining areas are delineated for each seam on both Map 5, Previous Mining Activities Map, and Map 15, Mine Plan Layout & Production Schedule Map. Target minable coal reserves identified in this plan reflect consideration of practical mineral ownership, geologic, environmental, and mining constraints which may limit access to and recovery of coal reserves which otherwise might be considered as recoverable reserves. Generally, the proposed coal extraction limits are shown on Map 15, Mine Plan Layout & Production Schedule Map exclude all previously mined areas, any areas where ~~CR~~ CEG3 does not have existing rights to mine the coal. Proposed mining limits and the alignment of mine entries reflect consideration of those areas where historic mining removed the reserves and geological features that dictate mine layout and design. As indicated, considerable minable coal reserves remain in the area which can be effectively recovered while avoiding the existing abandoned mine workings. A maximum effective cover of approximately 1,000 feet exists in the permit boundary area and therefore there is no limit to coal recovery due to cover depth.

The proposed mine development and production sequence, as illustrated by Map 15, Mine Plan Layout & Production Schedule Map reflects orderly sequential development of available minable reserve areas, and the development/production requirements necessary to meet ~~CR's~~ CEG3's current overall annual coal production targets. It should be noted that coal production requirements as outlined by Table 17, Projected Annual Coal Production, are based on current marketing projections for the first permit term. Additional coal reserves east and south of the proposed permit boundary are controlled by ~~CR~~ CEG3 as shown on Map 12, Regional Coal Ownership Map. These reserves are planned to be mined at a future date under a major permit revision completed as soon after the first permit approval as possible. The projected mine life is anticipated to be 20 years including the eastern and southern reserves controlled by ~~CR~~CEG3.

Unanticipated fluctuations in coal market demand and other factors may result in some variance between projected and actual annual and total production rates. At the time of the permit mid-term review and permit renewal, ~~CR~~ CEG3 will re-evaluate coal production projections and make appropriate adjustments as necessary.

Proposed coal development and production is expected to occur as shown on Map 15, Mine Plan Layout & Production Schedule Map, and Table 17, Annual Coal Production.
Ongoing engineering (mine and site design), permitting (permit revision work) for adjacent coal blocks and completion of any remaining backfill work in N13E Panels A and Panel B;

In simplified terms, mining will begin with the Hiawatha Seam (2011 through 2212).

**Use and Conservation of Coal Resources**

Maximum resource recovery has always been and will continue to be one of ~~CR's~~ CEG3's primary objectives as a matter of sound resource management and efficient mining and economic practice. Conservation and maximum utilization of the available coal resource will involve mining to the minimum practical seam thickness and maximizing overall coal recovery consistent with sound engineering and mining practices.

Proposed mining methods will result in extraction of minable coal reserves down to a minimum practical mining thickness of 5 feet which is below the lower limit for the continuous mining equipment which will be utilized. The average mining height in the permit area is expected to be 8 ft. in the Hiawatha seam which is the only targeted mineable seam in the permit area. At the current time, the quality, market price, and effective cost of mining the type of coal that occurs in this area at thicknesses less than 5 feet renders such operations economically infeasible. If, however, future changes in mining technology or market conditions make it feasible to mine seams below the present 5 foot cut-off, mining plans may be modified to accommodate the resulting expanded mining operations.

**Mining Methods and Equipment**

The Kinney No. 2 Mine will be an underground mine utilizing development mining methods for primary coal. No pillar extraction is planned for the first 5 year permit term. Both mine plans and the proposed mining methods are designed to maximize recovery of the minable coal resource while limiting dilution of the coal by unmarketable waste, and to optimize mining operations to achieve maximum operational efficiency while assuring safe operating conditions. ~~CR~~ CEG3 has and
will continue to use sound engineering judgment and proven mining techniques in designing the overall mine layout; selecting appropriate pillar sizing, entry widths, and entry height; and in selecting suitable mining and support equipment and systems.

The following criteria listed in order of importance have been used to design the mine openings, select the mining methods and to layout the mine workings:

Maximum Overall Ultimate Safe Recovery of Coal to determine the extraction rate and the width of the openings;
Provisions for expedient development and for the use of large shuttle cars (25 ton) for hauling coal ( 60 deg chevrons);
Provisions for handling, stowage and backfill of underground development waste and provisions for wrap-around bleeder to ventilate fill areas and to allow monitoring them for spontaneous combustion until they can be completely sealed from the mine atmosphere;

Provisions for the drainage and collection of insitu mine water and for reuse for dust suppression;
Provisions for the future expansion of the mine into adjacent reserves blocks;
Provisions for the development of Rock Development at Fault crossings; and
Provisions to accommodate future long-term best extraction methods (i.e., shortwall or longwall mining methods in adjacent coal reserves) that will maximize the ultimate safe life of mine recovery rates.

~~CR~~ CEG3 currently projects an annual production rate of 0.18 to 0.49 million tons of coal per year for the first permit term from the Kinney No. 2 Mine. The long term goal is to revise the permit to include all coal reserves held by ~~CR~~CEG3, and possibly additional unleased Federal reserve's to increase production and sustain the mine over a 20 year mine life. Annual production may fluctuate dependent on changes in coal market conditions and other factors. Coal production for the first 5 year permit term is shown on Table 17, Projected Annual Coal Production.

**TABLE 17**
**PROJECTED ANNUAL COAL PRODUCTION** (Note 1)

| YEAR | COAL (TONS) |
|---|---|
| ~~2011~~2019 | 180,349 |
| ~~2012~~2020 | 491,514 |
| ~~2013~~2021 | Additional reserves under revised permit |
| ~~2014~~2022 | Additional reserves under revised permit |
| ~~2015~~2023 | Additional reserves under revised permit |

Note 1. See Map 12, Regional Coal Ownership for additional reserves controlled by ~~CR~~CEG3.

Underground mining is a relatively complex process involving a number of inter-related activities which are designed to optimize coal production and handling, minimize environmental damage, and assure safe and healthy working conditions for the miners. The proposed mining operations will involve the following activities:

**Mining Activities**

- Mine development
- Coal extraction
- Coal haulage
- Development rock handling

**Support Activities**

- Ground control
- Mine ventilation
- Mine drainage
- Maintenance and miscellaneous support activities

The mining activities are discussed in the following sections. Ground control is an integral part of mining and is addressed in the discussion of mining activities. Other associated support activities are discussed separately under individual sub- headings.

Mine Development - Mine development involves excavation and construction of the underground openings, or entries, required to access the minable coal reserves, provide for efficient production of those reserves, facilitate haulage of both coal and underground development waste rock, and provide for effective ventilation of the mine workings. Development activities will include development of mine portals, main entries, and sub-mains. All mine development activities including both development methods and actual physical dimensions of development entries have been designed to provide for long-term stability during active mining operations and to effect full compliance with all applicable regulatory provisions. ~~CR~~ CEG3 will generally complete most development in the minable coal seam to minimize underground development waste rock generation and provide some economic offset of development costs through production of marketable coal.

Mine development will involve the use of continuous miners to advance the development entries, electric or diesel shuttle cars to remove the excavated coal or waste rock, and electric roof bolters to provide required roof support. Fault crossings may require blasting to develop the crossing entries.

Development of slopes and raises may take advantage of modern raise boring technology which involves drilling a pilot hole using conventional surface or underground long-hole drilling equipment, connecting a rotary cutterhead on the lower level to a drive unit on the upper level, and progressively boring the required mine opening by advancing the rotating cutter-head toward the drive unit.

The main entries will be the primary mine access and supply routes for the minable coal seam, providing access and ventilation for all other underground mine workings and carrying the principal coal haulage conveyor. Typical main entry development may vary from a three to a seven entry configuration, however, most main entry development will consist of five parallel entries with crosscuts at regular intervals. Typical sub-main development may vary from a three to a seven entry configuration, however sub-main development in general will consist of five entries with crosscuts at regular intervals. Development of bleeder entries, which will be used to bleed off naturally occurring methane gas prior to mining and to route any continuing methane drainage to exhaust entries during and following mining, may consist of three to five entries. Figures 23 and 24, Typical Mine Entry Development Configuration, illustrate the normal anticipated development configuration along with typical design dimensions and Map 15, Mine Plan Layout & Production Schedule Map shows anticipated development requirements for the minable coal seam.

Coal Extraction - ~~CR~~ CEG3 plans to utilize the room development (first mining) mining method as the primary coal extraction and production technique. In these areas, conventional room development mining methods will be utilized with continuous miners, shuttle cars, and roof bolters as the primary production equipment. The following sections describe the two proposed coal extraction methods.

Conventional room development mining, using continuous miners, is one of the primary underground coal mining method utilized in many mines and offers the benefits of low capital cost for the required mining equipment and considerable flexibility. Continuous miners can negotiate technically disturbed areas of the mine and adapt to seam variations and uneven reserve blocks. Continuous mining equipment is also relatively mobile and can easily be moved to different locations within the mine allowing relatively quick adjustments and continued production if ground control, water or other problems prevent further mining in an active mining area. Room development mining involves development of underground mine openings (entries and cross-cuts) with intermediate pillars to support the mine roof during active mine advance.

Each mining area developed using this method then becomes a "room" with a grid of supporting pillars.

Conventional room development mining (first mining) methods will be used for essentially all mine development work except slopes and fault crossings. Room development mining involves the use of a continuous miner to cut the coal and progressively advance each entry and cross-cut in a pre-determined development sequence. The cut coal is collected by the gathering pan on the continuous miner and discharged from the miner tailpiece by conveyor to a waiting electric shuttle car. The shuttle car will transport the coal to a feeder-breaker which will be centrally located in each continuous miner section or development area. The feeder-breaker will then feed the coal to a section belt for transport to the mine coal haulage conveyor system. As a safety consideration consistent with applicable MSHA regulations, the continuous miner is not allowed to advance under unsupported roof so following each cut an electrically powered roof bolter will install roof bolts and any other support required under the an MSHA approved roof control plan in preparation for the next cut. During bolting operations, the continuous miner will move to a nearby face and take a full cut and miner and bolting operations will proceed in staggered sequence as development progresses. The following primary equipment required to support room and pillar mining operations:

- Continuous miner
- Shuttle cars
- Roof Bolter
- Feeder Breaker
- Section power center
- Mantrip vehicle
- LHD scoop
- Portable rock duster
- Section conveyor
- Miscellaneous support equipment

Coal Haulage - Marketable coal resulting from either underground mine production or mine development activities must be transported from the underground mine workings to the surface where it will be transfer to the surface coal handling system and be routed to the coal loadout. The mine coal haulage system will consist of several interconnected components to transport the coal to the surface. In conventional room development areas or production sections coal will be transported by electric or diesel shuttle car to a feeder-breaker which will feed a 42 inch section conveyor belt. From the active mining or development areas the section or panel belts will transfer the coal to either secondary haulage belts in the sub-mains or the primary coal haulage belts in the main entries. Secondary belts from the sub-mains will feed to the primary main haulage belt which will carry the coal to the surface. The section belts will move with progressive mining advance and will be 42 inch conveyors with modular components, take-ups, and drives capable of handling 1200 TPH. The secondary conveyor belts will remain in place for an extended time and will typically be 42 inch roof hung conveyors with modular tail section and intermediate booster drives capable of handling 1200 TPH. Coal haulage between the various mining levels (between faults) will involve the use of main haulage belts on the intermediate access slopes which will transfer the coal to the main haulage belt on the next level above, or below. These belts will typically be 42 inch roof hung conveyors with modular tail sections and intermediate booster drives as needed capable of handling 1200 TPH. All coal transfer points will be partially or fully enclosed to minimize coal breakage and dust generation, and contain both the coal stream and any associated coal dust. Consistent with safety considerations and applicable MSHA regulations, all underground coal haulage belts will be located in separate entries where they are isolated from both intake and return airways (refer to Figures 23 and 24, Typical Mine Entry Development Configuration).

Underground Development Waste Rock Handling - Several mining and related activities may result in production of significant quantities of underground development waste rock materials potentially including rock, carbonaceous shale, floor clay, and parting material. Operations which may result in generation of underground development waste rock will include general mine development, slope/raise development, room development mining operations, and development of overcasts for ventilation or coal haulage. Where underground development waste rock materials are encountered in mining operations or where the rock materials are integral to the coal seam in development areas or room development mining sections they will be recovered and handled with the coal during mining and coal haulage and will later be removed in the coal handling process. Where it is operationally feasible to separate these materials they will be removed and handled separately using the same equipment and haulage systems that will be utilized for conventional room development operations.

Disposal of Underground Development Waste Rock in Designated Areas Underground - Two special areas have been designated underground as underground development waste rock disposal sites for the emplacement of mining generated rock (see Map 15, Mine Plan Layout & Production Schedule Map,). Both areas are within practical operating proximity of the rock slope development area and also close to the Surface portal area where Underground Development waste may be temporarily stored as "off-spec" product coal. Disposal Area 1 is the area known as "N13E Panel A" and it is located on the North side of the Portal Mains. It is separated from the adjacent Disposal Area "N13E Panel B" with a 140 ft wide Barrier Pillar which adds to the long-term integrity of the backfill area stability. Both of these disposal areas are strategically located, life of mine fill emplacement areas designed for the emplacement of all types of underground development waste containing rock and coal or coal only.. Both areas will be ventilated before, during and after backfill emplacement operations and at all times according to MSHA standards and according to MSHA approved ventilation and roof control plans for the mine.

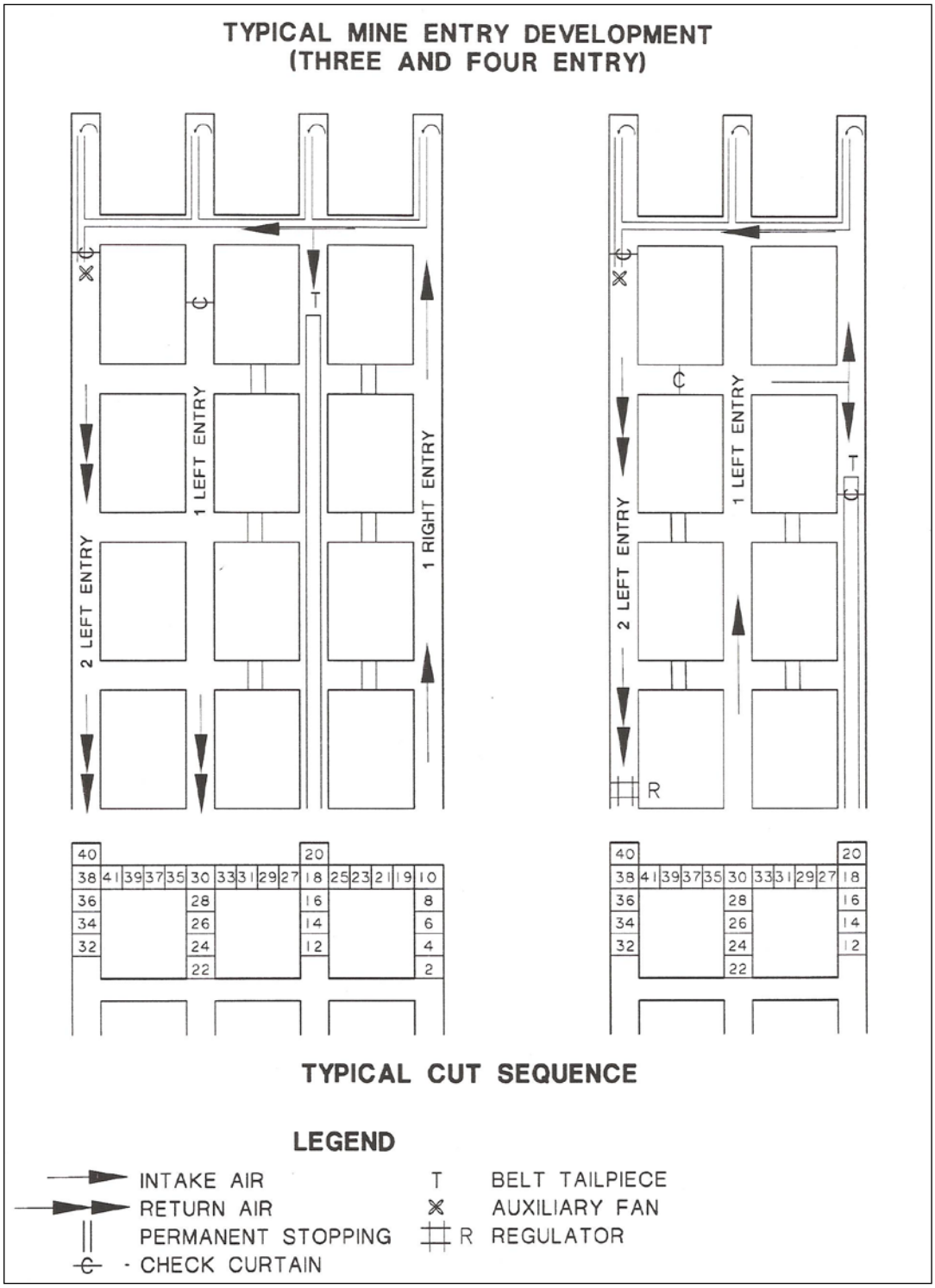
Mine Ventilation - The mine ventilation system has been designed to provide sufficient quantities of air and airflow rates in active working areas to sufficiently dilute any coal dust or methane gas present so that potentially explosive dust/gas/air mixtures do not develop and to provide sufficient fresh air flow to assure safe and healthy working conditions for the miners.

During portal development small auxiliary fans will be used to ventilate the working places. These fans will be used for primary ventilation only for a short time period during initial development. Once portal development progresses to the point where full ventilation crosscuts have been established, a temporary mine fan will be installed on the northernmost portal entry and this fan along with conventional full or temporary stoppings will provide adequate ventilation volume and control for the initial portal and main entry development. This fan will be used for approximately one year, or until development has progressed to the point where a second continuous miner can be placed in service. Use of the temporary mine fan will allow ~~Carbon Resources~~Coal Energy Group 3 the time to complete the permanent main mine ventilation fan installation and associated structures.

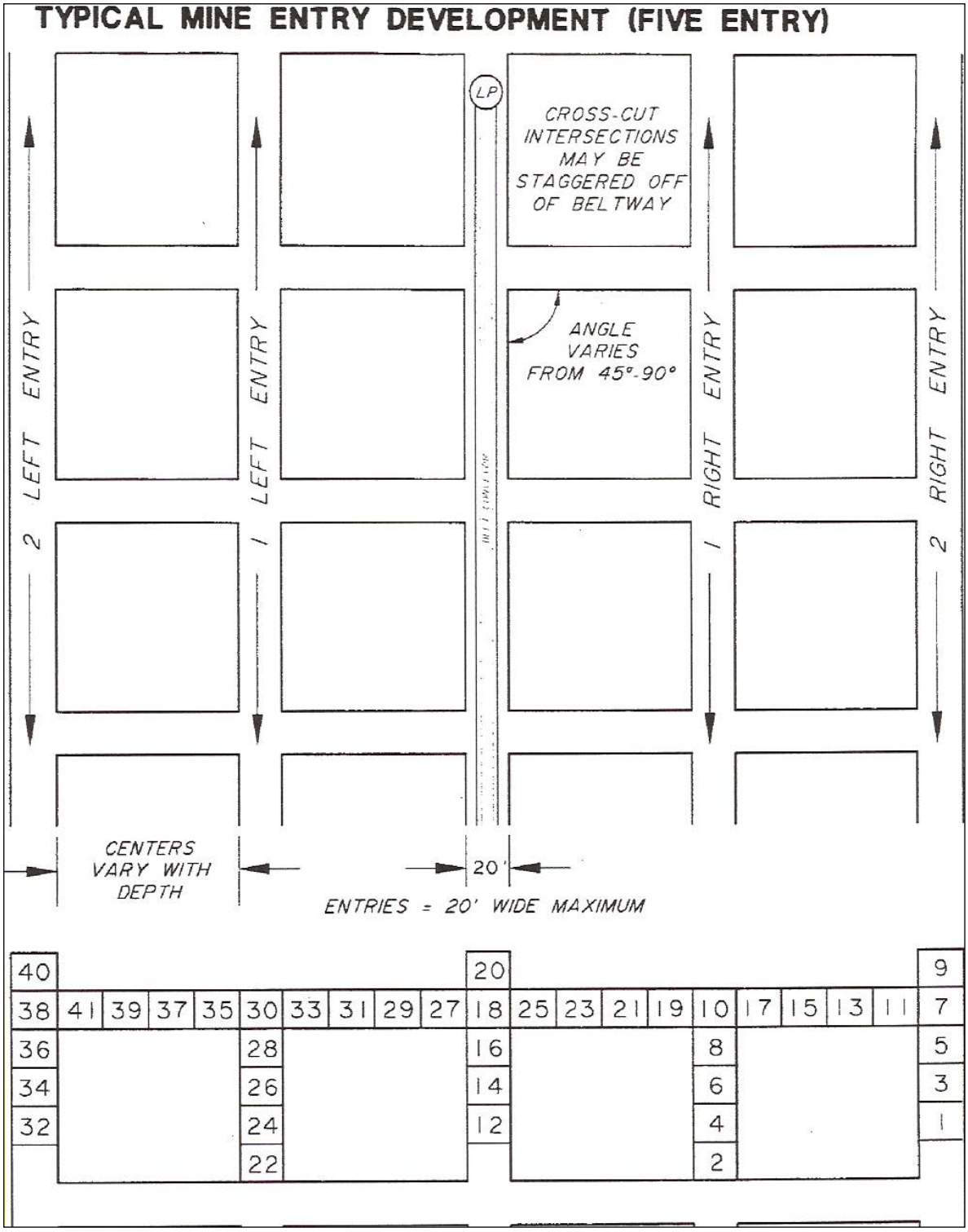
Permanent ventilation for the permit area will be provided by a minimum 6 ft diameter exhausting axial vane fan with a 300 HP motor operating at 1160 rpm (or equivalent). Temporary or auxiliary fans will be used in either blowing or exhausting mode with vet tubing to assist mining while setting up airways for the permanent ventilation system.

The main mine fan installation will include fan drive units, fan shroud structures, blow-out doors, heaters, and fan control systems located on Portal No. 1, as shown on Map 13, Surface Facilities Map. The main mine fan will provide adequate ventilation for all development and mine workings planned during the first five years of mining.

**Figure 23, Typical Mine Entry Development Configuration**



**Figures 24, Typical Mine Entry Development Configuration**



Effective ventilation of mine workings will involve control of airflow within the mine workings to provide adequate airflow volumes and flow rates in all active working areas. Airflow will be controlled, under mine ventilation plans submitted to and approved by MSHA, by maintaining a pressure differential which will force the air to follow a pre-determined path through the mine workings. The pressure differential and desired airflow will be maintained by isolating intake and return airways with air-tight stoppings and utilizing the network of mine entryways to effectively route both clean (intake) and used (return) air through the mine.

The mine fan is not intended to be a life of mine fan per se. However, it is sufficient for all of the needs for this permit application and from this standpoint it is deemed to be permanent. From the longer-term viewpoint with respect to the life of the reserves it is more or less a temporary installation and will need to be replaced at some future date as the permit is revised and the mine is extended.

As shown, mine intake air from this fan will enter through the underground mine workings through the Intakes Portal Openings No. 4 and No. 5 Entries. Intake air will be drawn through the mine to the working places and mining faces by the network of main, sub-main, and bleeder entries the negative pressures exerted by the exhausting fan. Air will be coursed through the mine and controlled by both permanent and temporary stoppings, curtains and regulators. From mine working areas, exhaust airflow will be carried by bleeder, sub-main, and main entry exhaust airways discharging from the Mine Portal No. 1 entry through the fan.

The mine ventilation system will meet all applicable MSHA requirements and according to an MSHA approved Ventilation Plan. The Ventilation plan will provide continuous effective ventilation of the active mine workings at all times. The Ventilation plan will also provide for regular inspections as required by CFR 30 Part 75 regarding pre-shift and on shift inspections and fire-boss inspections of outby workings.

Based on the planned extent of the mine workings, anticipated methane liberation and dust generation rates, and probable mining conditions the primary ventilation fan will provide adequate ventilation capacity for at least the first five years of mine development and production. It is expected that subsequent mine expansion will require development of additional ventilation facilities to assure continued effective airflow and ventilation of the underground workings. These will be addressed in future revisions of the permit as needed.

Dewatering and Mine Drainage Control - Given the relatively low overall permeability of the geologic sequence, limited recharge, extensive historic mining in the area both north and south of the proposed Kinney No. 2 Mine in multiple seams, and consequent lack of a significant ground water aquifer in the area to be mined, ground water inflow to the active mine workings is expected to be limited. Ground water accumulations in abandoned underground workings in the area may result in localized increases in the amount and availability of ground water, particularly in down-dip areas to the north and east. ~~CR~~ CEG3 is not expecting any significant amounts of water to be encountered during the permit term, other than possible minor amounts of perched localized water.

Any significant ground water inflows to the active mine workings will be controlled by intercepting the water near the point of inflow with either shallow ditches or sumps and transferring the water to either abandoned mine areas or temporary holding areas. Minor ground water inflows will not be addressed unless they interfere with mine operations or pose a potential safety hazard. Mine drainage will be transferred within the mine utilizing a series of ditches in combination with intermediate sumps and submersible pumps and pipelines. If adequate quantities of mine drainage are available to justify use of mine drainage as a supply source for operational mine water requirements, temporary holding areas within the mine may be developed and utilized as mine drainage storage areas and clarification basins.

Maintenance and Miscellaneous Support Activities - A number of support activities including rock dusting; extension of mine electrical, communications, and water systems; equipment maintenance and repair; and material and equipment supply and storage are necessary to maintain safe, efficient underground operations, to prevent or minimize potential mining related environmental impacts, and to effect ongoing compliance with applicable regulatory provisions and requirements. Generally, mining support activities will occur either concurrently and as a part of ongoing mining operations or on a scheduled or as needed basis. Many of the necessary mining support functions including electrical distribution, mine ventilation, underground communications, and health and safety considerations are governed and monitored by MSHA under applicable provisions of the Coal Mine Health and Safety Act of 1969, and will be conducted under specific MSHA plan approvals. The following briefly describe planned support activities which ~~CR~~ CEG3 will undertake in conjunction with the proposed Kinney No. 2 Mine mining activities:

Rock dusting - Rock dusting will occur in all applicable development areas and mining sections and will involve mechanical or pneumatic distribution of powdered limestone to cover exposed coal surfaces to limit generation distribution of potentially explosive mixtures of coal dust in the mine environment.

Extension of mine utilities - Recognizing that mining advance will be a continuous ongoing process, mine utilities including electrical, communications, and water systems have been designed and will be installed to facilitate extension with mining advance. Typically, these systems will consist of modular components which will permit progressive connection of additional segments either in a series or parallel configuration.

Equipment maintenance and repair - Normally, equipment maintenance will occur in the working area during scheduled maintenance shifts. Minor repairs will occur in the working area either in conjunction with scheduled maintenance or, if immediate repairs are required, during temporary shut-down periods on scheduled operating shifts. If major repairs or equipment overhauls are required, the equipment may be transported to either centralized underground or surface shop areas. All underground maintenance and repair activities will be conducted in compliance with applicable health and safety requirements.

Material and Equipment Supply and Storage - Materials and equipment required in conjunction with underground mining operations will generally be supplied from the surface warehouse and storage facilities. Limited quantities of certain consumable supplies including roof bolts, timbers, hydraulic fluid, rock dust, electrical cable, and similar materials may be stored in temporary underground storage areas near active working areas.

In addition to the specific production equipment previously listed for development mining, or first mining, a variety of maintenance and support equipment and systems will be required in conjunction with the proposed underground mining operations including the following:

- Personnel carriers
- Supply tractors and trailers
- Lubrication trailers
- Rock dust distribution system
- Electrical distribution system
- Underground communications systems
- Personnel first aid and safety equipment
- Miscellaneous equipment

**Pillar Sizes**

The primary means of support for any underground mine plan is the pillar itself and the Kinney No. 2 Mine is no exception. ~~CR~~ CEG3 has taken special care and precaution to ensure that all of the pillars within the permit application area are sized with dimensions to provide sufficient stiffness to withstand post mining vertical stresses and deterioration for the prescribed duty intended to so that they will stand for the long-term full life of the mine with a high degree of integrity and confidence in safety against mining bumps.

Based on comparison with the empirical data from mine maps of historic production at this location and based on experience at other mines in the area[1], ~~CR~~ CEG3 has selected a conservative rate of extraction and pillar configuration for the given the depth of cover[2], geotechnical considerations of the coal and overburden, and other conditions[3] present.

Planimetric extraction rates are limited to less than 45% with-in the permit application area by design with a view toward long term stability, safety and utility service for the Kinney No. 2 Mine.

Pillars dimensions in the mains are set at 65 ft wide by 100 ft long (i.e. 75 by 120 ft entry and cross centers with 20 ft. wide openings). This will ensure a stable opening and permit productive place change mining operations with mining and bolting.

Pillars in the 2 adjacent panels are 55 ft wide by 100 ft long (i.e. 65 ft by 120 ft entry and crosscut centers respectively). W/h ratio for mains pillars is 65/8 = 8.125. Pillars of this shape are stronger than the "intermediate range" of the empirical pillar classification and, considering that it is not adjacent to any active retreat pillaring or caving activity and that it is under relatively shallow cover it is expected to provide ample support serve the duty intended for the five entries throughout the duration of the life of the mine.

W/h ratio for pillars in the two designated backfill panels is 65/8 = 6.88. This ratio is well within the "Intermediate range" of empirical classification. The 60 degree chevron called for in the back-fill panels is not expected to result in failure of the pillar corners at the intersections until after backfill has taken place. However, if failure should occur, secondary support will be installed to decrease the effective roof span and support the pillar where it is needed.

Adequate and ample barrier pillars will be left between new workings and mined-out workings as shown and as otherwise needed.

**Approach of Old Workings**

~~CR~~ CEG3 has obtained the maps of old mine workings in the Hiawatha Seam in the Permit application area. However, these maps may or may not be accurate and reliable and the workings are abandoned and sealed and so can not be accessed to verify their reliability.
In areas where new mining activities are likely to approach within 500 ft of abandoned, sealed or unventilated mined out workings MSHA rules CFR 30 Part 75 will be strictly followed concerning the approach of old workings.

~~CR~~ CEG3 will work with MSHA and the state of Utah to devise plans to precisely locate old mine workings prior to approaching them that will safeguard all persons. This may involve drilling ahead with an in-mine drill, possibly injecting concrete into old workings to pre-stabilize them and other

[1] RE: Columbine Mine and Skyline Mine maps; See also Empirical Methods for Coal Pillar Design – Christopher Mark PhD.

[2] The maximum depth of cover in the permit application area above the Hiawatha Seam is 1000 ft. The average depth of cover is about 700 ft for most of the workings and for the mains. The minimum depth is zero at the outcrop portal location.

[3] Other conditions include dynamic conditions present with the structural complexities of the area (i.e. faulting).

measures to prevent inundation and/or the introduction of gob gas to the active mine atmosphere should the drilling reveal the old mine workings will be unavoidably encountered in the planned mains.

Underground development waste backfill will be placed into designated panel areas and will further serve to encapsulate pillars. This will passively stabilize pillars in those areas with some confinement. Underground development waste backfill areas will be ventilated until they are filled and have been monitored for products of combustion for a period of 1 year after backfill operations are complete. If no
significant products of combustion have been found the area will be sealed and monitored according to an approved ventilation plan.

If products of combustion are found in the area, the area will be promptly sealed and injected with an inert heavy gas such as Carbon Dioxide $CO_2$ specific gravity = 1.53. Once sealed and injected with $CO_2$ , no mining will be planned down dip that may breach into these sealed areas. Monitoring of gas in the area will be a continuing part of an approved ventilation plan.

Finally, ~~CR~~ CEG3 will commit the professional resources necessary to actively examine actual pillar and rib conditions in areas adjacent to old workings and evaluate the need for additional roof or pillar support and other geo-mechanical needs on a periodic and as needed basis. ~~Carbon Resources~~Coal Energy Group 3 is dedicated to effectively addressing any need for design changes in pillar size or changes required for the safe operation of the Kinney No. 2Mine.

Maintenance of mine openings will involve regular inspections of the openings and surrounding surface areas, removal of any material or debris from the immediate area of the openings, and repair or replacement of ground control, protective structures, or other structures associated with the mine openings. Mine openings and the immediate surrounding areas will be kept clear of equipment, materials, and supplies, and no coal, mine waste, or potentially flammable materials will be placed or stored in the immediate vicinity.

**R645-301-524 Blasting and Explosives**

Due to the potential explosion hazards related to both methane and coal dust blasting, any underground blasting activities will be limited and will be conducted in full compliance with applicable MSHA requirements. Limited surface blasting will be necessary in conjunction with the proposed construction activities and on an occasional basis during operations. Construction related blasting requirements may include the drilling and blasting activities necessary to construct the various pads, and for the proposed surface conveyor system, and limited blasting to fragment resistant rock in order to establish the design facilities area configuration, and small-scale blasting to fracture any large rocks so that they can be moved during the construction/development phase. Occasional operational blasting requirements may include small-scale surface blasting to fracture large rocks that may fall or roll from the adjacent steep slopes into operating areas or onto roads, clear clogged chutes, or address potentially hazardous rock or slope conditions. Because of the nature of the required blasting, construction related blasting activities will not require the use of more than 5 pounds of explosive,

Any surface blasting required in conjunction with the underground mining operation will be conducted in compliance with applicable provisions of Rule R645-301-524. All blasting will be conducted by a certified blaster and the responsible blaster will either carry documentation of blaster certification or the appropriate certificates will be retained on file at the mine or construction office. The responsible blaster and at least one other person will be present for all

blasts and the responsible blaster or an individual under his direct supervision will load, connect, and initiate all blasts The proposed Kinney No. 2 Mine surface facilities, where any required surface blasting would occur, are located within 1,000 feet of State Highway 96, and within 500 feet of abandoned coal mines in the areas., An example of a general blasting plan is included in this permit application (Exhibit 15, Kinney No. 2 Mine Blasting Plan). Given the general nature of the blasting plan, it provides a framework for all anticipated blasting activities, , ~~CR~~ CEG3 will submit specific blast design information to UDOGM prior to any blast. Persons responsible for blasting operations will be familiar with site conditions and the explosive handling and blasting procedures as outlined by Exhibit 15, Kinney No. 2 Mine Blasting Plan.

Explosives and detonating caps will be stored separately in secure locked structures and explosive storage and handling will be conducted in accordance with all applicable State and Federal standards under current valid Bureau of Alcohol, Tobacco, and Firearms permits. It is anticipated that portable skid-mounted explosive magazines will be utilized and that any required explosives may be supplied and handled by an independent explosives contractor. Given this consideration and very limited anticipated operational blasting requirements, explosives may not be maintained on site at all times. For construction related blasting operations and any temporary or long term explosive storage during the operations phase, the designated explosive storage area will be located as shown on Map 13, Surface Facilities Map providing adequate distances from surface structures. Blasting during initial mine facilities construction will be the responsibility of the construction contractor, but will be conducted in compliance with all DOGM regulations; the contractor will have certified blasters, or will sub-contract with certified blasters.

## R645-301-525 Subsidence Control Plan

### 525.100 & 200 Pre-Subsidence Survey

Map 1A, Facilities Area Vegetation, Map 7, Regional Hydrology, Map 8, Works-Wells-Springs-Faults Map 10, Regional Water Quality, Map 13, Surface Facilities, Map28, Surface Water Monitoring Sites, Map 31, Surface Water Rights, and the Cultural Resource Survey, found in Exhibit 3 show the location and type of structures and renewable resource lands that subsidence may materially damage or for which the value or reasonably foreseeable use may be diminished by subsidence, and showing the location and type of State-appropriated water that could be contaminated, diminished, or interrupted by subsidence.

As a result of the work completed during the Cultural Resource Survey and the work completed to prepare the maps mentioned above, no structures were found above planned underground mining areas. There are no aquifers or water bodies that serve as a significant water source for any public water supply system above or below planned mining at the Kinney No. 2 Mine. Renewable resource lands do exist above planned mining and therefore a subsidence control and monitoring plan are presented below.

### 525.120 and 300 Subsidence Control

Coal extraction by underground mining typically results in a void where the coal has been removed, and possibly partial collapse of the immediate overlying units, deformation of the units above the mined area, and potential deformation or settlement of the overlying ground surface, termed subsidence. Subsidence typically only occurs at the surface where pillars are extracted, or where longwall mining methods remove substantial blocks of coal. No second mining, or pillar extraction, or longwall mining that would result in subsidence is planned for the Kinney No. 2 Mine, therefore no subsidence is anticipated that could cause material damage to the renewable resource lands above mining. Methods to control subsidence may include backfilling voids,

leaving support pillars of coal, and leaving areas where no coal is extracted. Areas where these controls may be used include the outcrop, or where there are sensitive features on the surface above mining. Portals have been designed to be stable indefinitely, with a combination of steel, wood, and concrete support structures that will prevent subsidence of the shallow cover over the mine entries near the surface.

**Subsidence Monitoring Plan**

To document whether subsidence occurs or not, ~~CR~~ CEG3 will conduct a subsidence monitoring program including installation of monitoring points above mining as shown on Figure 40, Subsidence Monitoring Plan. Monuments will be installed prior to mining consisting of ¾ inch rebar driven a minimum of 3 feet into the ground, topped with plastic caps. High precision GPS survey shots will be made on each monument prior to mining, and once each year for the first 5 years. After the first 5 years, the monuments will be surveyed every other year. Control monuments similar to those mentioned above will be established outside of the subsidence zone to use as baseline control for the subsidence monuments. These control monuments will be calibrated to the Scofield Cemetery U.S. Geodetic Survey control point to insure accuracy and consistency. The surveys will be conducted under the direction of a Utah Registered Professional Surveyor. The results of each survey will be provided to the UDOGM yearly. Any significant subsidence will be fully investigated and reported promptly to the UDOGM. Visual inspections of the surface above mining will be conducted during each subsidence survey and the results will be included in the annual report.

**R645-301-525.500 Repair of Damage**

~~CR~~ CEG3 will correct any material damage resulting from subsidence caused to surface lands, to the extent technologically and economically feasible by restoring the land to a condition capable of maintaining the value and reasonably foreseeable uses that it was capable of supporting before subsidence damage, and, to the extent required under applicable provisions of State law , either correct material damage resulting from subsidence caused to any structures or facilities by repairing damage or compensating the owner of such structures or facilities in the full amount of the diminution in value resulting from the subsidence.

**R645-301-525-700 Public Notice of Mining**

~~CR~~ CEG3 will mail written notice of mining to occupants and owners of surface property and structures above the underground workings at least six months prior to mining, except in the case of initial mining startup, where six months may not exist prior to mining. In the case of initial mining, notice to the surface owners will be made when the mine permit is issued. Since no second mining will be conducted , and since a small area will be mined during the first six months of operation no subsidence can cause damage to the surface or structures. The written notice will include identification of specific areas in which mining will take place, dates that specific areas will be undermined and the location where the subsidence control plan can be examined.

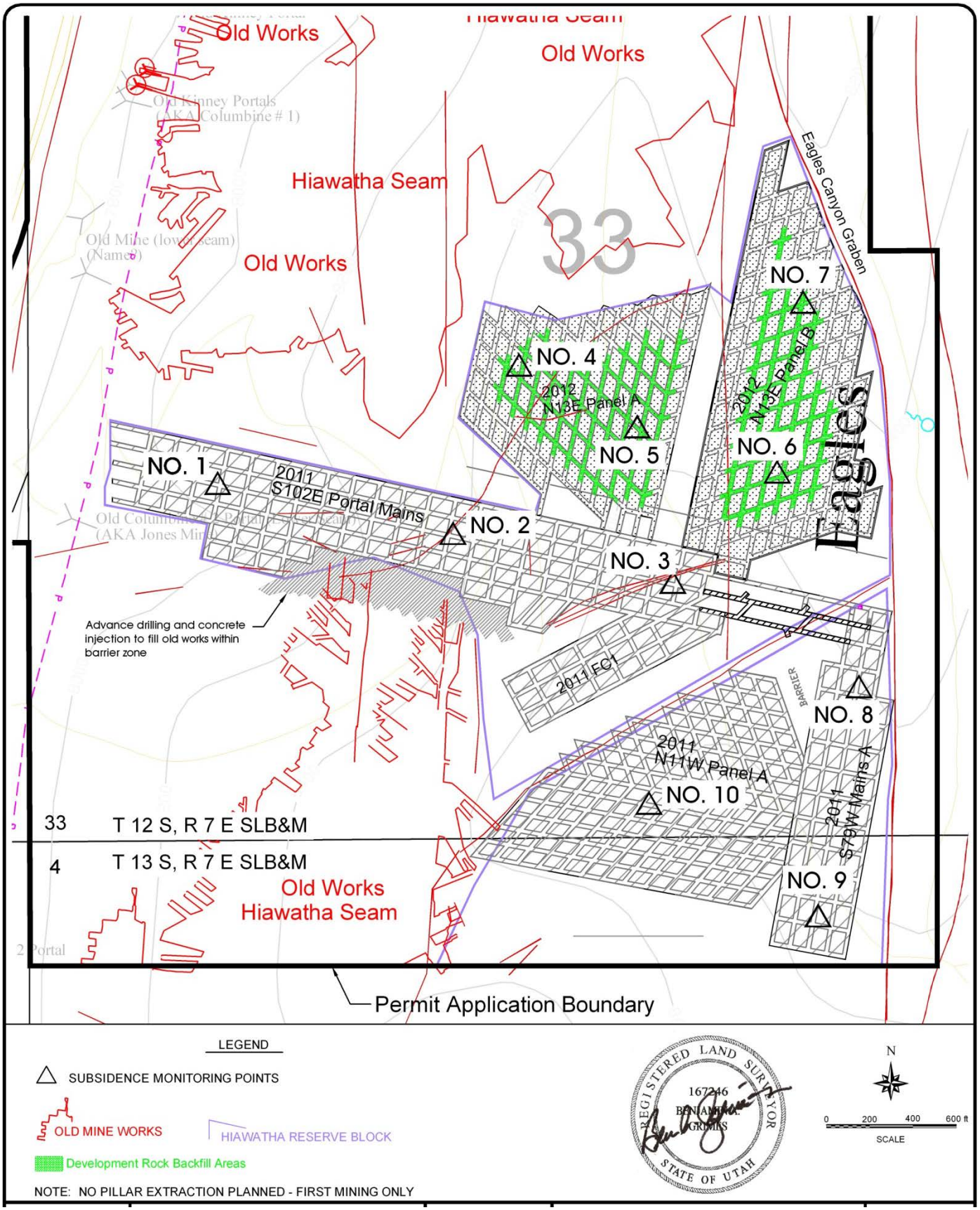



**Figure 40, Subsidence Monitoring Plan**

**R645-301-526 Mine Facilities**

The proposed underground mining and related activities will require limited surface support facilities. The facilities to be utilized in conjunction with the proposed operations will include new facilities to be constructed in the proposed Kinney No. 2 Mine surface facilities area. These facilities will provide the necessary infrastructure for effective management and handling of personnel, equipment, materials and supplies, and both coal and mine underground development waste materials, and will include a number of structures specifically designed to control or mitigate potential mining related impacts.

Construction of required surface structures and facilities has previously been discussed in R645-301-522, General Description of Mine Plans, Mining Methods, and Related Design Requirements. The surface structures and facilities will be operated, maintained, and ultimately reclaimed in a manner that prevents or controls erosion and siltation, water pollution, and damage to public or private property; and to the extent possible using the best technology currently available, minimizes damage to fish, wildlife, and related environmental values, and minimizes additional contributions of suspended solids to streamflow or runoff outside the permit area. Any contributions of suspended solids from mine disturbance areas will not exceed applicable effluent limitations under Utah or Federal law.

Required surface facilities are shown and identified on Map 13, Surface Facilities Map, and include the following:

- Conveyor SB-1
- Conveyor Transfer Tower
- Conveyor SB-2
- Non-Spec Coal Pile & Stacking Tube
- Conveyor SB-3
- Spec Coal Pile & Stacking Tube
- Conveyor SB-4
- Screening & Crushing Building
- Sediment Pond Road – Primary P6
- Truck Loadout Building
- Lodout Road – Primary P5
- Storage Sheds – 5 each
- Shop – Warehouse
- Fueling Facility
- Main Access Road – Primary P1
- Office Road – Primary P2
- Portal Access Road Primary P3
- Storage Area Access Road P4
- Mine Office – Bathhouse
- Topsoil Stockpile
- Water Tank
- Electrical Substation
- Sedimentation Pond
- North Access Road – Primary P7
- Explosives Magazine
- Explosives Cap Magazine
- Coal Processing Waste Temporary Storage Area
- Access Private Property on top of mountain and for post mining land use - Primary P9

The following sections describe design and construction details and operation and maintenance plans for the identified structures.

**Soil Stockpiles**

Soil stockpiles will be utilized for temporary storage of those materials which will be used as vegetative growth media in reclaiming mining related disturbance. Stockpile location and construction will, to the extent operationally feasible, minimize exposure to wind and water erosion and protect the soil resource from loss, contamination, or further disturbance prior to final use for site reclamation. Two new soil/substitute stockpiles will be constructed using available material from the proposed Kinney No. 2 Mine surface facilities area. The large soil stockpile will be located at the southwest corner of the mine permit area adjacent to Highway 96 as shown on Map 13, Mine Surface Facilities Map. Detailed discussions of the topsoil stockpiles and topsoil recovery, storage, protection and redistribution are included in Chapter 2.

Basic soil handling and stockpile construction practices are described in R645-301-231.100, Topsoil Removal and Storage. The stockpiled material will be protected from erosion, contamination, and loss by placement in a controlled manner with side slopes at 2H:1V or less, seeding with a temporary vegetative cover, posting with durable signs reading "Soil Stockpile - Keep Off", and the use of appropriate drainage control measures as discussed previously.

**Excavated Slopes**

Site grading and excavation for the mine facilities and road construction activities will require some slope excavation work. Slope excavation areas stand out on Map 13, Surface Facilities Map due to the closely spaced contours. In some areas, required slope excavations will occur in weathered rock or other competent material where the potential for any consequent upslope stability problems is minimal. Cut slopes have been designed at gradients varying from 2H:1V to 0.8H:1V, dependent on rock type and construction requirements. Slope excavation will involve removal of material using tracked dozers, tractor scrapers, or backhoes to achieve the design slope configuration. In most cases, it is anticipated that required excavation can be accomplished without the need for blasting to loosen the material, however if blasting is required, any blasting operations will be conducted in accordance with the blasting plans previously described in R645-301-522, General Description of Mine Plans, Mining Methods, and Related Design Requirements.

During progressive excavation activities, the excavated slopes will be graded or scaled to establish a stable configuration and remove any loose material which could pose a potential hazard. Where slope excavation occurs in material which can be revegetated, the finished slopes will be seeded with the temporary seed mixture as outlined in R645-301-340, Revegetation and Habitat Restoration Plans, to stabilize the graded surface and minimize runoff and potential erosion. In the portal face-up area, where a potential rock fall hazard exists, wire mesh, or chain link fencing material may be anchored to the steep rock wall with roof bolts and concrete-steel portal structures will provide additional protection for both personnel and equipment. Maintenance of excavated slope will include periodic inspection of slope areas and removal of loose rocks or other potential hazards.

**Excess Spoil Material**

As an underground mining operation, the proposed mining and related activities will not result in generation of spoil materials. In addition, all related surface disturbance required for construction of the necessary surface support facilities has been carefully planned to balance material cuts and fills so that no excess material is generated. Since no excess spoil will be generated as a result of the proposed construction or operations activities, regulatory provisions relating to handling and disposal of excess spoil are not applicable.

**Mine Openings**

The proposed underground mining operations will require several mine openings which will provide underground access for personnel, equipment, and supplies; be utilized for conveyor haulage of both coal and limited quantities of underground development waste; and will serve as mine intake and return airways for ventilation of the underground mine workings. Mine openings
required in conjunction with the currently proposed and anticipated future operations will include a 5 entry system.

Because the mine openings will provide long-term access for the proposed operations, they have been located and designed to facilitate effective access and assure long-term stability. As described in R645-301-520, General Description of Mine Construction and Development Activities, the mine portals will be developed in the Hiawatha Coal Seam using continuous miners and conventional room development (first mining) methods. The portal entries will be approximately 20 to 25 feet wide and 6 to 10 feet high. Appropriate sizing of the support pillars along with supplemental roof control, including roof bolts and other roof support systems, will
provide for effective ground control and long-term stability of mine entries in the portal area.

The portal entries will be protected from potential rock fall hazards by steel portal structures on concrete foundations which will provide a full protective canopy on the manway and belt entry portals.

Maintenance of mine openings will involve regular inspections of the openings and surrounding surface areas, removal of any material or debris from the immediate area of the openings, and repair or replacement of ground control, protective structures, or other structures associated with the mine openings. Mine openings and the immediate surrounding areas will be kept clear of equipment, materials, and supplies, and no coal, mine waste, or potentially flammable materials will be placed or stored in the immediate vicinity.

**Underground Development Waste (Mine Development Rock)**

Mine development, ongoing mining operations, and ancillary operations such as development of overcasts for mine ventilation and coal haulage will result in production of underground development waste including carbonaceous shale, weathered coal, floor clay, and parting material. Where it is operationally feasible to separate these material from the coal during development and mining, the underground development waste will be removed and handled separately from the coal. Where separation is not operationally feasible, underground development waste will be handled with the coal and will be removed in the surface facilities, separated from the coal product and thereby becoming coal processing waste and will be temporarily stockpiled until it can be sold as distressed coal and hauled off site..
. . The area designated as temporary coal processing waste stockpile as shown on Map 13, Surface Facilities Map, is capable of containing approximately 3,900 tons of material. This material will be sold as a low quality coal product, distressed coal, to local coal preparation facilities, or will be deposited in other facilities permitted by the UDOGM.

Generally, the same mining equipment and haulage systems used for coal production will be used to remove and handle underground development waste, and coal processing waste as shown on Figure 41, Coal Waste Handling Scheme. Continuous miners, electric shuttle cars, and LHD scoops may be used to load and haul mine waste to the mine conveyor system. Normally underground development waste haulage will occur on a scheduled rock handling shift when the conveyor belt system will be cleared of coal. Typically, any development rock produced

during periods other than on a scheduled development rock handling shift will be temporarily stockpiled in an inactive area underground for later handling and haulage either to a permanent underground development waste storage area of the mine or hauled from the mine. Once the mine rock is placed on a belt at the loading point, it will be transferred to the main haulage belt running from the mine. From the main haulage belt, the mine rock will transfer to the surface coal haulage system which will carry the rock to either the off spec coal pile or through a flop gate in the crushing and screening building and loaded onto a dump truck and transferred either to the temporary coal processing waste pile of back to the off-spec coal stacking tube as shown on Figure 41..

The surface coal haulage system has been designed to facilitate underground development waste handling in two ways:

One; The stacking tube at the off-spec coal stockpile can be emptied by a direct feed chute in its base allowing rock to bypass the coal stockpile and feed directly to Conveyor SB-3. In the primary crusher building a flop-gate and diversion chute will allow underground development waste to bypass the primary crusher and feed directly to the truck loadout where it can be transported to a segregated location on the off-speck coal pile prior to returning the rock to the mine.

Two; Coal mine development waste may simply be dumped onto the off-spec coal pile, via the flop gate atop the stacking tube, if circumstances are favorable. That is, if there is sufficient rock volume to warrant temporarily converting the entire off-spec coal pile to a temporary coal mine development waste storage pile prior to returning the rock to the mine.

**Mine Ventilation**

The primary mine ventilation fan will be large diameter blowing axial vane, or larger diameter blowing propeller fan capable of delivering over 600,000 cubic feet per minute of fresh air to the underground mine workings. From mine working areas, exhaust airflow will be carried by bleeder, sub-main, and main entry exhaust airways discharging from the mine portals. The mine ventilation system has been designed using accepted mine ventilation design and engineering practices to meet all applicable MSHA requirements and provide for continuous effective ventilation of the active mine workings. Based on the planned extent of the mine workings, anticipated methane liberation and dust generation rates, and probable mining conditions the primary ventilation fan should provide adequate ventilation capacity for at least the first five years of mine development and production. Subsequent mine advance and expansion may require development of additional ventilation facilities to assure continued effective airflow and ventilation of the underground workings.

Mine ventilation facilities will include steel fan doors, the primary ventilation fan and electric drives, fan control and monitoring systems, fan shroud structure with pressure relief panels, dual propane-fired fan heaters, the mine fan electrical substation, and propane storage tanks. The location and configuration of these structures are shown on Map 13, Surface Facilities Map. Operation and maintenance of the mine ventilation system will involve regular inspection and monitoring of the ventilation fans and associated systems and structures to assure that they continue to operate at all times as designed and in compliance with applicable MSHA requirements. The mine fans will be controlled and monitored by automated systems which will provide a warning of any fan malfunctions.

**Mine Drainage Control and Dewatering**

As described in both R645-301-724, Ground Water Information, and R645-301-522, General Description of Mine Plans, Mining Methods, and Related Design Requirements, potential mine inflows are expected to be minimal and there will be sufficient storage capacity in both the existing abandoned underground mine workings and in inactive working areas that transfer of mine drainage to the surface water system is unlikely.

### 526.100 Existing Mine Structures and Facilities

The only existing mine structures consist of a small stone, concrete and railroad tie mine fan building, a small concrete building used as a powder magazine, and several foundation structures. None of these structures will be used by the Kinney No. 2 Mine. These structures can be seen on Map 14, Mine Surface Facilities, Pre-Mining Topography Map.

### 526.116.1 Public Roads

One public road passes through the permit boundary. Utah Highway SR 96 passes through the northwest corner of the permit boundary and is adjacent to the operations area as can be seen on Map 13, Surface Facilities Map. This highway is within 100 feet of operations and public notice was offered during two public notice and comment periods. No comments were received regarding the highway and Kinney No. 2 Mine operations.

Discussions with the Utah Department of Transportation (UDOT) have been held and a preliminary plan for access to the mine has been presented and approved by UDOT. UDOT requires a standard intersection design that provides turn lanes into the mine site from both directions as well as through lanes and acceleration and deceleration lanes. The "Intersection Design Approval" is found in Exhibit 4, Other Permits. Final modification of plans will be approved by UDOT prior to any work on the intersection. Before any highway work is done, DOGM will be presented with the UDOT approval.

### 526.210 Utility Installation and Support Facilities

The proposed mining and related operations will utilize new utility installations including electrical distribution, telephone, potable and raw water, and sewer systems. The proposed underground mining and related surface disturbance activities have been planned, designed, and will be conducted in a manner which minimizes the potential for damage or destruction of utility installations, or disruption of services provided by those utilities existing within the permit area unless otherwise approved by the owner of the utility.

Heat for the buildings will initially be provided by propane, and may be converted to more cost efficient natural gas if it becomes available.

All existing and proposed utility installations are shown on Map 13, Surface Facilities Map. It should be noted that all utilities either are or will be owned, constructed, operated, and maintained by the respective utility companies up to the actual point of service which in the case of electricity will be the main mine substation and in the case of telephone, potable water, and sewer service will be to the metering point which will be located at the mine permit boundary line.

**Electrical Systems**

Electrical power for the mining operation will come from an existing power line running north-south immediately east of the portal area; this power line is shown on Map 11, Regional Surface Ownership Map, and on Map 4, Regional Land Use Map. Electrical voltage will be reduced from the existing power line at a substation located at the Portal Pad as shown on Map 13, Surface Facilities Map. The new substation to be owned, constructed, and operated by PacifiCorp. The mine substation will, in turn, feed the mine fan, the surface coal handling system, the underground mine electrical system, and the other surface facilities.

All proposed electrical components have been designed and will be constructed and operated in accordance with accepted engineering practice and in full compliance with all applicable regulatory provisions. Any new powerlines will be constructed with "raptor-proof" power poles as shown by Figure 22, Typical Raptor-Proof Power Pole Configuration, to minimize the potential for electrocution of raptors and other large birds. All substations, electrical transformers, switchgear, and electrical control components will either be located so that it is not readily accessible to either wildlife or the public or appropriate fences with locked gates or other enclosures will be utilized to limit access to authorized personnel. Where appropriate, signage identifying and warning of electrical hazards will be posted and maintained.

Telephone Lines - Buried or overhead telephone lines will be extended by US West from Highway 96 to provide telephone service for the mine facilities.

Water and Sewer Systems - Potable water, raw water, and sewer connections will be provided by Scofield Town. The connection points for water and sewer to the mine site are shown on Map 13, Surface Facilities Map, and are located at the south side of the permit boundary just south of the Mine Office building.

Mine water and a reserve water storage supply for emergency fire-fighting purposes will be stored in a 50,000 gallon mine water storage tank located near the north end of the Portal pad. Water supply, use levels, and water rights consideration are addressed in greater detail in R645-301-730, General Description of Hydrologic Protection Plans.

Water requirements for the Kinney # 2 Mine is calculated to be a maximum of 4.7 acre feet per year potable water for bathhouse and shop, and 61 acre feet per year non-potable water for dust suppression at full production. The full water requirement will not be realized the first year of operation but will ramp up over an estimated three year period.

Scofield Town has signed a letter of intent to provide sewer and water services to ~~Carbon Resources~~Coal Energy Group 3. Scofield town is anticipating that providing these services to the Kinney #2 mine will generate revenue to support town public works. Scofield Town constructed the municipal sewer system large enough to serve the Valley Camp Mine, now closed, and has that excess capacity to offer to the Kinney # 2 Mine. The Scofield sewer system has excess sewer system capacity also according to the agreement.

## 526.300 Water Pollution Control Facilities

### Drainage and Sediment Control Structures

The drainage and sediment control structures which will be constructed and utilized in conjunction with the proposed mining and related activities will effectively route natural drainage through the mine surface disturbance area, intercept and route undisturbed drainage from upslope areas around surface disturbance areas, and collect and route disturbed area drainage to sedimentation structures to allow settlement of suspended solids prior to discharge to the natural

drainages. Drainage and sediment control structures required under the proposed plans will include Sedimentation Pond 1, a number of undisturbed drainage diversion ditches, disturbed area collection ditches, drainage culverts, containment berms, and various alternative drainage and sediment control measures including small sediment basins, silt fences, straw bales, and other localized control measures as appropriate. The proposed drainage and sediment control structures are shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas Map, and design information and calculations are discussed R645-301-730, Hydrologic Resource Protection and PHC, and the background information and calculations are included in Exhibit 16, Runoff Control Design Details.

Design - The design and location of all required drainage and sediment control structures is based on maximum anticipated storm runoff flows, site topographic conditions, and standard hydrologic design practices and addresses full compliance with all applicable regulatory provisions. Recognizing that the area is subject to relatively high-intensity, short-duration storm events and that due to the rugged terrain and limited vegetation runoff is frequently rapid and concentrated, essentially all structures have been over-designed to provide an additional margin of safety.

The applicable UDOGM regulatory provisions specify that all impoundments must be designed to contain or treat the runoff resulting from the 10-year, 24-hour storm event and that spillways for MSHA ponds must be capable of discharging runoff flows from the 100-year, 6-hour event and non-MSHA ponds must have designed principal and emergency spillways with a combined capability of discharging the 25-year, 6-hour storm event. However these spillways were designed to safely discharge the 100-year, 6-hour event to provide additional safety due to the close proximity of the sedimentation pond to the highway. The applicable regulations also specify that temporary and permanent diversions of miscellaneous flows be designed for the 2-year and 10-year, 6-hour events, respectively and that temporary and permanent diversions of perennial and intermittent streams be designed for the 10-year and 100-year, 6-hour storm events, respectively.

Hansen Allen and Luce, Engineers (HAL) completed a runoff evaluation for representative watershed areas using the Army Corps of Engineers Hydrologic Modeling System (HEC-HMS) Version 3.1.0 computer modeling software to determine conditions for design of the proposed Kinney No. 2 Mine drainage and sediment control structures. Sedimentation Pond 1 has been designed to contain or treat the runoff from the 10-year, 24-hour storm event and total design capacity includes storage for at least five years accumulation of sediment. The pond spillway structures have been designed to safely pass the runoff from the 100-year, 6-hour storm event.

Temporary diversion ditches in disturbed areas are designed to safely pass the peak discharge from the 10-year, 6-hour storm event. All diversions have been designed and will be constructed to remain stable under design flow conditions. The two permanent collection ditches conveying runoff from undisturbed upslope areas (including UDD-1 and UDD-2) have been sized to carry peak runoff flows from the 100-year, 6-hour storm event. The 100-year storm has been used for these two ditches since they will remain as permanent post mining land use roads upon mine reclamation. In order to assure effective collection and routing of disturbed drainage flows and minimize both erosion and sedimentation, required culverts have been sized to safely pass the peak flow from the contributing inlet ditches with a significant factor of safety and culvert inlets, outlets, diversion channels, and those areas where one or more channels intersect have been designed and will be constructed using properly sized and placed riprap or other erosion control materials, as required.

In all cases, ditch designs also included an evaluation of the need for channel protection to prevent or minimize erosion. The general criteria for channel protection was any flows greater than or equal to 4 feet per second would require channel protection in the form of riprap or

grouted riprap to maintain adequate safety factors. Appropriate riprap sizing was determined using riprap design calculation spreadsheet prepared by HAL. Designs for all required ponds and ditches include adequate freeboard to provide a reasonable margin of safety. Designs for the permanent Kinney No. 2 Mine drainage structures and facilities have been prepared by or under the direction of and certified by a qualified Registered Professional Engineer in accordance with Rules R645-301-742.324. Culvert sizing is consistent with the ditch design basis (i.e., 10-year, 6-hour and 100-year, 6-hour storm flows, respectively for temporary and permanent diversions), the minimum culvert size to be used is 18 inch diameter due to potential clogging and maintenance considerations, however all have been over-designed to provide an additional measure of safety, and culvert installations will include a pre-fabricated inlet structure and riprap protection at both the headwall and discharge points.

In order to assure effective conveyance of undisturbed drainage flows and minimize both erosion and sedimentation, required culverts have been sized to safely pass the peak flow from the contributing inlet ditches with a significant factor of safety and culvert inlets, outlets, diversion channels, and those areas where one or more channels intersect have been designed and will be constructed using properly sized and placed riprap or other erosion control materials, as required. Specific information on culvert design and erosion protection measures is also provided in Exhibit 16, Runoff Control Design Details.

Sedimentation Pond 1 has been designed and will be constructed to meet the following regulatory design criteria:

- Located as close as possible to the disturbed area and out of perennial streams unless approved by the Division
- Provide adequate sediment storage
- Provide adequate detention time to meet applicable effluent standards
- Provide a non-clogging dewatering device
- Minimize short circuiting
- Facilitate periodic sediment removal
- Foundation structures will be stable under all conditions of construction and operation

In addition, Sedimentation Pond 1 design has been prepared by or under the direction of and certified by a qualified Registered Professional Engineer in accordance with Rules R645-301-512.200 and 240.

In all cases, the design basis for the proposed drainage and sediment control structures meets or exceeds the applicable regulatory design requirements. Designs for drainage and sediment control structures, along with a discussion of design assumptions, methodology, and design calculations are presented in R645-301-730, Hydrologic Resource Protection and PHC, and the background information and calculations are included in Exhibit 16, Runoff Control Design Details.

Construction - As previously noted in R645-301-521, General Description of Mine Construction and Development Activities, the required drainage and sediment control structures will be constructed prior to any other significant site disturbance, and as soon as possible in the overall site construction plan. As a first step to construction, a silt fence will be placed at the extreme western edge of all site construction running from the southwest corner of the site adjacent to the highway and adjacent to the old railroad bed from the pre-existing access road into the site running northward to the northwest corner of the site. Construction of required undisturbed runoff diversion ditches and disturbed area collection ditches will involve removal and placement in stockpile of soil or clean soils materials, excavation of the design ditch configuration, placement of riprap and bedding material or geotextile where required, and seeding of ditch side slopes with the temporary revegetation seed mix. The constructed ditch configuration is illustrated by the typical design configuration figures included on Map 27, Runoff Control Details. Culvert installation

will involve excavation and grading of the culvert foundation area, placement and compaction of gravel or similar bedding materials, placement and adjustment of the culvert and inlet structure to the design grade and alignment, placement and compaction of suitable fill materials around and over the culvert, placement of rock protection in the culvert headwall and discharge areas, and installation of debris fences up gradient of culverts where required. Culvert installation practices are illustrated by the typical design configuration figures included on Map 27, Runoff Control Details.

Construction of sedimentation pond impoundments will involve recovery and placement in stockpile of soil or substitute materials, preparation of embankment foundation areas, excavation of impoundment basin areas and construction of embankment structures, installation of principal and emergency discharge structures; grading of embankment outslopes, and seeding of outslopes with the temporary revegetation seed mix to minimize erosion. Impoundments will be inspected at regular intervals during construction and on completion of construction by a professional engineer or specialist experienced in impoundment construction. An impoundment inspection report certified by a Registered Professional Engineer will be provided to UDOGM promptly following each inspection. The report will verify construction in accordance with design plans and will note and discuss any apparent instability, structural weakness, or other hazardous conditions. A copy of the report will be retained on file at the mine site for inspection by authorized agency representatives.

Required foundation preparation will include removal of any vegetative material, coal, potentially acid-forming coal waste, frozen material, or other deleterious materials from embankment foundation areas and excavation of any keyways specified in the design. Embankment construction will involve controlled placement and compaction in horizontally continuous lifts no greater than 12 inches in thickness of suitable embankment fill material. Fill material will not contain any significant quantities of coal, vegetative material, frozen material, or other deleterious materials. Fill will be placed and spread using either tractor scrapers or rear dump trucks and tracked dozers and design compaction of 95 percent of maximum dry density will be achieved by compacting each successive lift with a sheepsfoot or vibratory roller. Compaction will be periodically checked during construction using standard compaction testing procedures and if testing reveals inadequate compaction, the lift or lifts in question will be ripped and reworked until adequate compaction is achieved. During compaction, water trucks may be utilized as necessary to achieve optimal moisture content for effective compaction. The actual construction height for all pond embankments will be 5 percent greater than the design height to provide for long-term consolidation and settling of the embankment.

Installation of principal and emergency discharge structures will occur at appropriate stages in the embankment construction process. Installation of vertical riser structures will include compaction of an adequate base area for the foot of the riser and installation, alignment, and placement and compaction of fill material around the lower portion of the riser structure. Installation of horizontal discharge structures will involve basically the same construction procedures previously described for culvert installations, including preparation of a base area, placement and compaction of bedding material, placement and alignment of the discharge pipe, and placement and compaction of fill material around the pipe.

Operation and Maintenance - Operation and maintenance of drainage and sedimentation control structures will involve periodic inspection of all ditches and culverts, quarterly inspection and annual certification of impoundments and related structures, ongoing discharge monitoring for all impoundments, and any necessary maintenance or repair of problems noted during the inspections.

Ditches have been designed and will be constructed to provide an adequate cross-sectional flow area to pass runoff flows from the design storm event. During active operations, normal siltation

and minor erosion may result in changes in ditch configuration. As discussed previously, all temporary ditches have been designed for the 10-year event. Ditches will be maintained to ensure that minor siltation does not affect the capacity of the ditches to perform as designed. ~~CR's~~ CEG3's ditch inspection and maintenance procedures will focus on identification and repair of any significant ditch erosion, removal of any trash or debris from ditches, and maintenance of an adequate cross-sectional flow area, regardless of actual ditch configuration, to pass the design flows. In practice this will mean that ~~CR~~ CEG3 will not modify, recut, or clean out a ditch simply because the physical ditch dimensions are not the same as the original design or originally constructed configuration so long as the actual ditch configuration is adequate to pass the design flow. Culvert maintenance will involve removal of trash or debris from culvert inlets and any up gradient debris fences, repair of any significant erosion at culvert inlets, outlets, or of the cover material, and repair or replacement of any damaged culverts.

Sedimentation pond maintenance and operation procedures will include ongoing sampling and discharge monitoring under applicable provisions of a UDWQ permit; quarterly inspections of pond embankments, impoundment areas, discharge structures, and inlet/outlet structures and areas and reporting; notification of any hazardous conditions and development of emergency remedial control measures; maintenance or repair of any problems noted during the inspections; and periodic removal of accumulated sediment. The sedimentation pond has been designed and will be operated and maintained to effectively retain storm runoff to allow settlement of suspended solids prior to discharge. Control of potential water quality impacts from pond discharge is monitored through compliance with applicable effluent standards under a UDWQ discharge permit. Effluent sampling and reporting will occur as outlined in R645-301-730, Hydrologic Resource Protection and PHC, and under the provisions of the UPDES permit which will be included in Exhibit 4, Other Permits when it is received.

The sedimentation pond will be inspected quarterly by a qualified person for any indication of structural weakness or other hazardous condition, instability, and any erosion or other problems; the depth and elevation of any impounded water will be measured; based on the depth measurements storage capacity will be estimated; and any required structural monitoring will be performed. Copies of the quarterly inspection reports discussing each of the noted inspection categories and verifying that the pond has been constructed and maintained as designed will be prepared, certified by a qualified Registered Professional Engineer, and submitted promptly to UDOGM. Copies of the inspection reports will also be maintained on file at the mine site. Any minor problems noted during the inspection will be addressed in a timely manner. This may involve repair of any minor localized erosion, clean-out or minor repair of discharge structures, reseeding of embankment slopes, mowing weeds which may interfere with pond inspection, or other minor maintenance and repair as necessary. If the inspection identifies any structural weakness or other conditions which could pose a hazard to the public, the person who conducted the inspection will notify UDOGM promptly of the hazardous condition and any emergency procedures which may be appropriate to protect the public and address the hazardous condition. In consultation with and with approval from UDOGM, appropriate remedial measures will be implemented as soon as is reasonably practicable to address any hazardous condition.

The pond has been designed to provide adequate capacity for at least five years accumulation of sediments, however, the pond will periodically need to be cleaned out to removed the accumulated sediment in order to maintain adequate stormwater storage capacity consistent with design requirements. A fixed staff gauge in the pond will be used to monitor sediment accumulation. Generally, it is anticipated that the sedimentation pond will be essentially dry during late summer or early fall each year and the gauges will be checked during the corresponding pond inspections. In the unlikely event that the staff gauges cannot be checked during a dry period, an alternative means of monitoring sediment accumulation levels will be utilized.

Before sediment accumulations reach the point where they would encroach on stormwater storage capacity, ~~CR~~ CEG3 will schedule and implement measures to remove the accumulated sediments. The pond has been designed to facilitate access for pond clean-out with a concrete ramp for equipment access to the pond bottom. The pond will have a reinforced concrete bottom to facilitate cleaning by equipment without damaging the pond integrity. Generally, clean-out would be scheduled during a relatively dry period when any pond water levels would be low. Any water remaining in the pond would be pumped into water trucks for use in mine site dust control. The sediments would be allowed to dry so that they could be readily removed and they would then be removed and transported to a temporary storage area located on one of the mine pad areas until dry, then would be transported into the mine and placed in the areas designated for underground development waste as discussed in R645-301-520, General Description of Mine Plans, Mining Methods, and Related Design Requirements.
Description of Individual Structures - The following sections provide more detailed information for specific drainage and sediment control structures:

Sedimentation Pond 1 - Sedimentation Pond 1, which will be located at the northern end of the mine site, as shown on both Map 24, Drainage and Sediment Control Plan Map, and Map 13, Surface Facilities Map, will be the only sedimentation pond for the proposed mine surface facilities area. The vast majority of disturbed area runoff and minor amounts of undisturbed area runoff from those facilities and areas up gradient from the pond location will be routed to Pond 1. The total contributing drainage area for Pond 1 is approximately 28 acres. The pond has been designed to provide adequate total retention capacity at an elevation of 7686.90 feet of 3.15 acre-feet which includes a 5.3 year accumulation of sediment (1.12 acre-feet) based on sediment discharge modeling for the contributing drainage areas and the 10-year, 24-hour storm runoff (2.06 acre-feet) from the contributing drainage areas.

Pond 1 is designed with vertical risers (primary spillway and emergency spillway) connected to a horizontal discharge culvert running through the pond embankment and discharging to a culvert crossing beneath Highway 96 and thus to the area west of the highway. As shown on Map 25 the designs of both the Principal and Emergency spillways are the same as can be seen on the cross-section and as noted in Detail 1. One orifice in the primary spillway vertical riser at an elevation of 7683.80 feet, will be used to dewater the pond and discharge stormwater inflows. The top of the riser will be at an elevation of 7686.90 feet, at the invert of the emergency spillway. The orifice outlet will be fitted with gooseneck pipe extension to act as oil skimmer to prevent discharge of any minor amounts of oil or other petroleum products which may enter the pond and the top of the riser will be fitted with a trash rack. The Pond 1 emergency spillway will be a 24 inch diameter pipe, with a crest elevation of 7686.90 feet. The invert elevation of the emergency spillway and pond embankment are designed to provide a minimum freeboard of 2.0 feet. In order to provide access for clean-out and haulage of accumulated pond sediments a primary road (P6) will be constructed from the Loadout Pad to the pond.

Map 25, Sedimentation Pond 1 Sections & Details shows the proposed Pond 1 layout and provides specific pond design information including the primary discharge, sediment storage volume, 10-yr 24-hr runoff volume, 100-tr 6-hr runoff volume, primary and emergency spillways, and pond embankment, and design details for the discharge structures. Figure 35, Pond 1 Stage-Volume Curve shows the stage storage curve; storage capacity information; design elevations for the pond bottom, sediment storage elevation. A detailed description of pond design assumptions and methodology, actual pond design calculations, and additional design information are provided in R645-301-730, Hydrologic Resource Protection and PHC, and the background information and calculations are included in Exhibit 16, Runoff Control Design Details. Pond construction, operation, and maintenance practices will be consistent with the previous descriptions presented in this section. Sedimentation Pond 1 will be a new pond and
pond construction will involve both excavation of a portion of the pond basin and construction of a compacted fill embankment.

Alternative Drainage and Sediment Control Measures - Alternative drainage and sediment control measures will be utilized for initial construction activities as discussed in R645-301-520, General Description of Mine Construction and Development Activities, and in areas where the isolated nature of the area or specific site conditions would result in excessive disturbance for full scale drainage and sediment control or where full-scale controls are infeasible. Alternative drainage and sediment controls will be utilized in the following specific areas:

- Initial Construction Areas
- The Topsoil Stockpile area
- south of the Main Access Road along Highway 96
- The small areas adjacent to Highway 96 on both sides of the main access road to the mine site
- Small topsoil stockpile areas west of Highway 96 adjacent to highway culvert CP-2

Detailed descriptions of these areas, discussion of the alternative sediment control measures to be implemented, and requests for individual small area exemptions, as appropriate, are included below. It should be noted that alternative sediment controls for road fill and embankment outslope areas will consist of silt fencing and will only be required as a interim control measure until temporary vegetative cover is established.

Initial Construction Areas – Initial construction will be done before runoff controls are possible, therefore alternative controls will be used to control sedimentation off of the site. Controls to be used may include one or more of the controls discussed in R645-301-730, including, silt fencing, straw bales, berms, sediment traps, vegetative filters, mulch, and other effective appropriate drainage controls. Before construction begins, a silt fence will be placed at the extreme western edge of the site running parallel to the old railroad grade and including the area from the existing access road to the site and then running south to the southwest corner of the mine permit area adjacent to Highway 96.

Topsoil Alternative Materials Stockpile – The main topsoil/alternative materials stockpile is located adjacent to Highway 96 at the south end of the mine site (see Map 24), where the runoff from the site cannot be routed to the sedimentation pond. Since the stockpile will be vegetated with interim vegetation and should stabilize within a two to three year period, there should be little sediment loss. Runoff from the stockpile will be controlled by a berm at it's western edge as can be seen on Map 24, Drainage and Sediment Control Plan. This berm will catch runoff and sediment from the face of the stockpile and direct it to the silt fence outlet as shown. The silt fence outlet from the lowest point of the berm near the highway culvert will filter any runoff from the pile prior to leaving the site and entering the highway culvert.

The other stockpile areas near Culvert CP-2 will be small and will use silt fencing to control erosion (see Map 24). A single silt fence is planned for the entire perimeter of each stockpile. If installed silt fencing is shown to be inadequate to contain erosion, then additional silt fencing will be installed at even contours up the slope of the stockpile.

Main Access Road - Primary Road P1 – The short section of the access road approximately 115 feet long from it's intersection with Highway 96 eastward to a cattle guard cannot be routed to

the Sedimentation Pond 1. Runoff from this small road section will be controlled through small ditches and sediment traps located on each side of the road as shown on Map 24. Drainage and Sediment Control Plan. A silt fence, or straw bale outlet from the sediment trap will catch any overflow from the trap prior to discharge into the highway side ditches.

### 526.400 Air Pollution Control Facilities

N/A – Applies to Surface Coal Mining Only

### R645-201-527 Transportation Facilities

**Roads**

In conjunction with the proposed mining and related operations ~~CR~~ CEG3 will construct, operate and maintain a number of new roads and will operate and maintain several existing roads. Both new and existing roads will be utilized to access existing and proposed facilities and for transportation of personnel, equipment, and supplies. All roads are classified as primary roads. The primary road classification includes any road used for transporting coal or spoil, roads which are used frequently for periods exceeding 6 months, and roads which will be retained to support the post mining land use. All roads will be utilized on a frequent, long-term basis to support the proposed mining and related operations. Proposed roads which will be used in conjunction with the proposed mining and related operations include the following:

**Proposed Roads in Kinney No. 2 Mine Facilities Area**

P-1 Primary mine access road for the proposed surface facilities area
P-2 Primary mine access road to Mine Office Pad
P-3 Primary mine access road to the Portal Pad
P-4 Primary mine access road to the Storage Area Pad
P-5 Primary mine access road to the Loadout Pad
P-6 Primary mine access road to Sedimentation Pond No. 1
P-7 Primary mine access road to the North Access Road
P-8 Primary access road through site for post mining land use only, will replace P-7
P-9 Primary access road to private property on top of mountain and for post mining land use

Proposed roads are shown on, Map 13, Mine Surface Facilities Map, and Map 29A, Post Mining Topography. Road profiles can be seen on Maps 20 through 22, Mine Road Profiles.

Design and Construction - All roads have been or will be located and constructed to the extent operationally feasible in the most stable areas available and outside of the channel of intermittent or perennial streams. Road design and construction plans will prevent damage to public or private property; minimize the potential for downstream flooding or sedimentation; reflect consideration of the size of vehicles which will be using the road, traffic volume, and normal speeds; and to the extent possible, using the best technology currently available, minimize adverse impacts on fish, wildlife and related environmental values.

All roads have been designed to provide for effective drainage, long-term stability, and safe vehicle operations under varying weather conditions. Design and construction of all primary roads will be certified by a qualified Registered Professional Engineer as meeting these criteria. All roads except Primary Roads P8 and P9 will meet MSHA safety requirements including either a berm or guard rail on the outside edges where the slope is downward.

Design and construction practices for specific roads will be dependent primarily on site conditions and the nature and frequency of anticipated use. The primary mine access road (P-1) will provide access to the mine surface facilities and will be utilized for transportation of personnel, equipment, coal, and supplies. Because it will handle a relatively heavy traffic volume and must provide safe

operating conditions year-round, Road P-1 will be a paved asphalt road with all-weather travel surface from Highway 96 to the Shop-warehouse building. Primary Road P2 will also be paved to the Mine Office building; in addition, the Mine Office Pad will be paved. The other primary roads except roads P8 and P9 will also be utilized on a year-round basis but the associated traffic levels will be significantly lower so these roads have been designed and will be constructed with an adequate compacted road base and gravel or similar durable granular surfacing. Primary Road P9 is required for private property access, with no daily mining activity use, only occasional use for water monitoring and subsidence monitoring during the summer and fall by light vehicles and will have surfacing equal to the existing access road being replaced (R645-301-534.320). Road P8 is only a post mining land use road to provide access to private property north and east of the mine site, it too will have surfacing equal to the pre-mining access road being replaced (R645-301-534.320).

Road construction will involve cut and fill earthwork operations using tractor sappers, tracked dozers, and motor graders. No potential acid or toxic-forming materials will be utilized in road construction or as road surfacing materials. Cut and fill slopes will be established at maximum grades up to 0.8H:1V, with the steepest grades in rock dependent on the characteristics of the rock in conjunction with the geotechnical recommendations found in Exhibit 14, Geotechnical Investigations. Typical road construction practices, road configuration, and dimensions are illustrated by Figure 25, Typical Primary Road Configuration and Figure 25A, Primary Roads P8 & P9 Configuration.. Road gradients will vary from flat to a maximum of approximately 14.5% percent for the main roads and any required road embankments will be constructed and compacted in a controlled manner to provide a minimum static factor of safety of 1.3. Only one road (P6), which accesses Sediment Pond 1 has a gradient above 14.5%, at 18.8%. This road will be used on a limited basis to access and clean out the sediment pone. All road cut and fill slopes will be revegetated as soon as reasonably practical following construction using the temporary revegetation seed mixture to stabilize the slopes and minimize erosion potential. Road surfaces will be graded or owned to prevent accumulations of water on the road surface and adequately sized ditches and culverts will be installed and maintained to effectively carry road and other disturbed area drainage. Adequate cover will be provided over all culvert crossings to prevent damage or collapse of the culverts and culverts have been designed and will be installed to prevent plugging, erosion at the culvert inlet or outlet, and any drainage over the road surface. The locations of all proposed ditches are shown on Map 24, Drainage and Sediment Control Plan Map, and ditch designs are included in R645-301-730, and in Exhibit 16, Runoff Control Design Details.

Operation and Maintenance - Operation and maintenance procedures for all mine roads are designed to provide a smooth operating surface, assure safety, and minimize dust emissions. Road maintenance will involve periodic grading to provide a smooth surface, remove rocks or debris, and maintain effective drainage; repair and resurfacing as necessary; inspection, clean-out, and repair of ditches and drainage structures; and watering or application of surfactants to control dust during dry periods. Generally, speeds on roads and in active operating areas will be limited to 15 miles per hour by posted speed limits both as a safety consideration and to minimize dust emissions from unpaved roads. In the unlikely event that any road is damaged by a catastrophic event such as an earthquake or flood, ~~CR~~ CEG3 will make appropriate repairs as soon as reasonably practicable and will limit the use of the road or provide an alternate access if unsafe conditions exist.

**Description of Individual Structures - The following sections provide more detailed information for specific roads and associated structures:**

Primary Road P1 will receive the most traffic, therefore it will be paved. From Highway 96 to the cattle guard as shown on Map 13, Surface Facilities Map, and on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas, the road will be crowned in the center with

drainage flowing to the sides in both directions. The purpose of the cattle guard is not to control cattle, but to provide a drainage trench to catch runoff containing fines from the road, preventing them from being washed downgradient on the road and bypassing Sedimentation Pond 1. Below the cattle guard, drainage from the road will flow to sediment traps on both sides of the road as shown on Map 24, Drainage and Sediment Control Plan – disturbed Drainage Areas. For the remainder of Primary Road P1, the design will be as shown on Figure 25, Typical Primary Road Configurations for sloping terrain and level terrain.

All other roads will be constructed as shown on Figure 25, Typical Primary Road Configurations, and Figure 25A, Primary Roads P8 & P9 Configuration for sloping terrain and level terrain.

## R645-301-528 Handling and Disposal of Coal, Overburden Excess Spoil, and Coal Mine Waste

### 528.100 Coal Removal, Handling, Storage, Cleaning and Transportation Areas and Structures

The proposed underground mining and related activities will require limited surface support facilities. The facilities to be utilized in conjunction with the proposed operations will include new facilities to be constructed in the proposed Kinney No. 2 Mine surface facilities area. These facilities will provide the necessary infrastructure for effective management and handling of personnel, equipment, materials and supplies, and both coal and mine development waste rock materials, and will include a number of structures specifically designed to control or mitigate potential mining related impacts.

Construction of required surface structures and facilities has previously been discussed in R645-301-520, General Description of Mine Plans, Mining Methods, and Related Design Requirements. The surface structures and facilities will be operated, maintained, and ultimately reclaimed in a manner that prevents or controls erosion and siltation, water pollution, and damage to public or private property; and to the extent possible using the best technology currently available, minimizes damage to fish, wildlife, and related environmental values, and minimizes additional contributions of suspended solids to streamflow or runoff outside the permit area. Any contributions of suspended solids from mine disturbance areas will not exceed applicable effluent limitations under Utah or Federal law.

Required surface facilities are shown and identified on Map 13, Surface Facilities Map, and include the following:

- Conveyor SB-1
- Conveyor Transfer Tower
- Conveyor SB-2
- Non-Spec Coal Pile & Stacking Tube
- Conveyor SB-3
- Spec Coal Pile & Stacking Tube
- Conveyor SB-4
- Screening & Crushing Building
- Sediment Pond Road – Primary P6
- Truck Loadout Building
- Lodout Road – Primary P5
- Storage Sheds – 5 each
- Shop – Warehouse
- Fueling Facility
- Main Access Road – Primary P1
- Office Road – Primary P2

- Portal Access Road Primary P3
- Storage Area Access Road P4
- Mine Office – Bathhouse
- Topsoil Stockpile
- Water Tank
- Electrical Substation
- Sedimentation Pond
- North Access Road – Primary P7
- Explosives Magazine
- Explosives Cap Magazine
- Development Waste Temporary Storage Area
- North Access Road through site for post mining land use only P8, will replace P7
- Access Road to private property East of mine site and for post mining land use P9

The following sections describe design and construction details and operation and maintenance plans for the identified structures.

**Coal Handling Systems and Facilities**

The coal handling system will consist of both the underground coal haulage system and the surface coal handling components which will transfer the coal from the mine to the truck loadout. Components of the surface portion of the coal handling system are shown on Map 13, Surface Facilities Map and include the following:

- Conveyor SB-1
- Conveyor Transfer Tower
- Conveyor SB-2
- Off-Spec Coal Pile & Stacking Tube
- Conveyor SB-3
- Spec Coal Pile & Stacking Tube
- Conveyor SB-4
- Screening & crushing Building
- Sediment Pond Road – Primary P6
- Truck Loadout Building
- Coal Processing Waste Temporary Storage Area

Design - The coal handling system has been designed using the best current technology and accepted engineering practices to provide the coal and underground development waste carrying capacity to readily handle the maximum projected mine production volumes with sufficient excess carrying capacity to handle potential surges in system feed rates. System design also provides the storage capacity to address any normal fluctuations in coal production, shipping schedules, or market demand and reflects the design and construction considerations necessary to minimize potential adverse environmental impacts, including but not limited to minimizing erosion and additional contributions of sediment to surface runoff.

**The Surface Coal Haulage System which consists of:**

The MB-1 conveyor discharge onto the tail loading section of SB-1 located in the transfer tower. MB-1 will be elevated to accommodate mine vehicle and equipment traffic to pass beneath it where MB-1 it exits the mine and will be enclosed to mitigate airborne dust and spillage onto the roadway. From MB-1 coal will be transferred to a series of 42" overland surface conveyors beginning with SB-1. At the transfer building, a coal sampling system will be installed between the head pulley of MB-1 coming from the mine and the tail pulley of SB-1 that will transfer coal overland to conveyor SB-2 located in the enclosed Conveyor Gallery atop the two stacking tubes.

Depending on whether ROM product is determined to be spec coal or non-spec coal Overland Conveyor SB-1 will divert discharge ROM coal through a flop-gate to direct the segregation to the appropriate stockpile stacking tube (i.e., spec or off-spec).

ROM Coal will be reclaimed using programmable vibrating apron pan feeders via Reclaim Conveyor SB-3. The design capacity of the non-spec coal stockpile is 17,000 tons and is separated from the spec coal pile with a 10 ft high concrete wall. Similarly, design capacity for the spec coal stockpile is also 17,000 tons total capacity with a practical 12,000 tons live capacity with equipment. The off-spec pile will accommodate classification and sorting 6000 tons on either side of a dividing wall using a front end loader or dozer to sort coal from rock into the feed area for either of the two apron feeders that reclaim from the off-spec pile.

The off-spec pile will be managed and reclaimed so that rock and coal is kept segregated by size and type in the pile as much as practicable for product blending through ratio feeding at the apron feeder and/or rock disposal using dozers, front end loaders, grizzlies for classification and sorting, with common surface coal handling equipment.

Coal will feed to Reclaim Conveyor SB-3 from vibrating pan feeders located in a reclaim tunnel beneath the ROM stockpiles. Spec coal and non-spec coal will be delivered by conveyor SB-3 to a primary double deck vibrating screen that will screen oversize material of 8" – 2" to a primary crusher that will reduce coal to a nominal 2" minus size. Coal from the crusher will pass to conveyor SB-4. Coal that passes the screen at 2" minus will be diverted from the crusher by a chute to conveyor SB-4. Conveyor SB-4 will transport 2" minus coal to the truck load out structure.

Construction - Construction of the coal handling system will involve excavation and grading to establish the conveyor alignment; excavation and grading of the spec coal, and non-spec stockpile area; construction of conveyor support structure, stacking tubes, and reclaim tunnel foundations; erection and installation of modular conveyor support structures, idler support frames, feeders and chutes, and transfer points; and installation of conveyor drives, take-ups, idlers, belting, covers, control systems, and dust control equipment. The conveyor alignment , and other facilities will be as shown on Map 13, Surface Facilities Map.

The conveyor components including support structures, idlers, take-ups, drives, belting, covers, transfer points, and dust control components will be standard off-the-shelf components supplied by major conveyor manufacturers. Support structures, take-ups, drives, and transfer points will be mounted on either poured concrete footing or spread footings as appropriate based on the nature of the installation and site conditions. Conveyor covers will be conventional half-shell covers which bolt onto the conveyor framework and are removable for maintenance access and all transfer points will be partially or fully enclosed and will incorporate water sprays or surfactant applicators to control fugitive dust emissions. All conveyors have been designed and will be installed to provide adequate clearance for passage of big game animals under the conveyor support structures.

Operation - The underground coal handling system will transport the coal from the working sections to the coal stacking tubes. The underground coal haulage system will consist of 42 inch section and panel conveyors with a capacity of 1,200 tons per hour. The main haulage conveyor will carry the coal to the surface where it makes one transfer to Conveyor SB-1 which will then transfer the coal to the coal stacking tubes. Depending on if the ROM product is spec coal or non-spec coal Overland Conveyor SB-2 will discharge ROM coal through a flop gate directly to the non-spec coal stockpile stacking tube or onto conveyor SB-3 that will discharge spec coal into the spec coal stockpile stacking tube. The coal stacking tubes will be pre-fabricated structural steel or reinforced concrete mounted on reinforced concrete foundations directly adjacent to the reclaim tunnel. Openings in the sides of the stacking tubes will have flexible covers and discharge coal to create a conical ROM coal stockpile surrounding the stacking tubes. The ROM

coal reclaim tunnel will be constructed of cast in place reinforced concrete with a 48" diameter buried culvert which daylights from the rear of the tunnel for emergency egress to the outside and as well as for ventilation to the reclaim tunnel. The reclaim tunnel will be equipped with vibrating apron-type pan feeders to discharge ROM coal from the stockpiles to the reclaim conveyor belt SB-3. A coal sampling system between MB-1 and SB-1 will
be provided at the transfer structure to verify spec and non-spec coal. Spec and non-spec coal will be stored in separate stockpiles.

Four vibrating apron feeders in the reclaim tunnel directly under the coal stockpiles will serve as the blending mechanism for the mine whereby spec coal and non-spec coal will be drawn from the spec coal stockpile and the non-spec stockpile in proportioned quantities as specified by a Programmable Logic Control System (PLC) designed for this operation. At times ROM coal blending will not be utilized whereas the vibrating pan feeders under the non-spec coal stockpile will not be operated. With the versatility of feed rates from these feeders coupled with the PLC any combination of spec and non-spec coal can be delivered to screening, crushing and truck load out.

At times underground development waste from the mine will be hauled from the mine workings using the conveying system. Underground development Waste rock material will be directed to a portion of the non-spec coal stockpile using the coal conveying system where it will be culled from the stockpile into haul trucks using a front end loader. The coal haulage system will direct ROM coal to the spec coal and off-spec coal stockpiles where it will be reclaimed using programmable vibrating pan feeders and Reclaim Conveyor SB-4. The design capacity of the off-spec coal stockpile will be 17,000 tons. Design capacity for the spec coal stockpile will be 17,000 tons.

The surface coal handling system will transport the coal from the stacking tubes to the crushing and screening building using conveyor belt SB-3 where the coal will be sized to product size, generally ¾" minus. This system will also provide for the handling of underground development waste material resulting from ongoing mine development and production operations. Coal will feed to Conveyor SB-4 from vibrating feeders located in a reclaim tunnel beneath the coal stockpiles. Conveyor SB-4 will carry the coal to the truck loadout, which will in turn load the coal into trucks.

All surface coal handling conveyors will be 36 inch conveyors with a capacity of 1,000 tons per hour. Operation of the surface coal handling system is graphically illustrated by Figure 26, Coal Handling Flow Sheet.

Maintenance - Maintenance of the coal handling system will include regular inspect and repair of conveyor belts, support structures, transfer points, drive components, and dust control systems; lubrication of idlers and drive components; adjustment of belt take-ups to maintain proper belt tensions; periodic replacement of critical conveyor components under a regular preventative maintenance program; and periodic cleanup of any coal or waste spillage at feed points, transfer points, and under the conveyors.

Coal Stockpiles - Two separate coal stockpiles will be utilized in conjunction with the proposed mining and related operations; the 17,000 ton spec coal stockpile , and the off-spec coal pile which is designed to be 17,000 tons. The coal stockpiles have been designed to provide storage and surge capacity to accommodate anticipated normal fluctuations in coal production, coal blending, shipment schedules, minor market fluctuations, and any unanticipated temporary shutdowns of components of the coal production, handling, and processing systems. The coal stockpiles have been located and designed to minimize potential adverse environmental impacts including but not limited to fugitive dust emissions, and sedimentation due to drainage from the piles or pile areas. Both coal stockpiles reflect similar design with the coal delivered to the pile by

Conveyor SB-1 and SB-2.

The adjacent cut slope east of the spec coal, and off-spec coal stockpiles will not be vegetated so that coal can be pushed back against the slope to provide additional storage capacity when necessary. The coal stacking tubes will be pre-fabricated concrete or reinforced steel tube mounted on a reinforced concrete foundation with a direct discharge chute in its base. Openings in the sides of the stacking tubes with flexible covers will create conical coal stockpiles surrounding the tubes. The coal reclaim tunnel under the stacking tubes will be a sub-grade reinforced concrete structure supporting vibratory feeders which will draw coal from the base of the piles and feed it through gagged feed chutes to Conveyor SB-3.

Operation and maintenance of the coal stockpiles will involve controlled discharge to the piles and movement of coal within the pile using tracked dozers or wheel loaders to keep the coal within the defined pile limits, maximize storage capacity when necessary, and provide for effective feed to the reclaim points. Coal piles will be periodically inspected for any excessive oxidation or burning coal and if any is found it will be separated from the main stockpile and extinguished either by burying the coal with dirt or by using a mine water truck to spray the coal with water.

Coal Crushing - Spec coal and off-spec coal will be delivered by conveyor SB-3 to a primary double deck vibrating seen in the crushing and screening building that will seen oversize material of 8" – 2" to a primary usher that will reduce coal to a nominal 2" minus size. Coal from the usher will pass to conveyor SB-4. Coal that passes the screen at 2" minus will be diverted from the usher by a chute to conveyor SB-4. Conveyor SB-4 will transport 2" minus coal to the truck load out structure. Planned operation of the surface coal handling system from the mine portal to the truck load out is graphically shown on Figure 26, Coal Handling Flowsheet, and Figure 27, Schematic Elevation Looking East.

Maintenance - The coal crushing and screening process is controlled and monitored by an automated process system which adjusts and maintains flow rates and monitors each component of the system to assure maximum coal recovery and identify any system malfunctions in a timely manner. In addition to the automated control and monitoring system, ~~CR~~ CEG3 will have a regular inspection and preventative maintenance program for the crushing and screening facilities and equipment which will include regular inspection, clean-up, lubrication, repair, and periodic replacement of critical operating components. Potential fugitive dust emissions from crushing, stockpiling, and conveying will be controlled by partial or full enclosures on all transfer points and at the usher, by baghouses, or water sprays or surfactant applicators, sub-grade coal reclaim systems, and the use of stacking tubes in stockpile areas.

**Loadout Facilities**

The coal product from the coal crushing and screening building will be transferred to the truck loadout facility which will weigh the coal and load it into trucks for delivery to utility, industrial, and other coal users. The truck loadout facility is designed to load on road coal trucks for transport to market. Conveyor SB-4 transfers 2" minus coal from the screening and crushing building where it is discharged through a flop gate chute to (2) 50 ton coal silos. The truck loading facility is designed to allow the loading of double tandem coal trailers. Coal will be discharged directly to the trailers. Operation of the coal loading facility will be connected to the surface facilities Control Instrumentation and PLC that will include load cells at the coal silos to regulate surge capacities at the loading facility. Discharge and loading of the coal will be provided by the drivers of the coal haul trucks. Coal will discharge from the silos to the trucks through a regulated discharge telescoping chute that will extend to the top of the truck trailer to provide controlled loading and contain fugitive dust. The truck loading facility will allow for truck traffic to pass around and under

the load out silos for loading.

**Support Structures and Facilities**

A number of structures and facilities will be required to support the proposed mining and related operations. These structures and facilities will generally be used to provide storage, maintenance, and support services for mine personnel, equipment, and materials and supplies and will specifically include the following:

- Storage Sheds – 5 each
- Shop – Warehouse
- Fueling Facility
- Mine Office – Bathhouse
- Water Tank
- Electrical Substation
- Explosives Magazine
- Explosives Cap Magazine

These structures and facilities are shown on Map 13, Surface Facilities Map, and are described in the following sections.

Design and Construction - All support facilit1ies are located within or in close proximity to the associate operations areas. Mine support buildings are steel frame buildings with concrete footers, spread footings, or slab foundations and metal exterior walls. These buildings have been designed for ease of erection, long-term structural integrity, and minimal maintenance. To the extent possible, building locations, configuration, and exterior colors have been selected to minimize visual contrasts with surrounding natural areas.

Building construction will generally involve grading and preparation of foundation areas, excavation and installation of foundations, building erection, interior and exterior finish work, and connection of utilities. Storage areas will generally be open graded areas providing outside storage for miscellaneous large parts and supplies. Both building sites and storage areas will be graded to assure effective drainage, with drainage from these areas flowing to the designed disturbed area collection ditches previously described in the sub-section titled Drainage and Sediment Control Structures. Due to the anticipated level and frequency of use, employee parking areas adjacent to the Administration/Bathhouse building will be surfaced with asphalt paving materials and other frequent use areas including the area around the maintenance shop and warehouse facilities will be surface with gravel or similar durable granular material.

Operation and Maintenance - General operation and maintenance of support structures and facilities will involve regular grading of facility areas and inspection, cleaning, and repairs as required. In addition to the equipment required for mine production operations the following equipment will be utilized for surface support, maintenance and general utility use:

- Tracked dozers
- Wheel loaders
- Rear dump trucks
- Motor grader
- Water truck
- Street Sweeper
- Fork lifts

- Skid steer loaders
- Mobile cranes
- Bucket truck
- Fuel/Lube truck
- Air compressors
- Welders
- Generators

Specific operation and maintenance requirements for individual facilities are described in the following descriptions of individual facilities.

Description of Individual Structures - The following sections provide more detailed information for specific support structures and facilities:

Office-Bathhouse Building - The Office-Bathhouse building will provide office space for mine management, accounting/payroll, engineering, environmental, production, and safety staff; meeting and training rooms; and shower and changing facilities for mine employees. The Office-Bathhouse facility will be a two-story steel frame building approximately 60 feet wide by 160 feet long and 30 feet high at the peak of the roof with concrete slab floor and steel siding and roof. An asphalt paved parking area will be provided on the pad for the building. The configuration and layout of the Office-Bathhouse facility is illustrated by Figures 28 through 31, Office-Bathhouse Building.

Maintenance Shop Facility - The Maintenance Shop facility will be located immediately adjacent to the mine portals in the portal area and will provide cleaning and repair facilities for both underground production and surface support equipment. The Maintenance Shop will be a steel frame building with reinforced spread footing foundation and heavy reinforced slab floor, and steel siding and roof. The main shop building will be approximately 75 feet wide by 175 feet long and 32 to 42 feet high at the roof peak. The configuration and layout of the Maintenance Shop is illustrated by Figures 32 through 34, Warehouse & Shop Facility. The Maintenance Shop will include the following service and support areas:

- Drive-in equipment wash bay and clean-out sump
- A split bay for light vehicle and small equipment maintenance
- Welding bay
- Electrical repair bay
- Belt repair bay
- Machine shop
- Battery charging area
- Maintenance office, computer area, and restrooms
- Waste oil heating boiler
- Compressor room
- Storage area for waste oil, fuel oil, and mixing tanks
- Bulk oil and lubricant storage area
- Metal storage area
- Equipment fueling station

Equipment coming into the shop for periodic preventative maintenance, repair, or rebuild will first be washed in the wash bay. The wash bay may have both fixed spray heads and flexible high pressure hoses to clean coal, dirt, grease and oil from the equipment prior to equipment inspection, maintenance, and repair. Drainage from the wash bay will go to collection sump which has been designed to collect oil and grease. A float operated pump will transfer water from the decant sump to the portal area collection sump which will also be equipped with an oil skimmer.

**Figure 26 Coal Handling Flow Sheet**

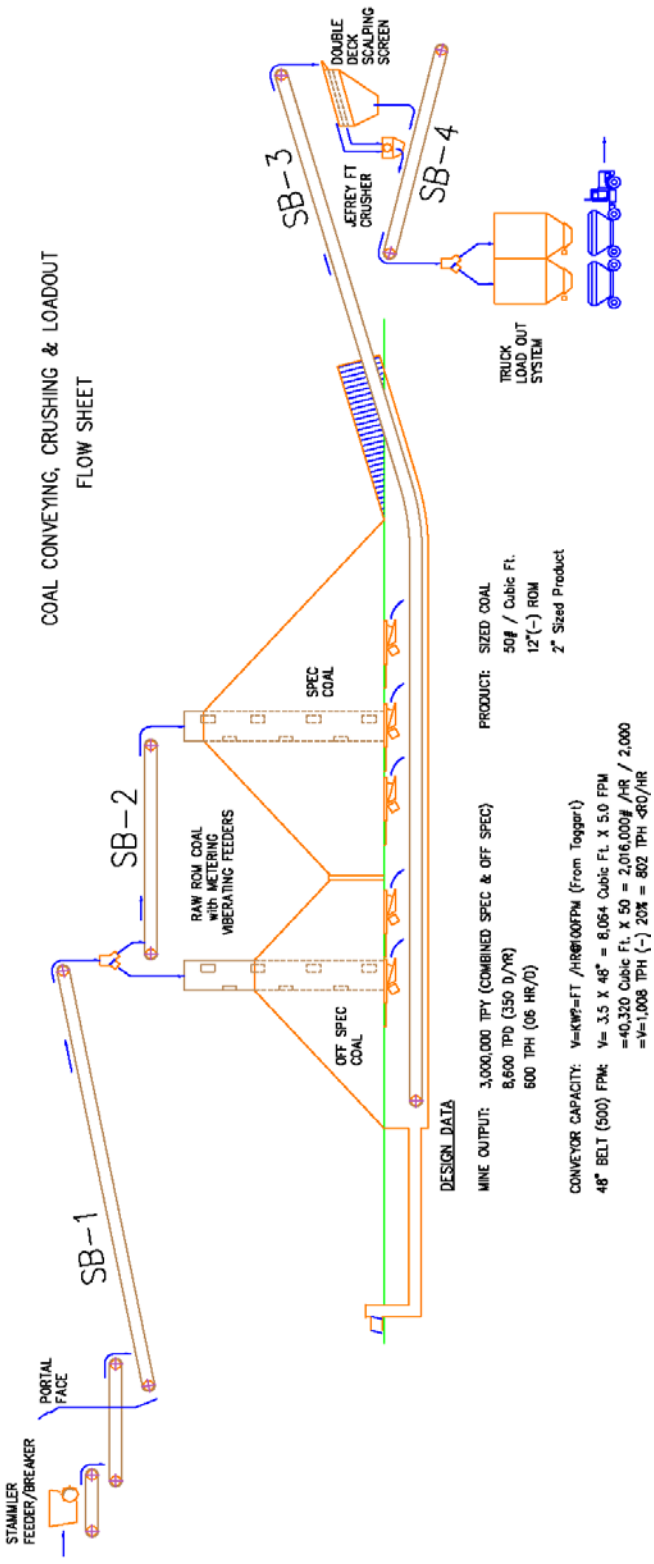
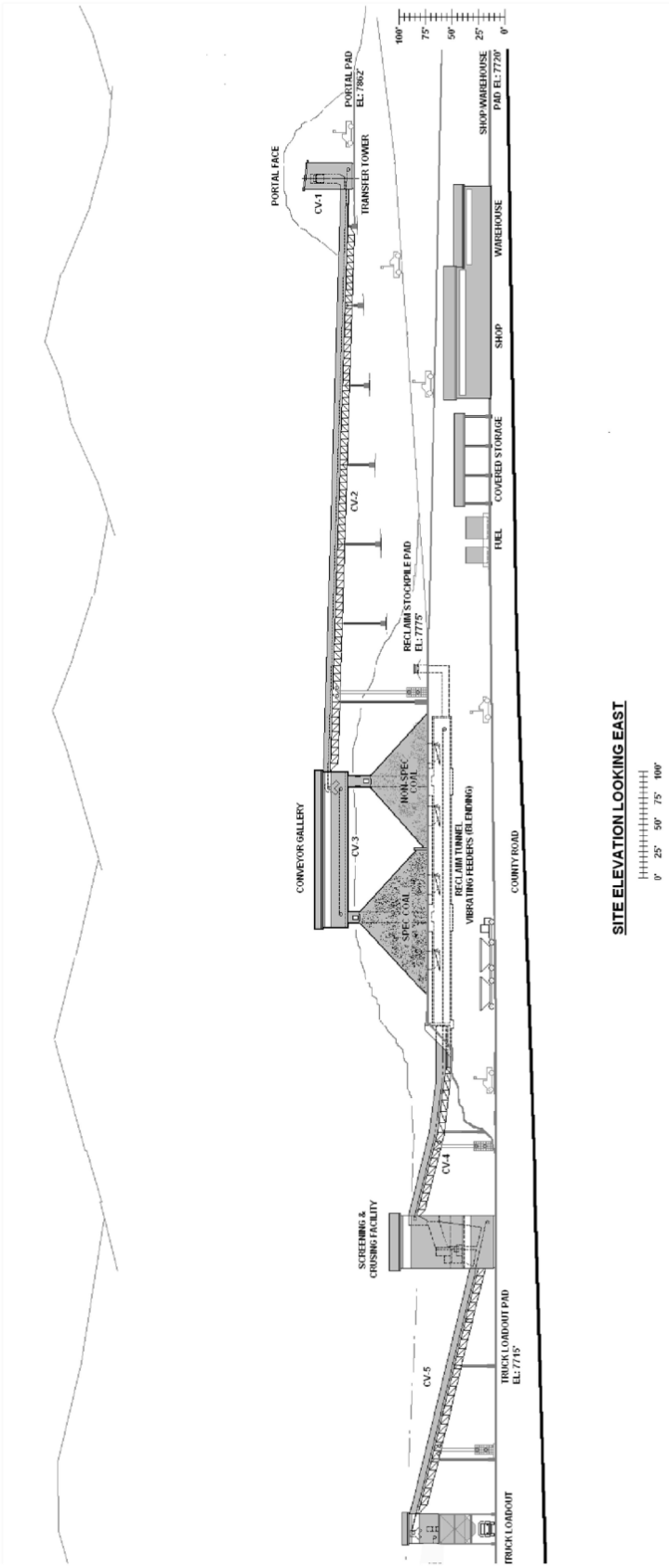


Figure 27 Schematic Elevation Looking East



Within the Maintenance Shop, all petroleum products including oil, hydraulic fluid, grease and other lubricants, and used oil will be handled by a pressurized collection/distribution system running through the shop facility. Oil, hydraulic fluid, and lubricants will be stored in bulk in large tanks within storage containment areas and will be distributed to hose reel systems in each repair/maintenance bay area. Any parts washing stations will use non-toxic citrus-based solvents and uses only propylene glycol based anti-freeze so handling and disposal of these materials is not a concern. Used oil will also be collected in each bay by a negative pressure hose system with the used oil being transferred to used oil storage tanks in a storage containment area and then handled and disposed of according to Utah and EPA requirements.
There will be two separate used oil storage and feed tanks with all used oil from the shop going to one designated tank. Once the storage tank reaches capacity it will be sampled and tested for compliance with applicable EPA standards for waste oil. Any used oil which does not meet used oil specifications will be collected by a license contract disposal firm and hauled off-site for recycling or proper disposal. All petroleum storage tanks will be located within curbed concrete containment areas providing sufficient containment capacity for the entire contents of the largest storage tank within the containment area. Storage tanks, associated piping, and containment areas will be inspected on a regular schedule for any deterioration, damage, leakage, spills, or water accumulations. Any problems will be promptly addressed with repairs, replacement, recovery of spilled product, and removal of any accumulated water. Any water accumulations which contain petroleum residues will either be recovered and transferred to the wash bay sump or will be recovered by a licensed disposal contractor.

Warehouse Facility - The Warehouse facility will provide storage for small equipment parts and operating supplies. The warehouse will be in conjunction with the Shop building. The configuration and layout of the Warehouse is illustrated by Figure 32 through 34, Warehouse & Shop Facility. Larger equipment parts and supplies such as mine timbers, cable, culvert, and roof bolts will be stored in the equipment storage areas and drum lubricants and tires will be stored in a covered storage area near the Maintenance Shop.

**Utilities**

The proposed mining and related operations will utilize new utility installations including electrical distribution, telephone, potable and raw water, and sewer systems. The proposed underground mining and related surface disturbance activities have been planned, designed, and will be conducted in a manner which minimizes the potential for damage or destruction of utility installations, or disruption of services provided by those utilities existing within the permit area unless otherwise approved by the owner of the utility.

Heat for the buildings will initially be provided by propane, and may be converted to more cost efficient natural gas if it becomes available.

All existing and proposed utility installations are shown on Map 13, Surface Facilities Map. It should be noted that all utilities either are or will be owned, constructed, operated, and maintained by the respective utility companies up to the actual point of service which in the case of electricity will be the main mine substation and in the case of telephone, potable water, and sewer service will be to the metering point which will be located at the mine permit boundary line.

**Figure 28 Office - Bathhouse Configuration**

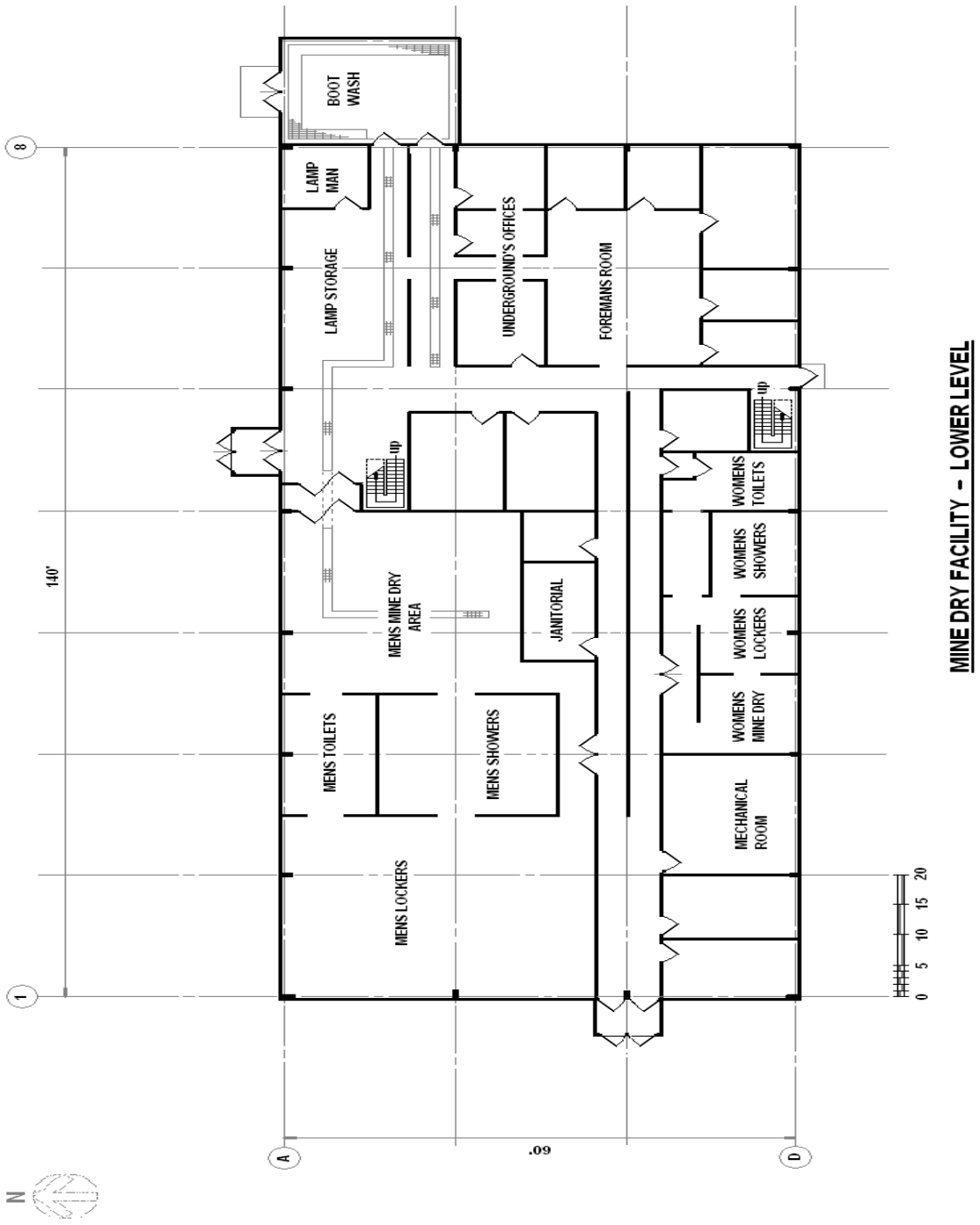


**Figure 29 Office - Bathhouse Configuration**

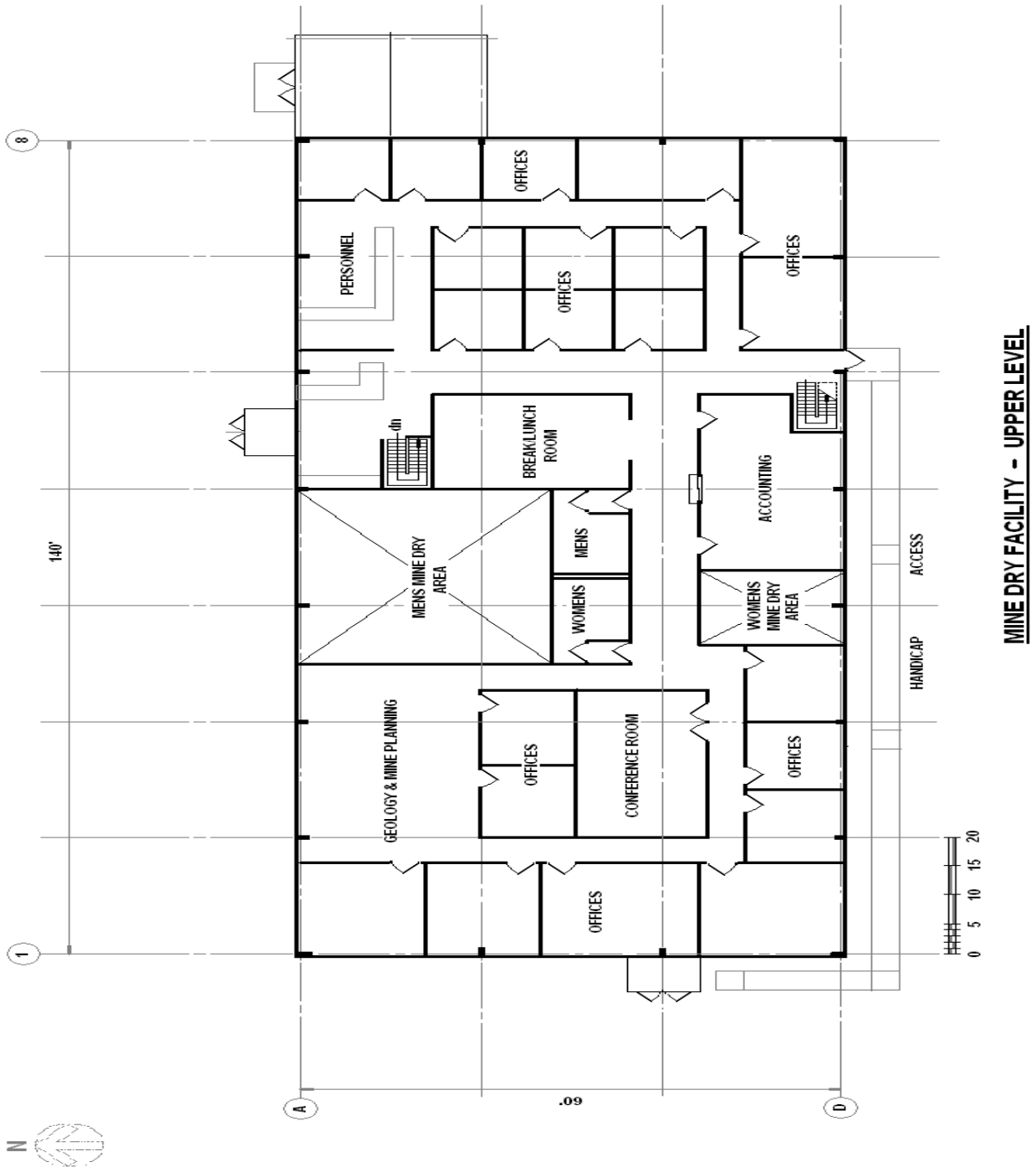
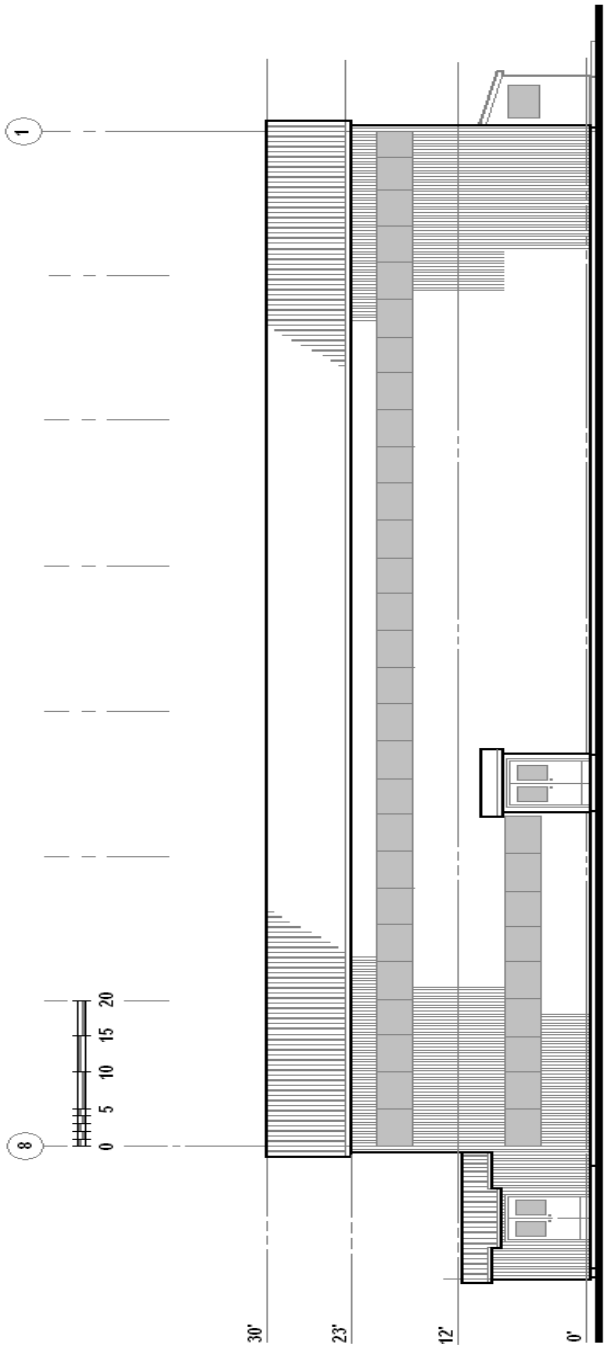
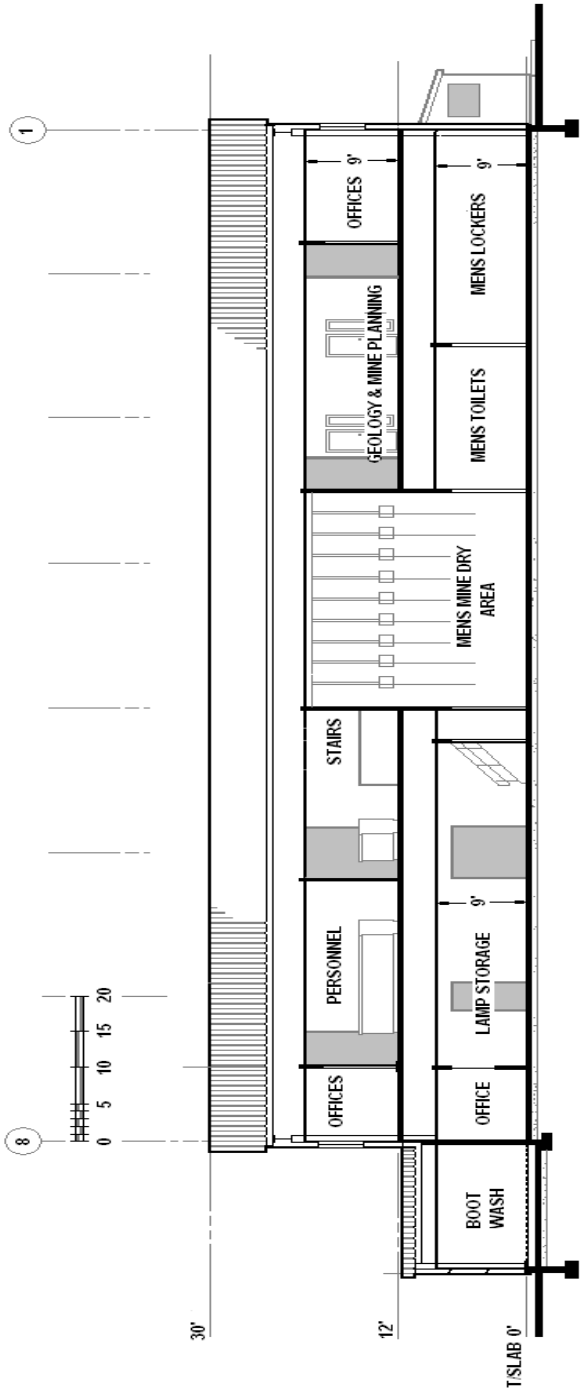


**Figure 30 Office - Bathhouse Configuration**




MINE DRY FACILITY – NORTH EXTERIOR ELEVATION

**Figure 31 Office - Bathhouse Configuration**




MINE DRY FACILITY – BUILDING SECTION

Electrical Systems – Electrical power for the mining operation will come from an existing power line running north-south immediately east of the portal area; this power line is shown on Map 11, Regional Surface Ownership Map, and on Map 4, Regional Land Use Map. Electrical voltage will be reduced from the existing power line at a substation located at the Portal Pad as shown on Map 13, Surface Facilities Map. The new substation to be owned, constructed, and operated by PacifiCorp. The mine substation will, in turn, feed the mine fan, the surface coal handling system, the underground mine electrical system, and the other surface facilities.

All proposed electrical components have been designed and will be constructed and operated in accordance with accepted engineering practice and in full compliance with all applicable regulatory provisions. Any new powerlines will be constructed with "raptor-proof" power poles as shown by Figure 22, Typical Raptor-Proof Power Pole Configuration, to minimize the potential for electrocution of raptors and other large birds. All substations, electrical transformers, switchgear, and electrical control components will either be located so that it is not readily accessible to either wildlife or the public or appropriate fences with locked gates or other enclosures will be utilized to limit access to authorized personnel. Where appropriate, signage identifying and warning of electrical hazards will be posted and maintained.

Telephone Lines - Buried or overhead telephone lines will be extended by US West from Highway 96 to provide telephone service for the mine facilities.

Water and Sewer Systems - Potable water, raw water, and sewer connections will be provided by Scofield Town. The connection points for water and sewer to the mine site are shown on Map 13, Surface Facilities Map, and are located at the south side of the permit boundary just south of the Mine Office building.

Mine water and a reserve water storage supply for emergency fire-fighting purposes will be stored in a 50,000 gallon mine water storage tank located near the north end of the Portal pad. This tank and the associated water system will be supplied by Scofield Town. Water supply, use levels, and water rights consideration are addressed in greater detail in R645-301-730, General Description of Hydrologic Protection Plans.

**Signs and Markers**

~~CR~~ CEG3 will post and maintain all required signs and markers in compliance with applicable regulatory provisions of Rule R645-301-521.200. Signs and markers will be constructed of durable materials and will be posted so as to be clearly visible. Mine identification signs listing the name, business address, and telephone number of the permittee and the permit number for the permanent program permit authorizing mining and reclamation operations will be posted at each point of access to the permit area from a public road. Perimeter markers will be posted outlining all areas affected by surface operations or facilities prior to initiation of mining, and soil/substitute stockpiles will be clearly marked for identification and to limit access and potential disturbance. Signs reading "Blasting Area" will be posted along the edge of any blasting area which comes within 100 feet of any public road right-of-way and at the point where any other road(s) provides access to the blasting area. All required signs and markers will be maintained or replaced during the period of active operations, site reclamation, and until final bond release is approved for all areas within the permit boundaries.

**Figure 32 Warehouse & Shop Configuration**

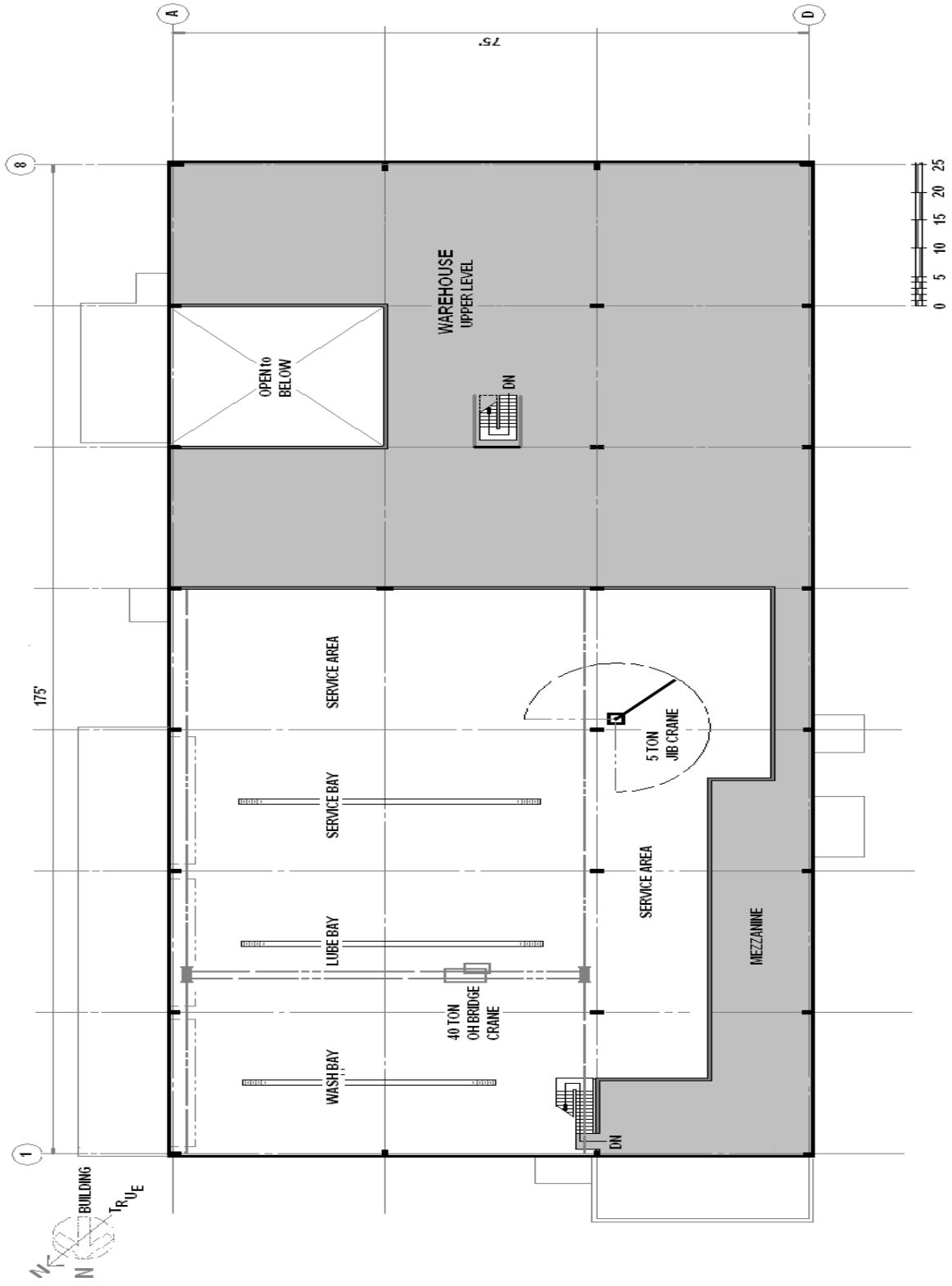


**Figure 33 Warehouse & Shop Configuration**

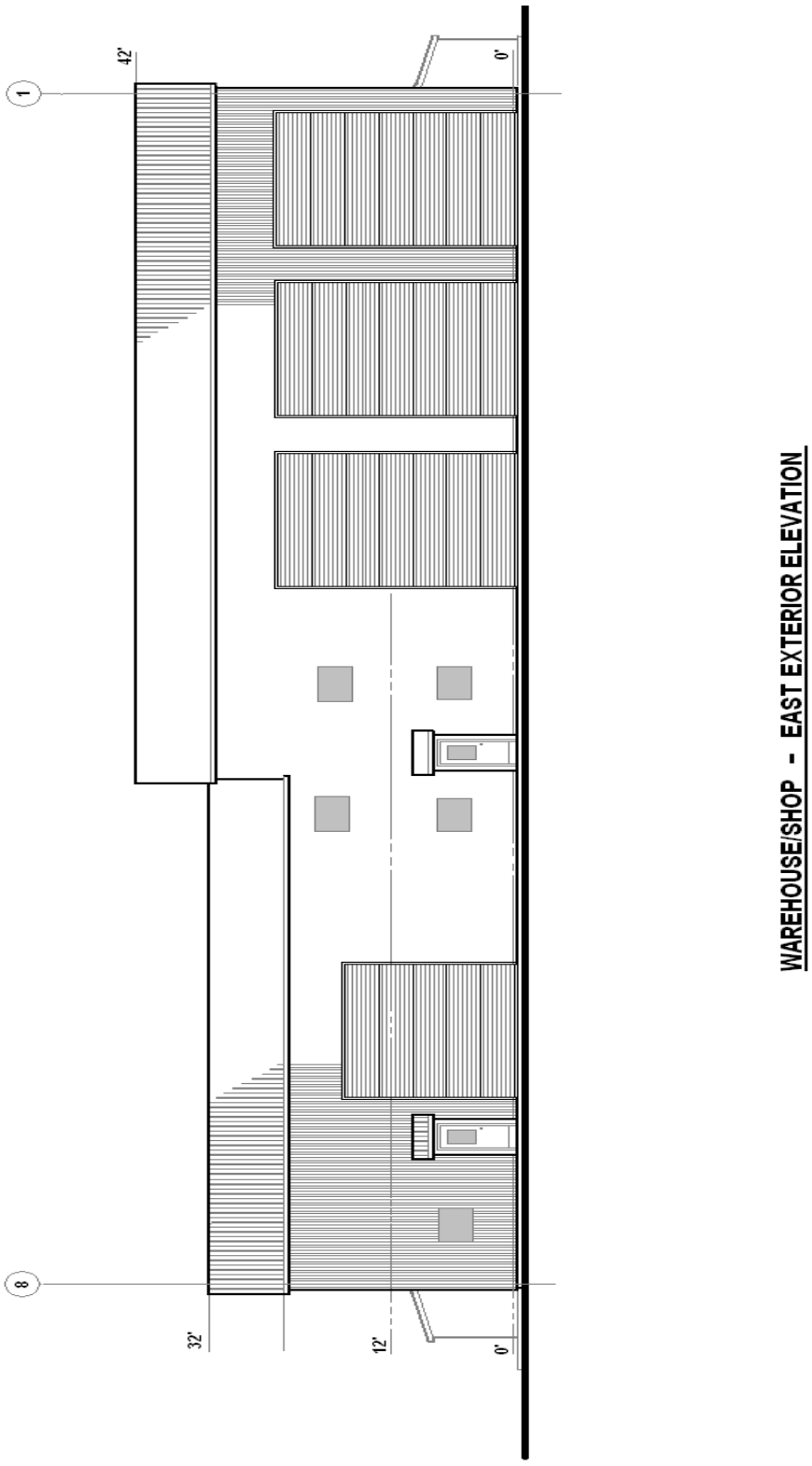
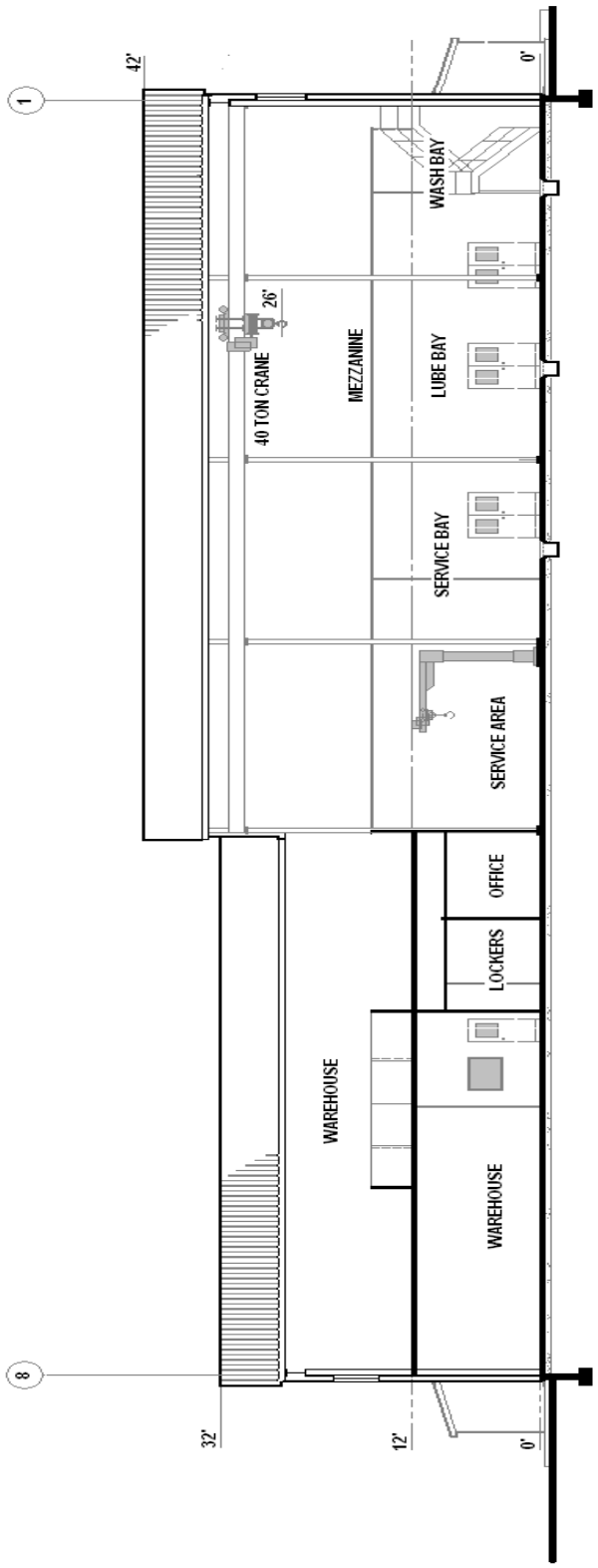


**Figure 34 Warehouse & Shop Configuration**




WAREHOUSE/SHOP - BUILDING SECTION

### 528.200 Overburden

See discussion below under 528.321.

### 528.301 Excess Spoil

See discussion below under 528.321.

### 528.320 Coal Mine Waste

Three classes or categories of material will be brought out of the mine either on beltline or with buggy that could end up being classified as a form of coal mine waste. One; rock with no coal (from overcast construction and fault crossings), two; a mixture of coal and rock (from out of seam dilution, or similar), three; dirty coal (high ash, or high sulfur coal from parts of the deposit that may be inherently dirty). These three categories of material will generally be handled differently, depending on the volume of coal mine waste (material) at a given time and volume of coal mine waste relative to clean coal production.

No coal preparation plant (washing plant) is planned for the Kinney No. 2 Mine, and therefore there will be only incidental "coal processing waste" generated. This is due to a specific interpretation of the Utah Coal Mining Rules (R645-100) where stacking, crushing, screening, and general mechanical separation by handling of coal may intentionally or inadvertently produce coal processing waste. All materials falling into this category (which will generally be from class two or three from the paragraph above which includes coal contaminated with out of seam dilution, and low quality coal) will be first stacked on the off-spec coal pile. Material from this pile will then~~,~~ either be blended into the saleable coal product stream, or if the volume of coal processing waste or low quality coal is too great to blend into the salable coal product onsite, will then be hauled to ~~the 3,900 ton coal processing waste temporary storage pile shown as no. 38 on Map 13 and on Figure 41. When sufficient volume of coal processing waste is accumulated on this temporary pad it will then be sold, as "distressed coal," to the Arch Coal Washing Facility on Ridge Road south of Price, UT Per the Distressed Coal Letter of Intent Exhibit 3 Confidential Information.~~the Wildcat Loadout (owned and operated by Coal Energy Group 2, which has the same ownership as CEG 3) located in Spring Glen, Utah for blending into the saleable coal product there. In either scenario coal processing waste will be sold and removed from the property~~, with it's final fate being either burned at a power plant or deposited in an approved refuse facility after being washed at a coal preparation plant.~~

In the case of "underground development waste" (generally material from class one in the paragraph above) that cannot immediately be deposited in one of the designated permanent underground development waste storage areas within the mine, all or a portion of the off-spec coal pile will be cleaned off and the underground development waste will be stored on the off-spec coal pile until it can be returned to the mine and placed in one of the permanent underground development waste storage areas. Cleaning off the off-spec coal pile prior to placing the underground development waste on it, eliminates the necessity for any type of physical separation, cleaning, and or sorting, thus maintaining the status of this material as underground development waste instead of transforming it into coal processing waste.

~~In the unlikely event that Arch Coal, or other washing facility, will not purchase said coal processing waste, Carbon Resources~~Coal Energy Group 3 ~~will provide UDOGM with the name of the facility and that facilities permit allowing it to receive coal processing waste from Carbon Resources~~Coal Energy Group 3~~.~~

The surface coal haulage system has been designed to facilitate development waste handling in

two ways, shown as part of the routes shown on Figure 41:

One; The stacking tube at the off-spec coal stockpile can be emptied by a direct feed chute in its base allowing rock to bypass the coal stockpile and feed directly to Conveyor SB-3. In the primary crusher building, there a flop-gate and diversion chute will allow mine development waste to bypass the primary crusher and feed directly to the truck loadout where it can be transported to a segregated location on the off-spec coal pile prior to returning the material to the mine.

Two; Underground development waste may simply be dumped onto the off-spec coal pile, via the flop gate atop the stacking tube, if circumstances are favorable. That is, if there is sufficient rock volume to warrant temporarily converting the entire off-spec coal pile to a temporary underground development waste storage pile prior to returning the rock to the mine.

A third method theoretically could involve diesel powered buggies hauling mine development waste directly from the mine and depositing it on the off-speck coal pile until it is returned to the mine or designated as coal development waste and hauled to the temporary coal processing waste pile.

**Underground Development Waste Temporary Storage Area**

Underground development waste consisting of rock with small amounts of coaly materials will be temporarily stored at the off-spec coal pile as shown (no.38) on Map 13, Surface Facilities Map, and Figure 41. This material is not coal processing waste; it will not be sorted, crushed, or processed in any way, but simply stacked in a pile for a limited amount of time, maximum of two years, until it can be returned to the mine for permanent underground storage. The use of the off-spec coal pile for temporary storage of underground development waste will be the exception and require special handling. That is, coaly material will be cleaned off the off-speck coal pile prior to receiving any underground development waste. This underground development waste will be returned to the mine and placed into designated panel areas that will also serve to encapsulate pillars. This will passively stabilize pillars in those areas with some confinement. Underground development waste backfill areas will be ventilated until they are filled and have been monitored for products of combustion for a period of 1 year after backfill operations are complete. If no significant products of combustion have been found the area will be sealed and monitored according to an approved ventilation plan.

Underground Development waste Handling - Several mining and related activities may result in production of significant quantities of underground development waste materials potentially including rock, carbonaceous shale, floor clay, and parting material. Operations which may result in generation of underground development waste will include general mine development, slope/raise development, room development mining operations, and development of overcasts for ventilation or coal haulage. Where underground development waste materials are encountered in mining operations or where the rock materials are integral to the coal seam in development areas or room development mining sections they will be recovered and handled with the coal during mining and coal haulage and will later be removed in the coal handling process. Where
it is operationally feasible to separate these materials they will be removed and handled separately using the same equipment and haulage systems that will be utilized for conventional room development operations.
Disposal of Coal Mine Underground Development Waste in Designated Areas Underground - Two special areas have been designated underground as underground development waste disposal sites for the emplacement of mining generated rock (see Map 15, Mine Plan Layout & Production Schedule Map,). Both areas are within practical operating proximity of the rock slope development area and also close to the Surface portal area where Underground Development

waste may be temporarily stored as "off-spec" product coal. Disposal Area 1 is the area known as "N13E Panel A" and it is located on the North side of the Portal Mains. It is separated from the adjacent Disposal Area "N13E Panel B" with a 140 ft wide Barrier Pillar which adds to the long-term integrity of the backfill area stability. Both of these disposal areas are strategically located, life of mine fill emplacement areas designed for the emplacement of all types of underground development rock containing or not containing coal. Both areas will be ventilated before, during and after backfill emplacement operations and at all times according to MSHA standards and according to MSHA approved ventilation and roof control plans for the mine.

As discussed above, underground development waste consisting of a mixture of rock and coal materials will be temporarily stored as off-spec coal pile as shown on Map 13, Surface Facilities Map. This material may or may not be classified as coal processing waste , however this material may not be directly saleable as regular coal product due to a high content of rock but may be blended into the coal product stream and sold. As described above, should there be too much volume to be blended with the coal product at a given time this material will be transported to the temporary coal processing waste storage area capable of containing approximately 3,900 tons of material. This material will be sold as a low quality coal product to local coal preparation facilities, or will be deposited in other facilities permitted by the UDOGM.

Mine development, ongoing mining operations, and ancillary operations such as development of overcasts for mine ventilation and coal haulage will result in production of underground development waste rock including carbonaceous shale, weathered coal, floor clay, and parting material. Where it is operationally feasible to separate these material from the coal during development and mining, the underground development waste rock will be removed and handled separately from the coal. Where separation is not operationally feasible, underground development waste rock will be handled with the coal and will be removed in the surface facilities, separated from the coal product and temporarily stockpiled until it can be returned to the mine as discussed previously.

Generally, the same mining equipment and haulage systems used for coal production will be used to remove and handle underground development waste rock. Continuous miners, electric shuttle cars, and LHD scoops may be used to load and haul underground development waste to the mine conveyor system. Normally underground development waste haulage will occur on a scheduled rock handling shift when the conveyor belt system will be cleared of coal. Typically, any underground development waste produced during periods other than on a scheduled development rock (underground development waste) handling shift will be temporarily stockpiled in an inactive area underground for later handling and haulage from the mine. Once the underground development waste is placed on a belt at the loading point, it will be transferred to the main haulage belt running from the mine. From the main haulage belt, the underground development waste will transfer to the surface coal haulage system which will carry the rock to as described above to the either the off-spec coal pile where the material may become classified as coal processing waste, or through the primary crushing building directly into a truck that may transport the material to the temporary coal processing waste pile, or directly off property to the Arch Coal Processing Facility.

See discussion below under 528.321.

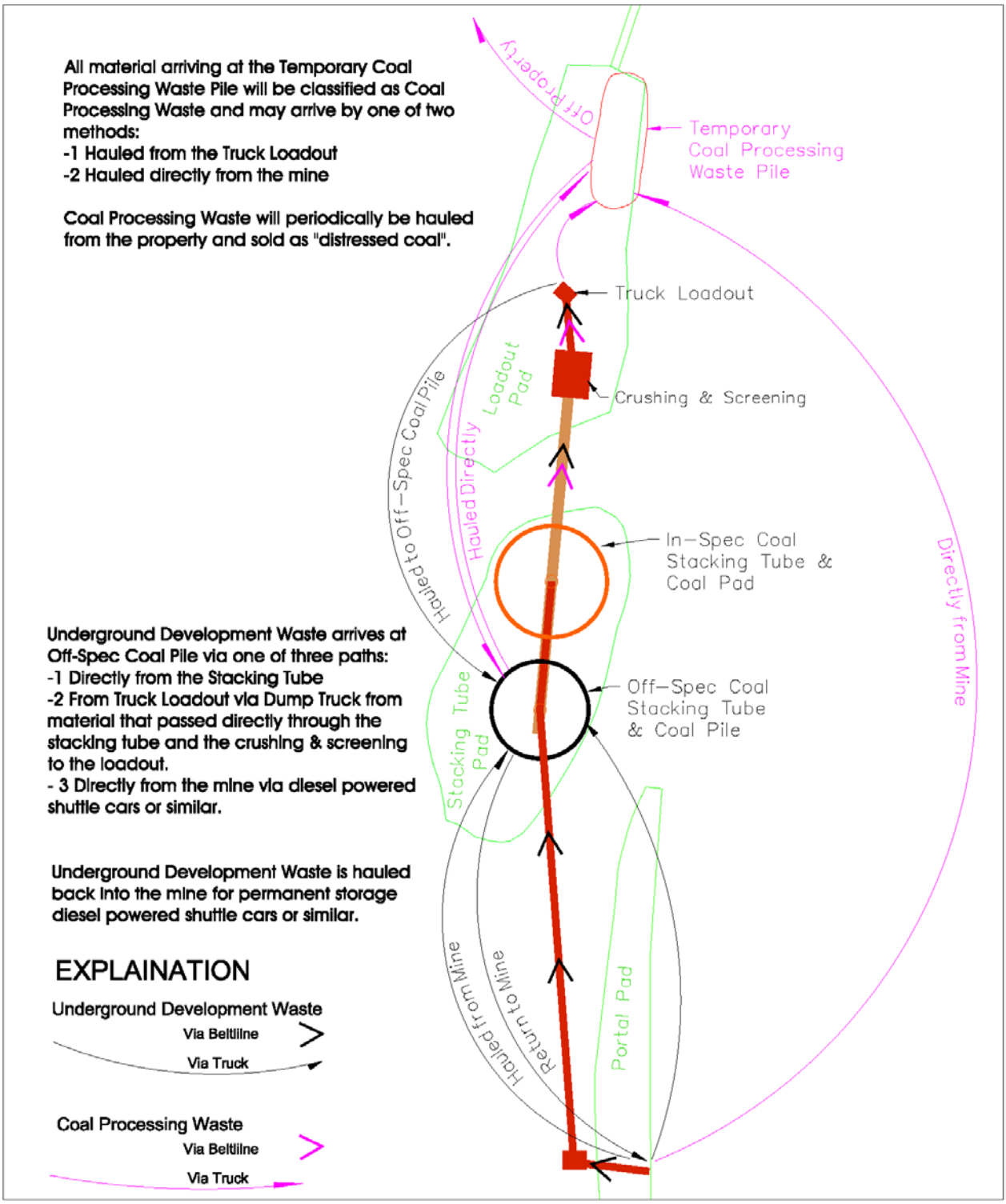



**Figure 41. Coal Waste Handling Schematic**

### 528.321 Return of Coal Processing Waste to Abandoned Underground Mines

Coal processing waste will not be returned to abandoned underground mine areas. Only underground development waste will be returned to abandoned underground mine areas.

### 528.322 Refuse Piles

No refuse pile is planned for the Kinney No. 2 Mine since no coal preparation (washing) plant is planned, however, a 3,900 ton coal processing waste pile, described above, will be utilized for temporary storage of coal processing waste.

### 528.323 Burning and Burned Coal Mine Waste

No burned coal is planned to be encountered, however, if any is encountered, a plan for removal will be prepared and approved by the UDOGM and MSHA prior to removal. A plan for extinguishing mine fires will also be approved by the UDOGM and MSHA prior to conducting any mine fire fighting. Only those persons authorized by ~~CR~~CEG3, who have an understanding of the procedures to be used, and are properly trained will be involved in the extinguishing operations.

### 528.330 Non Coal Mine Waste

Non-coal wastes generated in conjunction with mining and related activities will including but not limited to used oil and lubricants, garbage, paper waste, machinery parts, tires, cable, wood waste, and other miscellaneous debris. All smaller non-coal solid wastes will be collected and stored in dumpsters or similar closed containers. Larger solid waste materials including such items as used equipment, machinery parts, tires, and cable will be temporarily stored in designated sap yards located in areas as shown on Map 13, Surface Facilities Map. Dumpsters will be located primarily near buildings during mine operations, however, during construction they may be located throughout the disturbed area. Used oil will be handled according to Utah State and EPA requirements. Any waste other used oil and lubricants and any used oil not meeting the applicable EPA requirements will be collected and stored in either closed drums or in the waste oil storage tank located in the maintenance shop building. Temporary storage areas for used oil and lubricants will provide full containment to prevent accidental release of petroleum products to the surface drainage system.

~~CR~~ CEG3 does not currently plan or anticipate that any materials classified as "hazardous waste" will be utilized or generated in conjunction with the proposed mining and related operations. In the unlikely event that hazardous materials storage or disposal become necessary, ~~CR~~ CEG3 will comply with all applicable storage, labeling, and documentation requirements, and disposal will occur off-site at a licensed hazardous waste disposal facility.

A contract disposal service will regularly collect and haul the non-coal solid wastes from the dumpsters to the permitted Carbon County municipal landfill, or to the East Carbon Development Corporation (ECDC) facility. Dependent on the market for sap materials, the larger non-coal solid waste and sap will be collected periodically either by a salvage contractor for salvage and recycling or by a contract disposal firm which will haul these material off-site and dispose of it in a suitable disposal site. Any used oil, lubricants, or other potentially combustible materials will be collected and either recycled or disposed of by a licensed disposal contractor in accordance with all applicable Utah and EPA regulations. No non-coal wastes will be disposed of on site during active operations.

### 528.340 Underground Development Waste

See discussion above under 528.320.

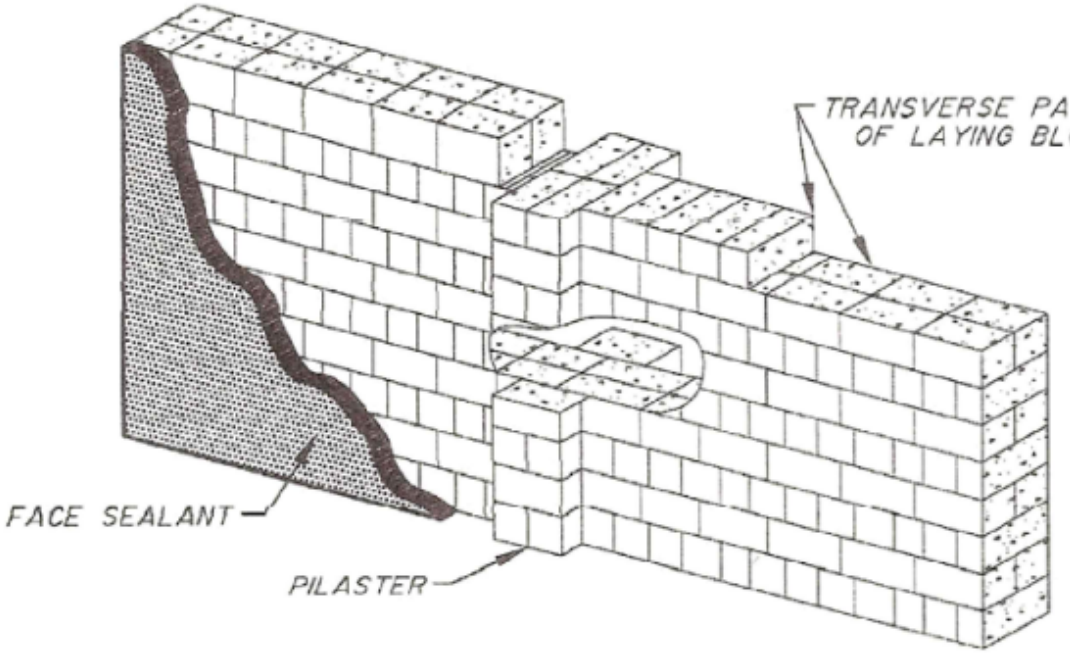
### Development Waste Temporary Storage Area (Underground Development Waste)

See discussion above~~below~~ under 528.321.

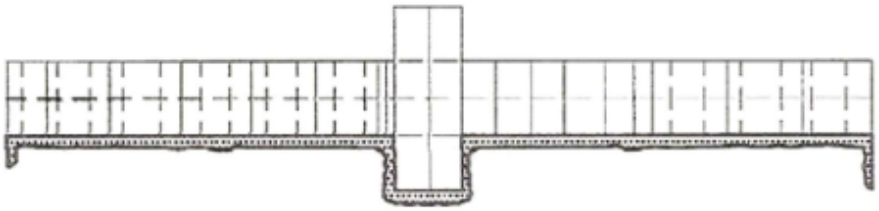
### R645-301-529 Management of Mine Openings

On completion of mining and related activities, all mine openings including portals, shafts, raises, boreholes, and wells will be stabilized if required and sealed unless they are to be utilized for ongoing monitoring or in conjunction with the post mining land use. Methods and requirements for sealing wells and boreholes are presented and described in R645-301-630, Geologic Protection Plans.

Current plans call for five underground mine openings (the five main portals). These openings will be permanently sealed on completion of mining to prevent access to the underground workings and, in the case of the mine openings, to provide an effective hydraulic seal to prevent surface drainage and infiltration through the backfill from entering the underground mine workings. Portals will be sealed and stabilized by constructing a concrete block wall 25 feet in by the portal openings. The two layer thick solid block wall, which will be constructed as illustrated by Figure 37, Typical Portal Seal, will be keyed into the mine




SECTIONAL ELEVATION VIEW



TOP VIEW

NOTES:
1 - 16" X 8" X 8" CONCRETE BLOCKS TO BE USED IN CONSTRUCTION.
2 - PILASTER TO BE USED IF NECESSARY FOR SOLID CONSTRUCTION.

Kinney #2 Mine
Figure 37
TYPICAL PORTAL SEAL

DRAWN BY: KN DATE: 10/23/2018
CHECKED BY: AC DATE: 10/23/2018

CEG
6602 Ilex Circle
Naples, FL 34109

FIGURE 37

entry at least 6 inches on all sides and, for the mine portals, an MSHA approved sealant will be applied to the outer surface of the barrier to provide a positive water seal.

In order to assure the long-term integrity of the mine portal seals, ~~CR~~CEG3, as part of the MSHA roof control plan, will maintain adequate barrier pillars and will utilize appropriate roof support including timber or concrete cribs, posts, roof bolts, trusses, or other supports to minimize subsidence and collapse or caving of the mine workings in the vicinity of the portal seals. Once the portals seals are in place, the remaining void space between the seals and the portal opening will be backfilled for a minimum of 25 feet from the portal seal to the portal face up as shown on Map 17, using a LHD or small backhoe to assure proper backfill placement.

Any old mine portals encountered during construction of the Kinney No. 2 Mine facilities will be sealed using the same plan as discussed above. If any of the portals interfere with planned facilities for the Kinney No. 2 Mine, they will be mitigated using the best technology available. If they interfere to a degree that planned facilities must be modified or relocated, ~~CR~~ CEG3 will contact the Division and MSHA and develop a mitigation plan, or modify the planned facilities to prevent any hazards, or problems based on approved plans with both agencies as required.

## R645-301-530 Operation Design Criteria and Plans for Surface Runoff Controls

### 531 General

In developing the engineering designs and operating plans for the mining and related operations, ~~CR~~ CEG3 has reviewed and evaluated all existing available information on site geology, coal occurrence and characteristics, and environmental resource values. This information along with sound engineering principals has been combined to develop designs and plans which will provide for safe, efficient, and effective mining operations while minimizing potential related environmental impacts and effecting full compliance with all applicable regulatory requirements. The following sections describe the specific design methods, operating measures, and associated control and mitigation practices which will be utilized to accomplish these objectives.

### 532 Sediment Control

Due to the importance of effective water quality protection, required drainage and sediment control structures will be constructed prior to any other significant site disturbance. Drainage construction will be a phased process with construction of the sedimentation pond, and principal undisturbed drainage diversion ditches and disturbed area collection ditches occurring as the first activities in the construction phase. Temporary sediment controls to be utilized during initial construction will include the use of silt fence, straw bales, berms, temporary ditches and sediment traps. Temporary controls will be utilized to effectively control runoff and sedimentation until designated structures can be completed. As progressive construction activities are extended to other areas, the associated drainage structures will be developed and connected to the existing drainage system prior to other area disturbance.

Detailed descriptions of drainage design and construction procedures are presented in R645-301-526, Mine Structures and Facilities, and the proposed drainage control system is shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas. These structures have been designed and will be constructed, operated, and maintained to provide effective drainage and sediment control during both construction/development activities and subsequent mining and related operations. Construction of all drainage and sediment control structures will be monitored by qualified individuals under the supervision of a Registered Professional Engineer and specific designed structures including the sedimentation pond will be inspected according to design plans

certified as required by applicable regulatory provisions.

**Drainage and Sediment Control Structures**

The drainage and sediment control structures which will be constructed and utilized in conjunction with the proposed mining and related activities will effectively route natural drainage through the mine surface disturbance area, intercept and route undisturbed drainage from upslope areas around surface disturbance areas, and collect and route disturbed area drainage to sedimentation structures to allow settlement of suspended solids prior to discharge to the natural drainages. Drainage and sediment control structures required under the proposed plans will include Sedimentation Pond 1, a number of undisturbed drainage diversion ditches, disturbed area collection ditches, drainage culverts, containment berms, and various alternative drainage and sediment control measures including small sediment basins, silt fences, straw bales, and other localized control measures as appropriate. The proposed drainage and sediment control structures are shown on Map 24, Drainage and Sediment Control Plan – Disturbed Areas Map, and design information and calculations are discussed in R645-301-730, Hydrologic Resource Protection and PHC, and the background information and calculations are included in Exhibit 16, Runoff Control Design Details.

Design - The design and location of all required drainage and sediment control structures is based on maximum anticipated storm runoff flows, site topographic conditions, and standard hydrologic design practices and addresses full compliance with all applicable regulatory provisions. Recognizing that the area is subject to relatively high-intensity, short-duration storm events and that due to the rugged terrain and limited vegetation runoff is frequently rapid and concentrated, essentially all structures have been over-designed to provide an additional margin of safety.

The applicable UDOGM regulatory provisions specify that all impoundments must be designed to contain or treat the runoff resulting from the 10-year, 24-hour storm event and that spillways for MSHA ponds must be capable of discharging runoff flows from the 100-year, 6-hour event and non-MSHA ponds must have designed principal and emergency spillways with a combined capability of discharging the 25-year, 6-hour storm event. However these spillways were designed to safely discharge the 100-year, 6-hour event to provide additional safety due to the close proximity of the sedimentation pond to the highway. The applicable regulations also specify that temporary and permanent diversions of miscellaneous flows be designed for the 2-year and 10-year, 6-hour events, respectively and that temporary and permanent diversions of perennial and intermittent streams be designed for the 10-year and 100-year, 6-hour storm events, respectively.

Hansen Allen and Luce, Engineers (HAL) completed a runoff evaluation for representative watershed areas using the Army Corps of Engineers Hydrologic Modeling System (HEC-HMS) Version 3.1.0 computer modeling software to determine conditions for design of the proposed Kinney No. 2 Mine drainage and sediment control structures. Sedimentation Pond 1 has been designed to contain or treat the runoff from the 10-year, 24-hour storm event and total design capacity includes storage for at least five years accumulation of sediment. The pond spillway structures have been designed to safely pass the runoff from the 100-year, 6-hour storm event. Temporary diversion ditches in disturbed areas are designed to safely pass the peak discharge from the 10-year, 6-hour storm event. All diversions have been designed and will be constructed to remain stable under design flow conditions. All collection ditches have been conservatively sized to carry the peak runoff flows from the 25-year, 24-hour storm event in order to provide a significant margin of safety and accommodate the brief, high-intensity storms common to this area. In order to assure effective collection and routing of disturbed drainage flows and minimize both erosion and sedimentation, required culverts have been sized to safely pass the peak flow from the contributing inlet ditches with a significant factor of safety and culvert inlets, outlets,

diversion channels, and those areas where one or more channels intersect have been designed and will be constructed using properly sized and placed riprap or other erosion control materials, as required. In all cases, ditch designs also included an evaluation of the need for channel protection to prevent or minimize erosion. The general criteria for channel protection was any flows greater than or equal to 4 feet per second would require channel protection in the form of riprap or grouted riprap to maintain adequate safety factors. Appropriate riprap sizing was determined using riprap design calculation spreadsheet prepared by HAL. Designs for all required ponds and ditches include adequate freeboard to provide a reasonable margin of safety. Designs for the permanent Kinney No. 2 Mine drainage structures and facilities have been prepared by or under the direction of and certified by a qualified Registered Professional Engineer in accordance with Rules R645-301-742.324. Culvert sizing is consistent with the ditch design basis (i.e., 10-year, 6-hour and 100-year, 6-hour storm flows, respectively for temporary and permanent diversions), the minimum culvert size to be used is 18 inch diameter due to potential clogging and maintenance considerations, however all have been over-designed to provide an additional measure of safety, and culvert installations will include a pre-fabricated inlet structure and riprap protection at both the headwall and discharge points.

In order to assure effective conveyance of undisturbed drainage flows and minimize both erosion and sedimentation, required culverts have been sized to safely pass the peak flow from the contributing inlet ditches with a significant factor of safety and culvert inlets, outlets, diversion channels, and those areas where one or more channels intersect have been designed and will be constructed using properly sized and placed riprap or other erosion control materials, as required. Specific information on culvert design and erosion protection measures is also provided in Exhibit 16, Runoff Control Design Details.

Sedimentation Pond 1 has been designed and will be constructed to meet the following regulatory design criteria:

- Located as close as possible to the disturbed area and out of perennial streams unless approved by the Division
- Provide adequate sediment storage
- Provide adequate detention time to meet applicable effluent standards
- Provide a non-clogging dewatering device
- Minimize short circuiting
- Facilitate periodic sediment removal
- Foundation structures will be stable under all conditions of construction and operation

In addition, Sedimentation Pond 1 design has been prepared by or under the direction of and certified by a qualified Registered Professional Engineer in accordance with Rules R645-301-512.200 and 240.

In all cases, the design basis for the proposed drainage and sediment control structures meets or exceeds the applicable regulatory design requirements. Designs for drainage and sediment control structures, along with a discussion of design assumptions, methodology, and design calculations are presented in R645-301-730, Hydrologic Resource Protection and PHC, and the background information and calculations are included in Exhibit 16, Runoff Control Design Details.

Construction - As previously noted in R645-301-520, General Description of Mine Construction and Development Activities, the required drainage and sediment control structures will be constructed prior to any other significant site disturbance, and as soon as possible in the overall site construction plan. As a first step to construction, a silt fence will be placed at the extreme western edge of all site construction running from the southwest corner of the site adjacent to the highway and adjacent to the old railroad bed from the pre-existing access road into the site running northward to the northwest corner of the site. Construction of required undisturbed runoff

diversion ditches and disturbed area collection ditches will involve removal and placement in stockpile of soil or clean soils materials, excavation of the design ditch configuration, placement of riprap and bedding material or geotextile slope stabilization where required, and seeding of ditch side slopes with the temporary revegetation seed mix. The constructed ditch configuration is illustrated by the typical design configuration figures included on Map 27, Runoff Control Details. Culvert installation will involve excavation and grading of the culvert foundation area, placement and compaction of gravel or similar bedding materials, placement and adjustment of the culvert and inlet structure to the design grade and alignment, placement and compaction of suitable fill materials around and over the culvert, placement of rock protection in the culvert headwall and discharge areas, and installation of debris fences up gradient of culverts where required. Culvert installation practices are illustrated by the typical design configuration figures included in Exhibit 16, Runoff Control Details.

Construction of sedimentation pond impoundments will involve recovery and placement in stockpile of soil or substitute materials, preparation of embankment foundation areas, excavation of impoundment basin areas and construction of embankment structures, installation of principal and emergency discharge structures; grading of embankment outslopes, and seeding of outslopes with the temporary revegetation seed mix to minimize erosion. Impoundments will be inspected at regular intervals during construction and on completion of construction by a professional engineer or specialist experienced in impoundment construction. An impoundment inspection report certified by a Registered Professional Engineer will be provided to UDOGM promptly following each inspection. The report will verify construction in accordance with design plans and will note and discuss any apparent instability, structural weakness, or other hazardous conditions. A copy of the report will be retained on file at the mine site for inspection by authorized agency representatives.

Required foundation preparation will include removal of any vegetative material, coal, potentially acid-forming coal waste, frozen material, or other deleterious materials from embankment foundation areas and excavation of any keyways specified in the design. Embankment construction will involve controlled placement and compaction in horizontally continuous lifts no greater than 12 inches in thickness of suitable embankment fill material. Fill material will not contain any significant quantities of coal, vegetative material, frozen material, or other deleterious materials. Fill will be placed and spread using either tractor scrapers or rear dump trucks and tracked dozers and design compaction of 95 percent of maximum dry density will be achieved by compacting each successive lift with a sheepsfoot or vibratory roller. Compaction will be periodically checked during construction using standard compaction testing procedures and if testing reveals inadequate compaction, the lift or lifts in question will be ripped and reworked until adequate compaction is achieved. During compaction, water trucks may be utilized as necessary to achieve optimal moisture content for effective compaction. The actual construction height for all pond embankments will be 5 percent greater than the design height to provide for long-term consolidation and settling of the embankment.

Installation of principal and emergency discharge structures will occur at appropriate stages in the embankment construction process. Installation of vertical riser structures will include compaction of an adequate base area for the foot of the riser and installation, alignment, and placement and compaction of fill material around the lower portion of the riser structure. Installation of horizontal discharge structures will involve basically the same construction procedures previously described for culvert installations, including preparation of a base area, placement and compaction of bedding material, placement and alignment of the discharge pipe, and placement and compaction of fill material around the pipe.

Operation and Maintenance - Operation and maintenance of drainage and sedimentation control structures will involve periodic inspection of all ditches and culverts, quarterly inspection and annual certification of impoundments and related structures, ongoing discharge monitoring

for all impoundments, and any necessary maintenance or repair of problems noted during the inspections.

Ditches have been designed and will be constructed to provide an adequate cross-sectional flow area to pass runoff flows from the design storm event. During active operations, normal siltation and minor erosion may result in changes in ditch configuration. As discussed previously, however, all ditches have been designed for the 25-year, 24-hour storm event rather than the 2-year or 10-year, 6-hour event as required, therefore, minor siltation will not affect the capacity of the ditches to perform as designed. ~~CR's~~ CEG3's ditch inspection and maintenance procedures will focus on identification and repair of any significant ditch erosion, removal of any trash or debris from ditches, and maintenance of an adequate cross-sectional flow area, regardless of actual ditch configuration, to pass the design flows. In practice this will mean that ~~CR~~ CEG3 will not modify, recut, or clean out a ditch simply because the physical ditch dimensions are not the same as the original design or originally constructed configuration so long as the actual ditch configuration is adequate to pass the design flow. Culvert maintenance will involve removal of trash or debris from culvert inlets and any up gradient debris fences, repair of any significant erosion at culvert inlets, outlets, or of the cover material, and repair or replacement of any damaged culverts.

Sedimentation pond maintenance and operation procedures will include ongoing sampling and discharge monitoring under applicable provisions of a UDWQ permit; quarterly inspections of pond embankments, impoundment areas, discharge structures, and inlet/outlet structures and areas and reporting; notification of any hazardous conditions and development of emergency remedial control measures; maintenance or repair of any problems noted during the inspections; and periodic removal of accumulated sediment. The sedimentation pond has been designed and will be operated and maintained to effectively retain storm runoff to allow settlement of suspended solids prior to discharge. Control of potential water quality impacts from pond discharge is monitored through compliance with applicable effluent standards under a UDWQ discharge permit. Effluent sampling and reporting will occur as outlined in R645-301-730, Hydrologic Resource Protection and PHC, and under the provisions of the UPDES permit, a copy of which is included in Exhibit 4, Other Permits.
The sedimentation pond will be inspected quarterly by a qualified person for any indication of structural weakness or other hazardous condition, instability, and any erosion or other problems; the depth and elevation of any impounded water will be measured; based on the depth measurements storage capacity will be estimated; and any required structural monitoring will be performed. Copies of the quarterly inspection reports discussing each of the noted inspection categories and verifying that the pond has been constructed and maintained as designed will be prepared, certified by a qualified Registered Professional Engineer, and submitted promptly to UDOGM. Copies of the inspection reports will also be maintained on file at the mine site. Any minor problems noted during the inspection will be addressed in a timely manner. This may involve repair of any minor localized erosion, clean-out or minor repair of discharge structures, reseeding of embankment slopes, mowing weeds which may interfere with pond inspection, or other minor maintenance and repair as necessary. If the inspection identifies any structural weakness or other conditions which could pose a hazard to the public, the person who conducted the inspection will notify UDOGM promptly of the hazardous condition and any emergency procedures which may be appropriate to protect the public and address the hazardous condition. In consultation with and with approval from UDOGM, appropriate remedial measures will be implemented as soon as is reasonably practicable to address any hazardous condition.

The pond has been designed to provide adequate capacity for at least three years accumulation of sediments, however, the pond will periodically need to be cleaned out to removed the accumulated sediment in order to maintain adequate stormwater storage capacity consistent with design requirements. A fixed staff gauge in the pond will be used to monitor sediment accumulation. Generally, it is anticipated that the sedimentation pond will be essentially dry during late summer or early fall each year and the gauges will be checked during the

corresponding pond inspections. In the unlikely event that the staff gauges cannot be checked during a dry period, an alternative means of monitoring sediment accumulation levels will be utilized.

Before sediment accumulations reach the point where they would encroach on stormwater storage capacity, ~~CR~~ CEG3 will schedule and implement measures to remove the accumulated sediments. The pond has been designed to facilitate access for pond clean-out with a concrete ramp for equipment access to the pond bottom. The pond will have a reinforced concrete bottom to facilitate cleaning by equipment without damaging the pond integrity. Generally, clean-out would be scheduled during a relatively dry period when any pond water levels would be low. Any water remaining in the pond would be pumped into water trucks for use in mine site dust control. The sediments would be allowed to dry so that they could be readily removed and they would then be removed and transported to a temporary storage area located on one of the mine pad areas until dry, then would be transported into the mine and placed in the areas designated for underground development waste as discussed in R645-301-520, General Description of Mine Plans, Mining Methods, and Related Design Requirements.

Description of Individual Structures - The following sections provide more detailed information for specific drainage and sediment control structures:

Sedimentation Pond 1 - Sedimentation Pond 1, which will be located at the northern end of the mine site, as shown on both Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas, and Map 13, Mine Surface Facilities Map, will be the only sedimentation pond for the proposed mine surface facilities area. The vast majority of disturbed area runoff and minor amounts of undisturbed area runoff from those facilities and areas up gradient from the pond location will be routed to Pond 1. The total contributing drainage area for Pond 1 is approximately 28 acres. The pond has been designed to provide adequate total retention capacity at an elevation of 7686.90 feet of 3.15 acre-feet which includes a 5.3 year accumulation of sediment (1.12 acre-feet) based on sediment discharge modeling for the contributing drainage areas and the 10-year, 24-hour storm runoff (2.06 acre-feet) from the contributing drainage areas. The pond is totally incised and will have only a minimal fill on the west side to even out the surface and provide room for vehicular access around the pond.

Pond 1 is designed with vertical risers (primary spillway and emergency spillway) connected to a horizontal discharge culvert running through the pond embankment and discharging to a culvert crossing beneath Highway 96 and thus to the area west of the highway. One orifice in the primary spillway vertical riser at an elevation of 7683.80 feet, will be used to dewater the pond and discharge stormwater inflows. The top of the riser will be at an elevation of 7686.90 feet, at the invert of the emergency spillway. The orifice outlet will be fitted with gooseneck pipe extension to act as oil skimmer to prevent discharge of any minor amounts of oil or other petroleum products which may enter the pond and the top of the riser will be fitted with a trash rack. The Pond 1 emergency spillway will be a 24 inch diameter pipe, with a crest elevation of 7686.90 feet. The invert elevation of the emergency spillway and pond embankment are designed to provide a minimum freeboard of 2.0 feet. In order to provide access for clean-out and haulage of accumulated pond sediments a primary road (P6) will be constructed from the Loadout Pad to the pond.

Map 25, Sedimentation Pond 1 Sections & Details shows the proposed Pond 1 layout and provides specific pond design information including the primary discharge, sediment storage volume, 10-yr 24-hr runoff volume, 100-tr 6-hr runoff volume, primary and emergency spillways, and pond embankment, and design details for the discharge structures. Figure 35, Pond 1 Stage-Volume Curve shows the stage storage curve; storage capacity information; design elevations for the pond bottom, sediment storage elevation. A detailed description of pond design assumptions and methodology, actual pond design calculations, and additional design information are

provided in R645-301-730 Hydrologic Resource Protection and PHC, and the background information and calculations are included in Exhibit 16, Runoff Control Design Details. Pond construction, operation, and maintenance practices will be consistent with the previous descriptions presented in this section. Sedimentation Pond 1 will be a new pond and pond construction will involve both excavation of a portion of the pond basin and construction of a very small compacted fill embankment along the west side to provide vehicular access around the pond.

Alternative Drainage and Sediment Control Measures - Alternative drainage and sediment control measures will be utilized for initial construction activities as discussed in R645-301-520, General Description of Mine Construction and Development Activities, and in areas where the isolated nature of the area or specific site conditions would result in excessive disturbance for full scale drainage and sediment control or where full-scale controls are infeasible. Alternative drainage and sediment controls will be utilized in the following specific areas:

- Initial Construction Areas
- Topsoil Stockpile
- Main Access Road (Primary Road P1), a short section at the entrance from Highway 96

Detailed descriptions of these areas, discussion of the alternative sediment control measures to be implemented, and requests for individual small area exemptions, as appropriate, are included below. It should be noted that alternative sediment controls for road fill and embankment outslope areas will consist of silt fencing and will only be required as a interim control measure until temporary vegetative cover is established.

Initial Construction Areas – Initial construction will be done before runoff controls are possible, therefore alternative controls will be used to control sedimentation off of the site. Controls to be used may include one or more of the controls discussed in R645-301-730, including, silt fencing, straw bales, berms, sediment traps, vegetative filters, mulch, and other effective appropriate drainage controls. Before construction begins, a silt fence will be placed at the extreme western edge of the site running parallel to the old railroad grade and including the area from the existing access road to the site and then running south to the southwest corner of the mine permit area adjacent to Highway 96.

Topsoil Alternative Materials Stockpile - The topsoil/alternative materials stockpile is located adjacent to Highway 96 at the south end of the mine site, where the runoff from the site cannot be routed to the sedimentation pond. Since the stockpile will be vegetated with interim vegetation and should stabilize within a two to three year period, there should be little sediment loss. Runoff from the stockpile will be controlled by a berm and ditch at it's western edge as can be seen on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas. This ditch and berm will catch runoff and sediment from the face of the stockpile. A sediment trap, with silt fence, or straw bale outlet from the lowest point of the berm near the highway culvert will filter any runoff from the pile prior to flowing into the end of the highway culvert.

Main Access Road - Primary Road P1 – A short section of the access road approximately 115 feet long from it's intersection with Highway 96 eastward to a cattle guard cannot be routed to the Sedimentation Pond 1. Runoff from this small road section will be controlled by ditches and sediment traps on each side of the road as shown on Map 24. Drainage and Sediment Control Plan – Disturbed Drainage Areas. A silt fence, or straw bale outlet from the sediment traps will catch any overflow from the traps prior to discharge into the highway side ditches.

### 533 Impoundments

As discussed above Sediment Pond 1 will contain all runoff from the mine site. It has been designed to meet a minimum 1.3 static safety factor and all other provisions of this regulation. Since the pond is totally incised, with no dam, or embankment, it does not meet either the NRCS TR-60, or the MSHA 30 CFR criteria of being a major dam or impoundment. The small water storage capacity of the pond also disqualifies it from meeting both criteria.

### 533.110 Static Safety Factor

RB&G Engineering, Inc conducted a safety factor analysis of the sediment pond. The following is included in Addendum No. 1 to the Geotechnical Investigation dated November 26, 2007:

"Stability analyses were performed for the proposed Detention Pond for both Steady State and Sudden Drawdown conditions. The below ground pond was modeled with cut slopes of 3 horizontal to 1 vertical, extending 15 feet below the existing ground surface. It was assumed that the foundation soils will consist of native lean sandy clay. If fill is encountered in the excavation, it has been assumed that the cut will be over-excavated a distance of at least 10 feet into the side slope, and that this zone will be replaced with engineered fill as recommended in Section V.I. – Detention Pond. For the sudden drawdown condition, the phreatic surface was modeled to be within one foot of the slope surface 10 feet down-slope of the crest, exiting at the toe of the slope after full drawdown."

"A factor of safety of 3.37 was obtained for the Steady State condition. For the Sudden Drawdown condition, the factor of safety reduces to 2.3."

Refer to Exhibit 14, Geotechnical Investigations for a complete copy of the Geotechnical Investigation and Addendum No. 1 dated September 28, 2010.

### 534 Roads

In conjunction with the proposed mining and related operations ~~CR~~ CEG3 will construct, operate and maintain a number of new roads and will operate and maintain several existing roads. Both new and existing roads will be utilized to access existing and proposed facilities and for transportation of personnel, equipment, and supplies. All roads are classified as primary roads. The primary road classification includes any road used for transporting coal or spoil, roads which are used frequently for periods exceeding 6 months, and roads which will be retained to support the post mining land use. All roads will be utilized on a frequent, long-term basis to support the proposed mining and related operations. Proposed roads which will be used in conjunction with the proposed mining and related operations include the following:

**Proposed Roads in Kinney No. 2 Mine Facilities Area**

P-1 Primary mine access road for the proposed surface facilities area
P-2 Primary mine access road to Mine Office Pad
P-3 Primary mine access road to the Portal Pad
P-4 Primary mine access road to the Storage Area Pad
P-5 Primary mine access road to the Loadout Pad
P-6 Primary mine access road to Sedimentation Pond No. 1
P-7 Primary mine access road to the North Access Road
P8 Primary access road through site for post mining land use only, will replace P-7
P9 Primary access road east to private property on mountain and for post mining land use

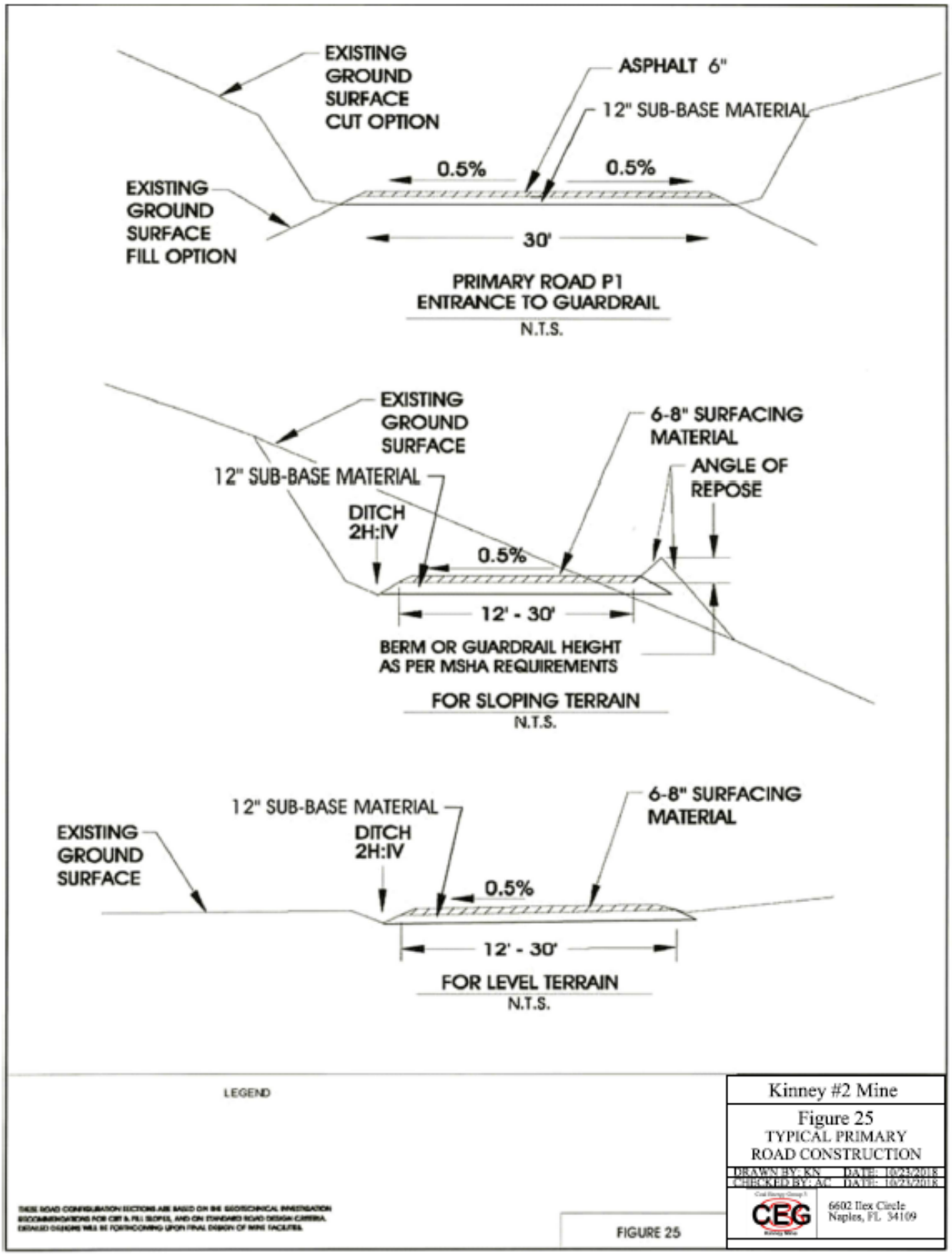
All proposed roads are shown on, Map 13, Surface Facilities Map and Map 29A for post mining land use roads P8 and P9. Road profiles can be seen on Maps 20 through 22, Mine Surface Facilities Road Profiles.

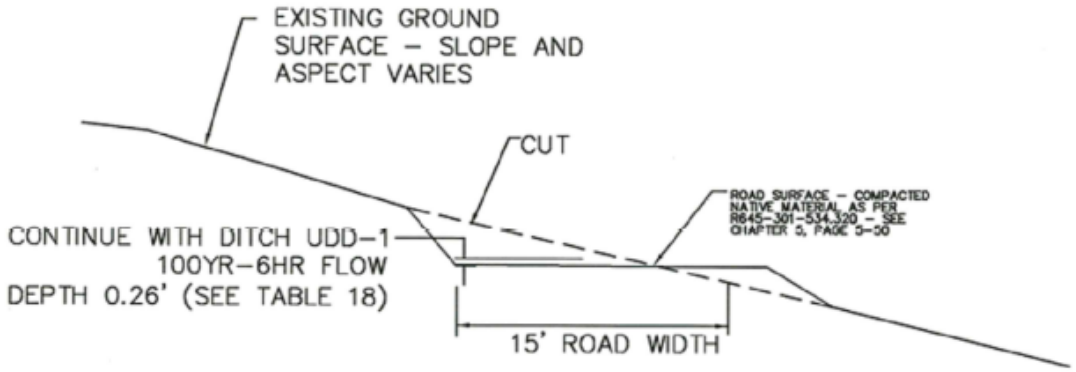
Design and Construction - All roads have been or will be located and constructed to the extent operationally feasible in the most stable areas available and outside of the channel of intermittent or perennial streams. Road design and construction plans will prevent damage to public or private property; minimize the potential for downstream flooding or sedimentation; reflect consideration of the size of vehicles which will be using the road, traffic volume, and normal speeds; and to the extent possible, using the best technology currently available, minimize adverse impacts on fish, wildlife and related environmental values.

All roads have been designed to provide for effective drainage, long-term stability, and safe vehicle operations under varying weather conditions. Design and construction of all primary roads will be certified by a qualified Registered Professional Engineer as meeting these criteria. All roads will meet MSHA safety requirements except roads P8 and P9 as discussed previously including either a berm or guard rail on the outside edges where the slope is downward. Roads P8 and P9 will not be used by mining equipment therefore they are not required to meet MSHA standards.

Design and construction practices for specific roads will be dependent primarily on site conditions and the nature and frequency of anticipated use. The primary mine access road (P-1) will provide access to the mine surface facilities and will be utilized for transportation of personnel, equipment, coal, and supplies. Because it will handle a relatively heavy traffic volume and must provide safe operating conditions year-round, Road P-1 will be a paved asphalt road with all-weather travel surface from Highway 96 to the Shop-warehouse building. Primary Road P2 will also be paved to the Mine Office building; in addition, the Mine Office Pad will be paved. The other primary roads except roads P8 and P9 will also be utilized on a year-round basis but the associated traffic levels will be significantly lower so these roads have been designed and will be constructed with an adequate compacted road base and gravel or similar durable granular surfacing. Roads P8 and P9 are required for private property access, with no mining equipment use. Road P9 will be used occasionally for water monitoring and subsidence monitoring during the summer and fall by light vehicles and will have surfacing equal to the existing access road being replaced (R645-301-534.320). Road P8 is a post mining land use road to provide access to private property north and east of the mine site, it too will have surfacing equal to the pre-mining access road being replaced (R645-301-534.320).

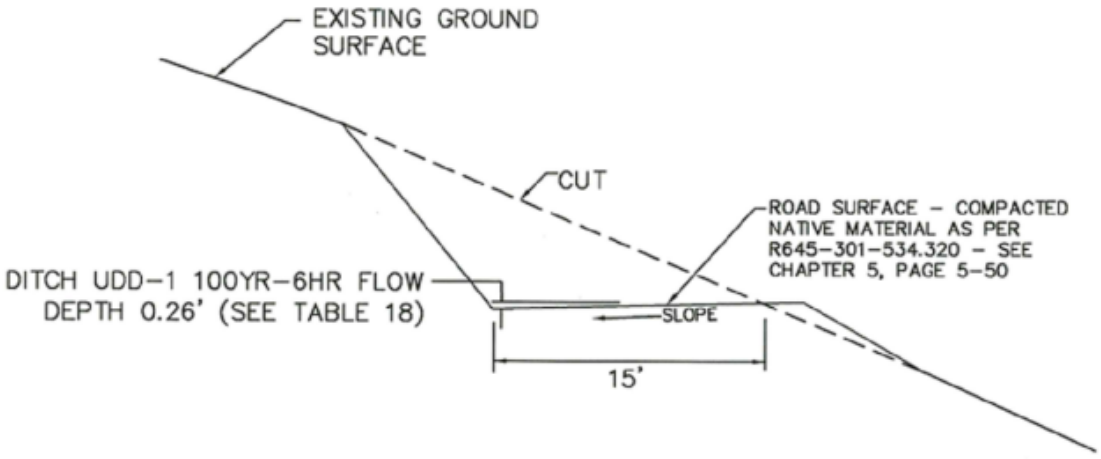
Road construction will involve cut and fill earthwork operations using tractor scrapers, trackhoes, tracked dozers, and motor graders. No potential acid or toxic-forming materials will be utilized in road construction or as road surfacing materials. Cut and fill slopes will be established at maximum grades up to 0.8H:1V, with the steepest grades in rock dependent on the characteristics of the rock in conjunction with the geotechnical recommendations found in Exhibit 14, Geotechnical Investigations. Typical road construction practices, road configuration, and dimensions are illustrated by Figure 25, Typical Primary Road Configuration, and Figure 25A, Primary roads P8 & P9 Configuration. Road gradients will vary from flat to a maximum of approximately 14.5% percent for the main roads and any required road embankments will be constructed and compacted in a controlled manner to provide a minimum static factor of safety of 1.3. Only one road (P6), which accesses Sediment Pond 1 has a gradient above 14.5%, at 18.8%. This road will be used on a limited basis to access and clean out the sediment pond.


EXISTING GROUND SURFACE CUT OPTION
ASPHALT 6"
12" SUB-BASE MATERIAL
0.5%
0.5%
EXISTING GROUND SURFACE FILL OPTION
30'
PRIMARY ROAD P1
ENTRANCE TO GUARDRAIL
N.T.S.
EXISTING GROUND SURFACE
6-8" SURFACING MATERIAL
12" SUB-BASE MATERIAL
ANGLE OF REPOSE
DITCH 2H:IV
0.5%
12' - 30'
BERM OR GUARDRAIL HEIGHT AS PER MSHA REQUIREMENTS
FOR SLOPING TERRAIN
N.T.S.
12" SUB-BASE MATERIAL
6-8" SURFACING MATERIAL
EXISTING GROUND SURFACE
DITCH 2H:IV
0.5%
12' - 30'
FOR LEVEL TERRAIN
N.T.S.
LEGEND
THIS ROAD CONFIGURATION SECTIONS ARE BASED ON THE GEOTECHNICAL INVESTIGATION
RECOMMENDATIONS FOR CUT & FILL SLOPES, AND ON STANDARD ROAD DESIGN CRITERIA.
DETAILED DESIGNS WILL BE FORTHCOMING UPON FINAL DESIGN OF MINE FACILITIES.
FIGURE 25
Kinney #2 Mine
Figure 25
TYPICAL PRIMARY ROAD CONSTRUCTION
DRAWN BY: KN DATE: 10/23/2018
CHECKED BY: AC DATE: 10/23/2018
CEG
6602 Ilex Circle
Naples, FL 34109




NOTE: WATER BARS TO BE PLACED AT GRADE CHANGES AND/OR AT 300' SPACING OR PER US FOREST SERVICES STDS, WHICHEVER IS LESS

PRIMARY ROAD P8
NTS




PRIMARY ROAD P9
DITCH UDD-1
NTS

THESE ROAD CONFIGURATIONS ARE BASED ON THE GEOTECHNICAL INVESTIGATION RECOMMENDATIONS FOR CUT & FILL SLOPES, AND ON STANDARD ROAD DESIGN CRITERIA

Kinney #2 Mine

Figure 25 A
PRIMARY ROADS P8 & P9 CONFIGURATION

DRAWN BY: KN DATE: 10/23/2018
CHECKED BY: AC DATE: 10/23/2018

Coal Energy Group
CEG
Kinney Mine
6602 Ilex Circle
Naples, FL 34109

All road cut and fill slopes will be revegetated as soon as reasonably practical following construction using the temporary revegetation seed mixture to stabilize the slopes and minimize erosion potential. Road surfaces will be graded or crowned to prevent accumulations of water on the road surface and adequately sized ditches and culverts will be installed and maintained to effectively carry road and other disturbed area drainage. Road P9 will be constructed similar to the road it replaces with an inward slope to provide for Ditch UDD-1 as shown in the ditch design Table 18, Ditch design Details and on figure 25A, Primary Roads P8 & P9 Configuration. Road P8 will be a post mining land use road with drainage controlled by extending ditch UDD-1 design sizing along it's length, and also by constructing water bars, or cross drains at a spacing of 300 feet, or as recommended by criteria set forth in the US Forest Service document, Water/Road Interaction: Introduction to Surface Cross Drains, publication No. 7700 – Transportation Systems, 2500 – Watershed and Ari Management, September 1998, 9877 1806 – SDTDC, found at http//www.stream.fs.fed.us/water-road/w-r-pdf/crossdrains.pdf. Water bars, or cross drains will be used for drainage control at short spaced intervals, therefore the roadside ditch sized to UDD-1 standards will be significantly over sized, however, it is felt that this is the best approach since the road will be for post mining land use. Adequate cover will be provided over all culvert crossings to prevent damage or collapse of the culverts and culverts have been designed and will be installed to prevent plugging, erosion at the culvert inlet or outlet, and any drainage over the road surface. The locations of all proposed ditches are shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas Map, and ditch designs are included in R645-301-730, and in Exhibit 16, Runoff Control Design Details.

Operation and Maintenance - Operation and maintenance procedures for all mine roads are designed to provide a smooth operating surface, assure safety, and minimize dust emissions. Road maintenance will involve periodic grading to provide a smooth surface, remove rocks or debris, and maintain effective drainage; repair and resurfacing as necessary; inspection, clean-out, and repair of ditches and drainage structures; and watering or application of surfactants to control dust during dry periods. Generally, speeds on roads and in active operating areas will be limited to 15 miles per hour by posted speed limits both as a safety consideration and to minimize dust emissions from unpaved roads. In the unlikely event that any road is damaged by a catastrophic event such as an earthquake or flood, ~~CR~~ CEG3 will make appropriate repairs as soon as reasonably practicable and will limit the use of the road or provide an alternate access if unsafe conditions exist.

**Description of Individual Structures - The following sections provide more detailed information for specific roads and associated structures:**

Primary Road P1 will receive the most traffic, therefore it will be paved. The road will be crowned in the center with drainage flowing to the sides in both directions. The purpose of the cattle guard is not to control cattle, but to provide a drainage trench to catch runoff containing fines from the road, preventing them from being washed downgradient on the road and bypassing Sedimentation Pond 1. Below the cattle guard, drainage from the road will flow to ditches and sediment traps on both sides of the road as shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas. For the remainder of Primary Road P1, the design will be as shown on Figure 25, Typical Primary Road Configurations for sloping terrain and level terrain.

All other roads will be constructed as shown on Figure 25, Typical Primary Road Configurations for sloping terrain and level terrain, and Figure 25A, Primary Roads P8 & P9 Configuration for roads P8 and P9.

### 534.130 Static Safety Factor for Roads

The Geotechnical Investigation, dated November 26, 2007 states on page 17 of 17,

"It is anticipated that fill slopes will be created with on-site materials. If this material is placed and compacted in accordance with recommendations provided in Section IV, fill slopes as steep as 1.5H:1V will have a factor of safety of at least 1.3 if constructed of the native clayey soils. Fill slopes shown on Sections A-A, B-B, and F-F will likely be constructed of this clayey on-site fill. Test pits in the vicinity of the fill areas shown on Sections C-C, D-D, and E-E encountered significant amounts of medium-dense silty sand. Fill slopes as steep as 1.8H:1V constructed of this silty sand material have a computed factor of safety of at least 1.3. Plots of stability analyses for typical fill slopes are included in the appendix."

In Addendum No. 1 to the Geotechnical Investigation, dated September 28, 2010, RB&G Engineers, Inc states,
"Note that the Direct Shear test on the sample of sandy lean clay which had a friction angle of 20 degrees also had cohesion of 15 psi. Two Triaxial Shear tests performed on samples of the lean clay had total stress friction angles of 29.6 and 32.5 degrees with 2 psi cohesion and effective stress friction angles of 36.0 and 36.7 degrees with 2 psi cohesion."

### 536 Coal Mine Waste

See discussion above under 528.320.

### 537 Regraded Slopes

Slopes have been designed according to the recommendations contained in Exhibit 14, Geotechnical Investigations.

### 537.100 Geotechnical Analysis

A geotechnical analysis was performed and the results are included in Exhibit 14, Geotechnical Investigations

### 537.200 Settled and Revegetated Fills

N/A – No spoil, or development waste will be used for fills.

## R645-301-540 Reclamation Plan

### R645-301-541 General

This section presents and describes reclamation plans and practices to be used to restore disturbed areas resulting from mining and related activities to productive self-sustaining use. Information in this section was developed in accordance with applicable regulatory requirements (R645-301-500) for coal mine permitting in the State of Utah.

**541.100 – 300 Reclamation of All Areas**

Reclamation will be an integral part of the Kinney No. 2 Mine mining and related activities, however, because the mine will be an underground mine and the surface facilities and related surface disturbance areas will remain in place until the end of the mine life, mining and reclamation will not occur concurrently or, in the case of progressive mining activities, sequentially. Reclamation of surface disturbance areas will generally occur following the cessation of mining operations to complete the mining and reclamation cycle although ~~CR~~ CEG3 will implement temporary stabilization measures in certain areas following initial construction or during ongoing operations.

Objectives of the planned reclamation activities will be twofold; 1) For construction disturbance, temporary stabilization and contemporaneous reclamation will serve to stabilize disturbance areas, minimize erosion, and limit potential surface water impacts; 2) For long-term use areas, final reclamation is designed to restore disturbed areas to a safe, stable condition and to reestablish the productivity of the land consistent with the post mining land uses. The proposed post mining land uses of wildlife habitat, Carbon County Zone "Water Shed", and Commercial use on the Scofield Town portion reflects the predisturbance use of this and adjacent areas, existing land use plans and policies, the desires of affected surface landowners, and practical constraints relative to land use capability and condition. Specific land use considerations and constraints are discussed in R645-301-410, Land Use Information. The Kinney No. 2 Mine reclamation plan has been designed to successfully meet these objectives and will result in effective temporary stabilization, and a post mining configuration which blends with the surrounding terrain and provides environmental values consistent with or superior to those which existed prior to mining.

The Kinney No. 2 Mine reclamation plan has been developed utilizing available information on the existing environmental resources as described in R645-301-200, 300, 400, 600, and 700 Environmental Information. In addition, ~~CR~~ CEG3 has incorporated both available information on current successful reclamation technology and practices and their extensive operating experience in the area. While the plans presented in this permit represent what ~~CR~~ CEG3 feels to be the most effective reclamation practices for this site, it is important to note that successful reclamation must be a dynamic process, incorporating new information to optimize overall effectiveness. In order to meet the reclamation objectives these plans may be modified as appropriate to reflect changing conditions, revised regulatory requirements, advances in reclamation technology, and the results on ongoing research and experience relative to the long-term effectiveness of various reclamation practices. Any modification of the plan will be submitted to the UDOGM for approval and will be changed in the permit as required. Any future plan modifications will involve a logical sequence of activities designed to achieve the overall reclamation objectives in an organized progressive manner. The following represent the general steps for reclamation of any mine or mine related surface disturbance areas:

- Facility Demolition and Removal
- Stabilization and Sealing of Mine Openings
- Disposal of Non-Coal Wastes, and Mine Waste Materials
- Backfilling and Grading to Establish the Final Design Configuration
- Drainage Reestablishment
- Road Removal
- Removal and Reclamation of Sedimentation Ponds and Associated Structures
- Soil/Substitute Replacement
- Revegetation
- Soil and seed stabilization
- Post-Reclamation Management, Maintenance, and Monitoring
- These activities are discussed in detail in the following sections.

## R645-301-542 Narrative, Maps, and Plans

This section describes the reclamation plans and maps.

The first phase of reclamation is shown on Map 29, Mine Surface Facilities Area, Post Mining Topography & Interim Drainage Control. This map shows the disturbed area reclaimed to interim post mining land use status, leaving in place Sediment Pond 1, Sediment Pond 1 access road, disturbed area ditches DE-3 and DE-4, which are necessary to carry runoff water from the reclaimed site to the pond during the first phase of reclamation liability, ditches UDD-1 and UDD-2, and culverts UDC-2 and CP-2, which are necessary to carry undisturbed area runoff from ditches UDD-1 and UDD-2. The area south of the post mining land use access road does not drain to the sediment pond, therefore, runoff from this limited area will be controlled with alternative sediment controls as discussed previously in this chapter, consisting of silt fencing, straw bales, sediment traps or berms. Map 29 will be the condition until the area is revegetated and stabilized adequately to warrant Phase II bond release.

Map 29 A, Mine Surface Facilities Area Post Mining Topography shows the final topography after reclamation, and establishment of vegetative cover and stabilization of the area warrants Phase III bond release. The map also shows that Sediment Pond 1, it's access road and ditches DE-3 and DE-4 have been reclaimed.

### 542.100 Timetable

The specific reclamation plans developed for the Kinney No. 2 Mine area and the proposed reclamation practices reflect the overall reclamation objectives, site specific conditions and constraints, and the best current reclamation techniques and methods. The following sections describe the timing and sequencing of reclamation activities, general reclamation requirements, and specific reclamation practices.

~~CR~~ CEG3 will reclaim mining related surface disturbance areas as soon as operationally practicable following completion of mining and related activities. For construction related disturbance, this commitment translates into regrading, establishment of effective drainage and sediment control, and temporary vegetation of the disturbed areas to stabilize these areas and prevent erosion or uncontrolled runoff.

With the exceptions of temporary stabilization of construction disturbance, other mining related disturbance areas are expected to remain in a disturbed condition until after the completion of mining and related activities. Reclamation of mine surface facilities areas following completion of mining will be initiated as soon as operationally feasible after mining ceases and no later than the next normal field season (typically May through October). It is anticipated that final reclamation would be completed within 24 months from the time the last coal is either produced or shipped from the property, whichever is later. Figure 36, Reclamation Timetable - Mine Facilities Area, outlines the specific sequence and anticipated timing of final site reclamation activities.

From a hydrologic standpoint reclamation must be completed in phases which include initial, interim and final reclamation. Initial reclamation will include the removal of all temporary surface runoff control facilities as illustrated on Map 24, with the exception of the following specific structures which will be utilized and or removed during interim and final reclamation.

**Interim Reclamation**

- Ditches UDD-1 & UDD-2 Remain
- Ditches DE-3 and DE-4 Remain
- Culvert UDC-2 Remains
- Culvert CP-2 Remains

- Sediment Pond 1 Remains
- Sediment Pond 1 Access Road Remains
- Road P9 adjacent to Ditch UDD-1 remains as it belongs to private property owner E.G Telonis ETAL
- Road P8 and Ditch UDD-1 remains as it belongs to the private property owners E.G. Telonis ETAL, and the Jones family property north of the mine site.
- Re-establish the irrigation ditch

**Final Reclamation**

- Remove Ditches DE-3 and DE-4
- Remove Sediment Pond 1
- Remove Sediment Pond 1 Access Road
- Ditch UDD-1 Remains
- Ditch UDD-2 Remains
- Culvert UDC-2 Remains
- Culvert CP-2 Remains
- Riprap Energy Dissipation Fan Remains
- Road P9 and Ditch UDD-1 remains as it belongs to private property owner E.G Telonis ETAL
- Road P8 and Ditch UDD-1 remains as it belongs to the private property owners E.G. Telonis ETAL, and to the Jones family property north of the mine site.

Final reclamation will involve removal of all mine related structures and facilities, closure and sealing of portals and mine openings, disposal of waste materials, backfilling and grading, drainage reestablishment, road removal, removal of Sediment Pond 1, placement of soil or substitute materials, revegetation, and soil stabilization. Roads P8 and Ditch UDD-1 will be constructed during reclamation to provide access to private property as discussed previously. Road P9 will remain as during mining to provide access to private property east of the mine site as discussed previously. Generally, soil/substitute replacement and revegetation efforts will be coordinated so that soil materials are revegetated as soon as practically possible following placement.

Following final reclamation of mine facilities areas, the facilities to remain for post mining land use include the roads P8 and P9, ditches and culverts shown on Map 29A, Postmining Topography. Interim drainage and sediment controls during the post-reclamation liability period will include alternative sediment control methods as the primary means of controlling erosion and sediment contributions. The Postmining Topography and Interim Drainage Control Map (Map 29), shows the drainage and sediment control features which will be retained during the reclamation liability period. Components of the interim drainage and sediment control plan are identified and discussed in detail in R645-301-730, Hydrologic Resource Protection and PHC. Upon receipt of a determination of final reclamation success and bond release from UDOGM for vegetation reestablishment and drainage restoration, the alternative controls will be removed. The alternative sediment controls will be installed prior to any reclamation activities and serve as a protective barrier at the lowest point of the disturbed area. The alternative sediment controls will remain in place during backfill/regrading operations, placement of soil material, reseeding, and re-establishment of vegetation as discussed above. Final site configuration for post mining land use is shown on Map 29A, Post Mining Topography.

## 542.200 Backfilling and Regrading

Information presented on the reclamation maps and cross-sections includes:

- Anticipated final surface configuration
- Postmining drainage features
- Location of any structures and facilities which will be retained as permanent structures following the completion of mining
- Any roads to be retained in conjunction with the post mining land use.

Additional discussions of the reclamation process and work is presented to follow:

**542.300 Final Surface Configuration Maps & Cross Sections**

**542.400 Removal of Temporary Structures**

**542.500 Timetable for Removal of Water Impoundments**

**542.600 Roads**

**542.700 Final Abandonment of Mine Openings & 5-49 Disposal Areas**

**The above regulations, R645-542.300 through R645-542.700 are addressed as follows:**

Beyond the general reclamation objectives of restoring disturbed areas to a safe, stable condition and reestablishing the productivity of the land consistent with the post mining land uses, this reclamation plan is designed to achieve the following specific operational and environmental objectives:

- Removal of Mining Related Structures and Facilities
- Eliminate Potential Hazards
- Establish a Stable Postmining Configuration
- Restore Effective Drainage
- Establish a Productive Self-Sustaining Vegetation Community

The following sections briefly describe important considerations and the rationale behind each of these specific objectives.

**Establish a Stable Postmining Configuration**

Following removal of mining related structures and facilities and closure and sealing of portals and mine openings the associated surface disturbance areas will be backfilled and regraded to establish a stable post mining configuration which blends with the surrounding terrain, provides for effective drainage, and is consistent with the post mining land use of wildlife habitat. Given that approximately 74% of the proposed disturbance area has been previously disturbed by pre-SMCRA mining, backfilling will be limited to the materials available consistent with applicable remaining provisions of the State of Utah Coal Mining Rules (R645-301-553.500 through 524). To the extent possible using all available material disturbed areas will be backfilled and regraded to blend with the surrounding terrain, and any exposed coal seams will be covered with a minimum of 4 feet of suitable cover material. The highwall remnant remaining at the pre-SMCRA Columbine Mine portal face-up area will be partially disturbed by the Kinney No. 2 Mine operations. This portal area was partially reclaimed by the UDOGM Abandoned Mine Reclamation Program in the 1980's. The south end of the old face-up area will be disturbed by Kinney No. 2 Mine operations

but this disturbance will only include a small portion of the old face-up disturbance and will not result in a new highwall. This new disturbance will be reclaimed to the approximate original contour as it exists at the beginning of the Kinney No. 2 Mine construction.

**Restore Effective Drainage**

In conjunction with final backfilling and regrading activities, permanent drainage features, designed to pass the peak flows from the 100-year, 6-hour event, will be established to effectively pass natural drainage through the reclaimed areas and provide for effective control of runoff from reclaimed areas while minimizing the potential for any significant erosion. The final configuration of the drainages will be essentially the same as the pre-mining condition as can be seen on Map 29A Mine Surface Facilities Area Post Mining Topography Map.

**Establish a Productive Self-Sustaining Vegetation Community**

Consistent with the post mining land use of wildlife habitat and Carbon County land use of Watershed, ~~CR~~ CEG3 will reestablish a self-sustaining vegetation community composed primarily of indigenous native species but also including adaptive introduced species as appropriate to provide for rapid reestablishment, productivity, and species diversity. Activities related to vegetative reestablishment will include replacement of available soil or substitute materials, addition of any necessary soil amendments, seedbed preparation, seeding with the appropriate revegetation seed mixture, and application of mulch or other erosion control materials to minimize erosion and provide an opportunity for initial vegetative establishment.

**Hydrologic Monitoring**

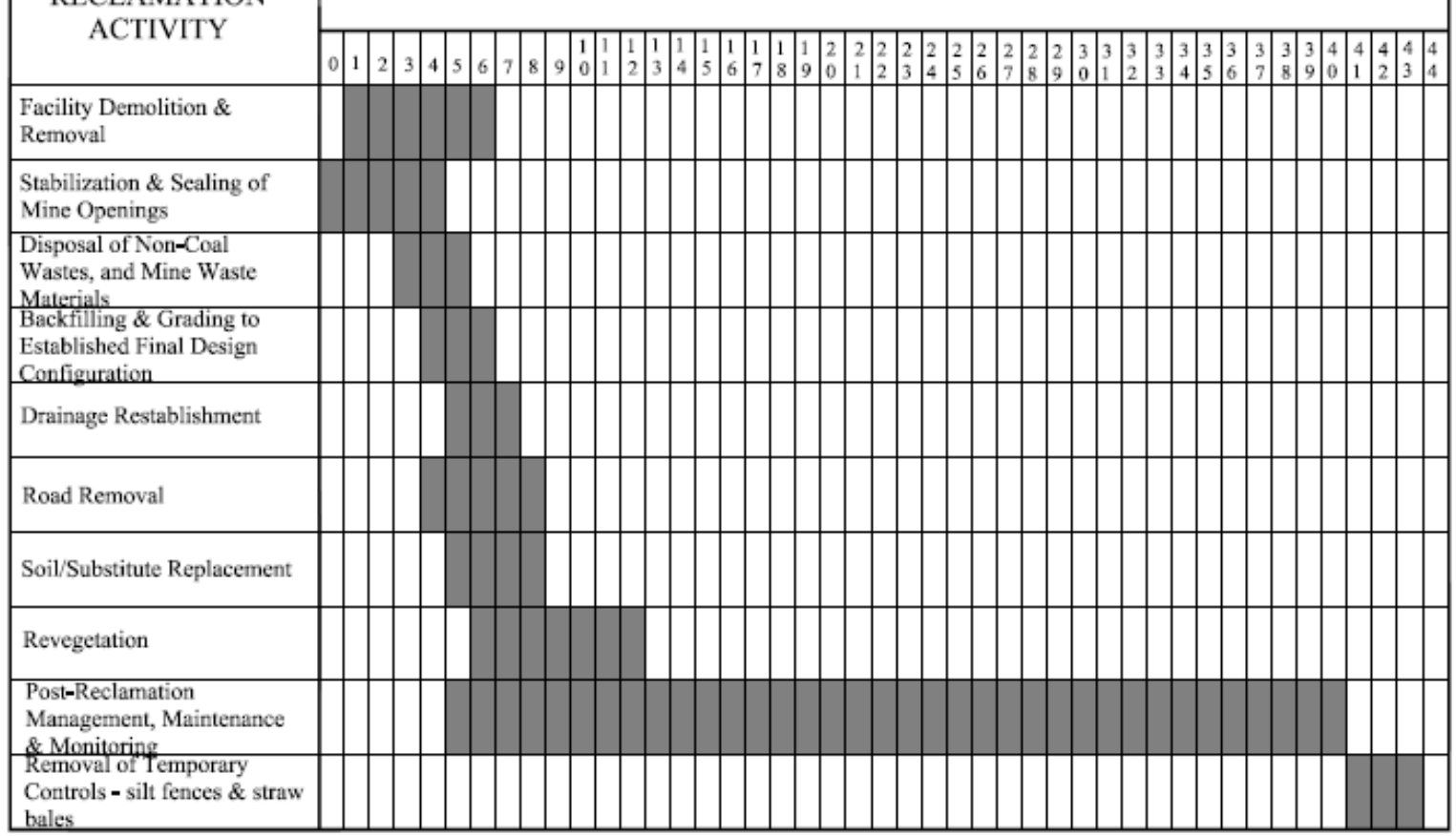
~~CR~~ CEG3 will continue its comprehensive program to monitor surface and groundwater quality and quantity over the duration of the proposed reclamation operations and through the extended liability period. Postmining hydrologic monitoring activities are outlined in R645-301-730, Hydrologic Resource Protection Plan and PHC. The reclamation phase monitoring compliance list is presented in Table 20, Hydrologic Monitoring Schedule.

~~CR~~ CEG3 currently maintains, and will continue, a program to monitor surface and groundwater quality and quantity for the duration of the proposed mining, processing, and reclamation operations. The Hydrologic Monitoring Plan consists of monitoring stations identified in Tables 6, Kinney No. 2 Mine Baseline Monitoring Stations, and 3.7-2, Kinney No. 2 Mine Operational Monitoring Stations, according to the parameter sampling schedule shown in Table 20, Hydrologic Monitoring Schedule. Baseline monitoring has been conducted as discussed in Chapter 7. Operational monitoring is planned to be conducted on a quarterly basis as follows.

Samples will be collected quarterly for parameters shown in Table 20, Hydrologic Monitoring Schedule, for all surface and ground water stations when the sites are accessible. At some sampling sites, winter conditions may create inaccessible or unsafe conditions. To help ensure as complete a data set as possible, first and fourth quarter samples will be collected during the time periods wherein there is the greatest likelihood of collecting a valid sample. This is believed to be in March and October respectively. Second and third quarter samples will be collected at a convenient time for the mine operator within the respective quarter.

## RECLAMATION TIMETABLE

| RECLAMATION ACTIVITY | QUARTER FOLLOWING COMPLETION OF MINING ACTIVITY |
|---|---|
| Facility Demolition & Removal | |
| Stabilization & Sealing of Mine Openings | |
| Disposal of Non-Coal Wastes, and Mine Waste Materials | |
| Backfilling & Grading to Established Final Design Configuration | |
| Drainage Restablishment | |
| Road Removal | |
| Soil/Substitute Replacement | |
| Revegetation | |
| Post-Reclamation Management, Maintenance & Monitoring | |
| Removal of Temporary Controls - silt fences & straw bales | |




Kinney #2 Mine

Figure 36
RECLAMATION TIMETABLE
MINE FACILITIES AREA

DRAWN BY: KN DATE: 10/24/2018
CHECKED BY: AC DATE: 10/24/2018

CEG
6602 Ilex Circle
Naples, FL 34109

The monitoring program thus instated serves as an integral part of ~~CR's~~ CEG3's efforts to protect the hydrologic balance by providing an accurate and timely method of identifying and quantifying any possible concerns with respect to surface and ground water resources. The monitoring network is shown on Map 28, Surface and Ground Water Monitoring Sites. Table 6, Kinney No. 2 Mine Baseline Monitoring Stations, and Table 7, Kinney No.2 Mine Operational Monitoring Stations, when combined with Map 28, summarizes the type and location of monitoring sites. The frequency, density and accuracy of monitoring will allow ~~CR~~ CEG3 to evaluate and determine the success of mine plans, drainage and sediment control facilities, and reclamation for the purpose of minimizing disturbance to the hydrologic balance. The monitoring data and resulting evaluations will be used to identify any potential problems and develop necessary mitigation measures.

**Facility Demolition and Removal**

All existing structures and facilities and those structures and facilities constructed specifically to support the mining and related activities will be utilized and will remain in place until the mining and related activities which they support have been completed. At that time, all structures and facilities will be demolished or salvaged in order to reclaim the site and establish the post mining land uses.

At the current time the effective mine life is projected at 15 to 20 years, although mine life could be extended significantly with development of additional reserves to the east. Dependent on age and condition, much of the equipment which will be utilized for the mining and related operations, including conveyors and associated coal handling components, the primary crusher, process equipment, maintenance equipment, and some of the smaller prefabricated buildings or building components may be salvageable for continued beneficial use at the end of the mine life. Any equipment which is not salvageable will be dismantled and any buildings or other structures not salvaged will be demolished. Structures and facilities to be salvaged or demolished are identified in R645-301-520, General Description of Mine Plans, Mining Methods, and Related Design Requirements, under the subtitle of Mine Structures and Facilities.

Equipment and facilities to be salvaged will be dismantled and removed from the site by ~~CR~~CEG3, a buyer, or private salvage contractors. Disassembly and demolition of remaining equipment and structures will involve dismantling or cutting equipment, steel structures, and other large components into pieces which can be readily handled by mobile equipment; using heavy equipment, explosives; and cutting torches to break-up structural concrete members, exposed foundations, and masonry structures; ripping and removal of road surfacing materials; and removal of buried foundations and utilities to at least 2 feet below the design reclaimed surface. It is anticipated that all demolition debris except for concrete debris and road surfacing materials will be moved to one or more temporary storage areas from which the steel and other salvageable debris may be reclaimed for salvage and the remaining debris will be loaded into trucks for removal and off-site disposal in a permitted landfill facility.

Concrete debris resulting from facility demolition will be broken up into pieces small enough to be readily handled by mobile equipment and will be placed in deep fill area sites in the mine facilities area, at the toe of the deep cuts where it will be buried deep beneath the final surface, and where it will not be visible. These disposal sites have been selected to provide adequate disposal capacity for anticipated debris volumes at a level well above the normal water table. Proposed solid construction debris disposal sites include the following:

- Mine portal pad
- Office pad
- Operations pad
- Coal pile pad
- Loadout pad

The location of the designated disposal sites is shown on the Surface Facilities Map, (Map 13). Concrete and road surfacing materials will be placed in the designated disposal areas to minimize voids to the extent operationally practicable, a minimum of four feet of fill material will be placed over the disposal sites, and a tracked dozer or other heavy equipment will make multiple passes over the disposal area during cover placement to consolidate the debris.

**Disposal of Mine Waste, and Non-Coal Waste**

All non-coal wastes generated during the life of the mine will be collected and stored in appropriate containers and will be disposed of off-site by a licensed contract disposal firm as described in R645-301-520, General Description of Mine Plans, Mining Methods, and Related Design Requirements, under the subtitle of Non-Coal Waste Disposal. These disposal plans include any non-coal wastes remaining on completion of mining operations with the exception of concrete demolition debris as previously discussed.

**Backfilling and Grading to Establish Final Configuration**

Following completion of mining and related operations and subsequent facility removal and sealing of mine openings the associated surface disturbance areas will be backfilled and regraded. As previously noted in 540, Reclamation Plan, approximately 75% of the planned disturbance area has been disturbed by previous mining disturbance.

Backfilling and grading will involve selective placement of all reasonably available spoil material consistent with applicable regulatory provisions for backfilling and grading (R645-301-553 through 553.200), and previously mined areas (R645-301-553.500 through 524), and based on the following priorities:

1) Cover exposed coal seams, sealed mine openings, any coal mine materials, such as coal fines, or coaly materials and any solid waste disposal sites with a minimum of 4 feet of suitable material
2) Backfill and/or regrade disturbed slopes to establish a stable configuration which provides for effective drainage and minimizes erosion potential
3) Backfill and regrade steep cuts and highwall areas to eliminate cut or highwall exposures

The land configuration in the mine facilities area prior to development of the ~~CR~~ CEG3 Kinney No. 2 Mine operations is illustrated by the Mine Surface Facilities Area, Pre-Mining Topography Map, (Map 14). This map shows that the mine surface facilities area consists of a gently sloped area at the southwest portion of the area transitioning to a steep slope on the eastern and northern portions of the area. The area has an existing road running from the highway up the mountain on the south, and a road running northward through the area to the Smith property on the north. There is also an existing railroad grade along the west side adjacent to, and parallel to the highway. Portions of this railroad grade still has tracks remaining, and portions of the tracks and ties have been removed, but the general railroad grade remains. This railroad grade will not be impacted by Kinney No. 2 Mine operations and will be left as it exists in it's pre-mining configuration except for a short (approximately 100 feet) at the southern end of the tracks. As discussed previously approximately 75% of the area to be used by ~~CR~~ CEG3 has previously been disturbed by historic coal mining. Of this area a majority of the previously disturbed area was reclaimed by the UDOGM Abandoned Mine Reclamation program in the 1980's.

The designed post mining configuration for the facilities area is based on utilization of all available spoil material to achieve the stated reclamation objectives within the constraints of site topography, drainage considerations, and the noted backfilling and regrading priorities. The limits of available fill material were determined by identifying from the available mapping, topsoil pits, trenches, and the geotechnical boring logs. Final backfilling and grading of the mine surface facilities area will require the movement of a total of approximately 221,877 cubic yards of material. Comparison of the land configuration prior to site development with the designed post

mining topography based on the Mine Surface Facilities Area Pre-Mining Topography Map, (Map 14), the Postmining Topography Map, (Map 29A), and the Mine Surface Facilities Area Premining and Postmining Cross-Sections, (Map 16), indicates that the designed post mining topography will result in stable slopes, reduce cut exposures, provide for more effective drainage, and offer better blending of the area with the surrounding terrain. Reclamation Contours have been prepared to match as closely as possible those that existed prior to disturbance. A considerable volume of pre-SMCRA coal exists in the mine area from historic mining. These coal fines have primarily been removed from their operational locations by the UDOGM AML reclamation project and placed in low lying areas and covered by reclamation soils. Kinney No. 2 Mine soils investigations and geotechnical investigations have identified some of this pre-SMCRA coal material, but identifying all of this material is not possible. Based on calculations from the previously mentioned investigations, it is estimated there are approximately 12,000 tons of coal fines that will be encountered during construction of the mine facilities. This material will be removed and sold as discussed previously, and will not be used for final reclamation. This reduced volume will result in a slightly lower overall land surface upon final reclamation. The final reclamation land surface can be seen on Map 29A, Postmining Topography Map and on Map 16 through 19, Premining, Mining & Postmining Cross-Sections.

During final backfilling and grading operations, drainage and sediment will be controlled by the interim drainage system or by site-specific alternative sediment control practices.

Backfilling and grading will involve the use of tractor scrapers, tracked dozers, trackhoes, wheel loaders, trucks, and motor graders, as necessary to recover, move, place, grade, and compact backfill materials. Generally, backfill material will be placed in relatively uniform lifts and will be compacted by normal equipment traffic. Backfilled areas will be sloped and graded to promote effective drainage and to the extend operationally feasible long unbroken fill slopes will be avoided to minimize sheet flow and potential resultant erosion. Fill slopes will replicate the pre-mining slopes generally, and graded slopes in native material will vary dependent on material from less than 5H:1V to as much as 0.5H:1V in competent rock consistent with slope stability considerations as documented in Exhibit 14, Geotechnical Investigations. Recommended slope limitations for final cut and fill slopes will result in slope configurations having a static factor of safety of at least 1.3. The designed safety factor for any benched slopes is 1.5.

Graded areas will incorporate undulations consistent with the surrounding terrain and the post mining drainage configuration and the surface of graded areas will be left in a roughened condition to minimize runoff and erosion in the interim before soil/substitute replacement, improve bonding between the regraded surface and soil/substitute materials, and increase infiltration to maximize soil moisture levels and promote revegetation. Two different methods of backfill placement will be utilized based on the slope of the surface. Where slopes are steeper than 30% as shown on Map 33, Slope Analysis Map, soil materials will be placed with trackhoes, dozers, and similar equipment due to safety requirements. Areas where the slope is less than 30% as shown on Map 33, Slope Analysis Map, backfill materials will be placed with scrapers, dozers and similar equipment where safety requirements dictate. As noted in R645-301-500, Reclamation Practices, the regraded surface will be left in a roughened condition to control runoff, provide a good bond with the replaced topsoil/substitute material, and promote moisture infiltration. Prior to topsoil replacement, regraded surfaces will be deep ripped in the less than 30% slope areas to alleviate compaction and enhance soil bonding. In the areas where the slope is greater than 30% as shown on Map 33, Slope Analysis Map, the regraded surface will be roughened and loosened to provide a good bond with the replaced topsoil/substitute material and promote moisture infiltration.

Under the applicable regulatory provisions dealing with remining of previously mined areas (R645-301-553.500 through 524), the planned backfilling and grading operations will utilize all available spoil material to eliminate remaining highwall and cut slope exposures to the maximum extent technically practical. Fill material placed against highwall and cut slope areas will be placed and graded to assure long-term stability and final slopes will provide for effective drainage and be compatible with both natural slopes in the area and the post mining land use of

wildlife habitat, and watershed.

**Drainage Reestablishment**

In conjunction with final backfilling and grading activities, ~~CR~~ CEG3 will establish a post mining drainage configuration which is compatible with the natural drainage pattern of the surrounding terrain, will effectively route natural drainage from up gradient areas through the reclaimed area with minimal erosion or increase in sediment concentrations, and will effectively control drainage and erosion in the reclaimed areas. The designed post mining drainage configuration is shown by the Postmining Topography Map, (Map 29A). Permanent diversions carrying undisturbed drainage have been designed and will be constructed through the reclaimed area to route undisturbed flow to the west. Additional discussion of post mining drainage reestablishment is provided in R645-301-700, Hydrologic Restoration.

**Road Removal**

Certain roads within the mine facilities area will continue to provide access to specific areas during both reclamation and the extended liability period, although most roads will be removed and reclaimed during final site reclamation. Generally, the primary access roads will be removed and reclaimed in two phases. The first phase will involve ripping of these roads and removal of the associated road surfacing materials. This phase will occur in conjunction with facility demolition and removal and the surfacing materials removed will be placed in the designated solid waste disposal areas as previously discussed. The second phase of road removal for primary roads will be sequenced to coincide with backfilling and grading of the areas that the roads either provide access to or pass through. When roads are no longer needed, they will be removed and the associated disturbance areas will be regraded and reclaimed. The post mining roads to remain for post mining land use are shown on Map 29A, Mine Surface Facilities Area Post Mining Topography q Map. These roads provide access to private property in the mining area and the area east of the mining area, and to private property north of the mine area.

Road reclamation will generally involve the use of tracked dozers and trackhoes to rip the road surface and grade any surfacing material into piles which will normally be recovered by wheel loader and either hauled directly or loaded into trucks for haulage to one of the designated disposal areas. Road surfaces will then be ripped to alleviate any compaction and the road area will be graded to blend with surrounding reclaimed areas. Steep slope area roads (>30%) will generally be reclaimed with trackhoes. During final grading, any culverts will be removed and transported to a temporary steel debris storage site for either salvage or disposal off-site.

Cut/fill areas will be reclaimed by pulling the fill material upslope into the cut and grading any remaining cut slope, the fill material, and disturbed downslope areas to a stable configuration consistent with natural drainage patterns and blending with the surrounding terrain. Any major road cuts will be reclaimed by partially backfilling the cut and grading any remaining cut slope exposures so that they are stable as described in the backfilling and grading plan discussion. Any major road fills which would interfere with post mining drainage will be removed and the associated disturbance areas regraded in conjunction with overall site grading activities.

**Soil/Substitute Replacement**

Following completion of backfilling, grading, and drainage reestablishment, available topsoil material will be replaced on the regraded areas as a growth medium for subsequent revegetation. Soil will be replaced as soon as operationally practicable following completion of the other necessary activities in the reclamation sequence, however, the timing of soil placement will also reflect the need to reestablish vegetation as soon as possible to stabilize and prevent loss or erosion of the topsoil. Two different methods of topsoil placement will be utilized based on the slope of the surface. Where slopes are steeper than 30% as shown on Map 33, Slope Analysis Map, topsoil materials will be placed with trackhoes, dozers, and similar equipment due to safety requirements. Areas where the slope is less than 30% as shown on Map 33, Slope Analysis Map,

topsoil materials will be placed with scrapers, dozers and similar equipment where safety requirements dictate. As noted in R645-301-500, Reclamation Practices, the regraded surface will be left in a roughened condition to control runoff, provide a good bond with the replaced topsoil/substitute material, and promote moisture infiltration. Prior to topsoil replacement, regraded surfaces will be deep ripped in the less than 30% slope areas to alleviate compaction and enhance soil bonding. In the areas where the slope is greater than 30% as shown on Map 33, Slope Analysis Map, the regarded surface will be roughened and loosened to provide a good bond with the replaced topsoil/substitute material and promote moisture infiltration. For a complete discussion of topsoil and substitute topsoil removal and replacement refer to Chapter 3, Soils.

### 542.800 Reclamation Costs

Consistent with applicable regulatory provisions (R645-301-542.800 and R645-301-800) which require that reclamation bonding calculations be based on an approved reclamation plan, ~~CR~~ CEG3 has developed a detailed reclamation cost estimate based on the preliminary UDOGM determination that the reclamation plan is acceptable. The detailed estimate includes costs for all activities described in the approved plan with specific consideration of the areas to be reclaimed and the nature and difficulty of required reclamation efforts. Additional information on the reclamation cost estimate and related bonding considerations is provided in R645-301-820, Bonding Information, and the detailed bond reclamation cost estimate has been provided for insertion as Exhibit 18, Bonding and Insurance Information.

## R645-301-550 Reclamation Design Criteria and Plans

## R645-301-551 Casing and Sealing Underground Openings

On completion of mining and related activities, all mine openings including portals, shafts, raises, boreholes, and wells will be stabilized if required and sealed unless they are to be utilized for ongoing monitoring or in conjunction with the post mining land use. Currently, no mine openings are anticipated to be left for post mining use. If any mine openings are needed for post mine use, they will be permitted separately as needed in the future by revising the permit as required by the UDOGM regulations. Methods and requirements for sealing wells and boreholes are presented and described in R645-301-630, Geologic Protection Plans.

Current plans call for five underground mine openings (the five main portals). These openings will be permanently sealed on completion of mining to prevent access to the underground workings and, in the case of the mine openings, to provide an effective hydraulic seal to prevent surface drainage and infiltration through the backfill from entering the underground mine workings. Portals will be sealed and stabilized by constructing a concrete block wall a minimum of 25 feet in-by the portal openings. The two layer thick solid block wall, which will be constructed as illustrated by Figure 37, Typical Portal Seal, will be keyed into the mine entry at least 6 inches on all sides and, for the mine portals, an MSHA approved sealant will be applied to the outer surface of the barrier to provide a positive water seal. The location of the seals can be found on the Typical Portal Cross Section & Detail Looking South on Map 17, Mine Surface Facilities Area Pre-Mining, Mining and Post Mining Cross Sections for a typical detail. As required by 30 ~~CRF~~ CFR 75.1711, the portals will be backfilled with a minimum of 25 feet of backfill from the seals to the surface.

In order to assure the long-term integrity of the mine portal seals, CR, as part of the MSHA roof control plan, will maintain adequate barrier pillars and will utilize appropriate roof support

including timber or concrete cribs, posts, roof bolts, trusses, or other supports to minimize subsidence and collapse or caving of the mine workings in the vicinity of the portal seals. Once the portals seals are in place, the remaining void space between the seals and the portal opening will be backfilled using a LHD or small backhoe to assure proper backfill placement.

### R645-301-552 Permanent Features

**Removal of Mining Related Structures and Facilities**

Given that the proposed mining and related surface structures are not generally compatible with the proposed post mining land uses of wildlife habitat and watershed, these structures and facilities will be removed following completion of mining. All, or portions of the surface facilities may be reclaimed at any given time dependent on the location and nature of potential future mining operations in this general area. When surface facilities are no longer required to support ongoing mining and related operations they will be removed and the associated surface disturbance areas reclaimed.

Mine structures will be removed and associated disturbance areas reclaimed, effectively eliminating any potential associated hazards. As part of the final reclamation activities, all portals and other mine openings will be stabilized, sealed, and the associated disturbance areas backfilled, graded, and reclaimed. Similarly, steep slopes and highwall areas will be partially or fully backfilled, regraded, and reclaimed eliminating or minimizing potential related hazards as discussed previously.

The reclamation practices described in this section reflect ~~CR's~~ CEG3's detailed review of information on the existing site configuration and environmental values, consideration of site reclamation potential and any important limitations, and application of the best current reclamation technology and both ~~CR's~~ CEG3's and other coal operators extensive operating experience in this area. The following sections provide a detailed description of the specific reclamation practices proposed for surface disturbance areas associated with the Kinney No. 2 Mine.

### R645-301-553 Backfilling and Grading

Refer to discussion in previous sections.
A typical cross section of the portal area is included in on Map 17, Mine Surface Facilities Area, Pre-Mining, Mining & Post Mining Cross Sections B-B".

#### 553.100 Disturbed Area

Refer to discussion in previous sections.

#### 553.120 Elimination of Highwalls

The mine portals will be designed to be stable and to prevent runoff water from entering the mine. Refer to the Typical Portal Cross Section & Detail Looking South on Map 17, Mine Surface Facilities Area Pre-Mining, Mining and Post Mining Cross Sections for a typical detail. The portals will all be similar in design, except the portal used for the ventilation fan may be somewhat different to accommodate the temporary fan that will eventually by moved to a more remote location.

The structural geology "attitude" of the coal seam in the portal block is well established with

multiple drill hole intercepts. This is clearly shown on Figure 5, Hiawatha Top Structure and Figure 6, W-E X-Section A-A' (Chapter 6) which show the Hiawatha Seam within the Portal Block dipping East N-East at approximately 4 degrees which mirrors the "regional dip".

Interestingly, the attitude of the very near surface, outcrop, of the Hiawatha Seam and indeed all of the strata have experienced "creep" where the weathered material down to a depth of approximately 20 feet have slid down the hillside through time. That is, the coal outcrop that may be exposed with a shovel only one or two feet beneath the surface has been displaced by as much as ten feet down-hill. A profile cut by track hoe demonstrates that one has to excavate at least ten and in some cases twenty feet to find coal, and the other strata, in-place and demonstrating the attitude of the bedrock.

The fortuitous combination of East North-East bedrock "regional" dip and a near surface "creep" phenomenon causing the dip in that near surface material to reverse and dip west. This causes a "crest" in the profile of the coal seam. It is possible that excavation of the portal bench will cut deep enough into the outcrop to place the portal at the crest which would cause water to run east from the crest, down the regional dip slope and water west of the crest to drain westward. Even if we are not lucky enough to have the crest end up at the optimum location it will be easy to "grade the entry-ways up to the East to create a local crest in each entry that would prevent water from outside the mine draining into the mine and certainly water from inside the mine cannot drain to the outside due to the regional dip.

There are no old mine workings, or portals in the area of the proposed Kinney No. 2 Mine portals. If for any reason, old portals or mine openings are encountered they will be sealed according to the plan presented elsewhere in this permit, and in compliance with MSHA requirements. All cuts and highwalls at the portal area will be reclaimed and the post mining surface will be returned to the approximate original contour. Any exposed coal seam at the outcrop will be covered with a minimum of 4 feet of non-combustible backfill.

As shown on Map, 14, Mine Surface Facilities, Pre-Mining Topography Map, and on Map 33, Slope Analysis Map a remnant highwall remains at the old Columbine Mine portal face-up. This remnant highwall will be partially impacted (approximately 50%) by Kinney No. 2 Mine construction. The portion impacted by the Kinney No. 2 Mine will be reclaimed as discussed in 553.500 of this chapter.

### 553.130 Reclaimed Area Static Safety Factor

The Geotechnical Investigation, dated November 26, 2007 states on page 17 of 17:

"It is anticipated that fill slopes will be created with on-site materials. If this material is placed and compacted in accordance with recommendations provided in Section IV, fill slopes as steep as 1.5H:1V will have a factor of safety of at least 1.3 if constructed of the native clayey soils. Fill slopes shown on Sections A-A, B-B, and F-F will likely be constructed of this clayey on-site fill. Test pits in the vicinity of the fill areas shown on Sections C-C, D-D, and E-E encountered significant amounts of medium-dense silty sand. Fill slopes as steep as 1.8H:1V constructed of this silty sand material have a computed factor of safety of at least 1.3. Plots of stability analyses for typical fill slopes are included in the appendix."

In Addendum No. 1 to the Geotechnical Investigation, dated September 28, 2010, RB&G Engineers, Inc states,

"Note that the Direct Shear test on the sample of sandy lean clay which had a friction angle of 20 degrees also had cohesion of 15 psi. Two Triaxial Shear tests performed on samples of the lean

clay had total stress friction angles of 29.6 and 32.5 degrees with 2 psi cohesion and effective stress friction angles of 36.0 and 36.7 degrees with 2 psi cohesion."

A copy of the Geotechnical Investigation report, and Addendum No. 1 can be found in Exhibit 14.

### 553.200 Spoil and Waste

Evaluation of coal roof and floor materials and overburden/interburden materials indicates no significant toxicity concerns relative to these materials. As described in R645-301-520, General Description of Mine Plans, Mining Methods, and Related Design Requirements, under the subtitle of Non-Coal Waste Disposal, all non-coal wastes will be collected and stored in appropriate containers and will be disposed of off-site by a licensed contract disposal firm. These disposal plans include any non-coal wastes remaining on completion of mining operations with the exceptions of concrete demolition debris and road surfacing materials resulting from facility removal which will be placed and buried in the deepest cut areas of the reclaimed area. Off-site disposal of most non-coal wastes and the planned disposal measures for demolition debris will effectively eliminate any potential associated hazards.

The portals will be designed to be stable and to prevent runoff water from entering the mine. Refer to the Typical Portal Cross Section & Detail Looking South on Map 17, Mine Surface Facilities Area Pre-Mining, Mining and Post Mining Cross Sections for a typical detail. The portals will all be similar in design, except the portal used for the ventilation fan may be somewhat different to accommodate the temporary fan that will eventually by moved to a more remote location. According to the best information available, the coal seam dips away from the outcrop, which will prevent any in-mine water from flowing out of the mine. The geology of the actual outcrop may be different depending on how much surface slump has occurred, however, ~~CR~~ CEG3 will take precautions as needed to prevent water from exiting or entering the mine.

There are no old mine workings, or portals in the area of the proposed Kinney No. 2 Mine portals. If for any reason, old portals or mine openings are encountered they will be sealed according to the plan presented elsewhere in this permit, and in compliance with MSHA requirements.

### 553.250 Refuse Pile & 553.260 Disposal of Coal Processing Waste

Refer to discussion in previous sections. No coal washing facility (preparation plant) is planned at the Kinney No. 2 Mine. However, due to a specific interpretation of the Utah Coal Mining Rules (R645-100) stacking, crushing, screening, and general handling of coal may inadvertently produce coal processing waste. All materials falling into this category will be temporarily stored in the temporary coal processing waste pile then sold as distressed coal and shipped to the Arch Coal Washing Facility on Ridge Road south of Price, UT.

Any coal mine waste remaining from the UDOGM Abandoned Mine Reclamation work completed in the 1980's that is encountered during reclamation of the Kinney No. 2 Mine will be buried a minimum of four feet deep in deep cuts.

### 553.300 Exposed Coal Seams

Exposed coal seams will be backfilled completely leaving no exposed coal. Backfill will be placed a minimum of 4 feet above the coal seam, thus preventing spontaneous combustion at the outcrop. See the Typical Portal Cross Section & Detail Looking South on Map 17, Mine Surface

Facilities Area Pre-Mining, Mining and Post Mining Cross Sections for a typical detail.

### 553.400 Cut and Fill Terraces

No cut and fill terraces will be utilized at the Kinney No. 2 Mine.

### 553.500 Previously Mined Areas & 553.600 Approximate Original Contour

The Kinney No. 2 Mine area was mined by several mining companies as discussed in other sections of this permit application. These mining operations left numerous roads, operations areas and structures in the area, as well as a highwall remnant at the old Columbine Mine portal area. This area was reclaimed by the Utah AML program in the 1980's, however, the highwall remnant was not fully reclaimed, leaving a near vertical face of exposed rock and soils.

Due to previous mining and other disturbance of the area there is not sufficient available spoil to completely backfill this highwall remnant, and the other old mining roads and disturbances. Given that the Kinney No. 2 Mine development activities effectively constitute remining of the previously disturbed areas which included a preexisting highwall remnant, and other roads and disturbances, under the applicable regulatory provisions dealing with remining of previously mined areas (R645-301-553.500 through 524). Since the requirements of Rule R645-301-553.500 apply, a variance from the AOC restoration requirements is not necessary. The disturbed area for the Kinney No. 2 Mine will be reclaimed to the approximate original contour as it exists as of December, 2007, the state it was left in by the Utah AML reclamation project, including the highwall remnant.

### 553.700 Backfill and Grading Thin Overburden

Not applicable as the Kinney No. 2 Mine is an underground mine.

### 553.800 Backfill and Grading Thick Overburden

Not applicable as the Kinney No. 2 Mine is an underground mine.

## R645-301-560 Performance Standards

The Kinney No. 2 Mine will be operated in accordance with the approved permit and requirements of R645-301-510 through R645-301-553.

# Chapter 6

# R645-301-600 GEOLOGY

## Kinney No 2 Mine

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## R645-301-600 Geology

### R645-301-610 Introduction

This section describes existing geologic conditions, resources, and features within the permit and adjacent areas that could potentially be affected or impacted by the mining and reclamation activities. Information in this section was developed in accordance with applicable regulatory requirements (R645-301-600) for coal mine permitting in the State of Utah.

### R645-301-611 General Requirement

Specifically, this section addresses rules R645-301-100 and R645-301-621 through R645-301-642.

### R645-301-612 Cross Sections, Maps and Plans

All cross sections, maps and plans as required by R645-301-622 have been prepared and certified as described under R645-301-512.100.

### R645-301-620 Environmental Description

### R645-301-621 General Description

The geology of the permit area is dominated by relatively flat-lying, interbedded sedimentary units chopped into Basin and Range style North-South Horst and Grabens which control the N-S elongate valleys and long skinny flattopped ridges (plateaus).

The rather large number of faults has formed a series of mining blocks separated by vertical distances created by the throws on the mostly normal faults. These faults dictated the lateral limits of historic mining. The previous mine operators chose not to cross the larger faults (in excess of 90 feet) instead stopped mining against the faults. In order for Coal Energy Group 3 to reach the remaining reserves, a number of large fault crossings will have to be completed.

The Cretaceous Blackhawk Formation is the principal coal-bearing formation. Coal seams include, in ascending order, the Flat Canyon, UP, Columbine, Hiawatha, McKinnon, and Haley. The Hiawatha Seam is the only mineable coal seam within the permit boundary. The other two seams of mineable thickness (UP and Columbine) have already been mined. The Hiawatha Seam has also been mined over a large portion of the permit area. However, a fortuitous East-West elongate corridor of Hiawatha Seam Coal remains unmined. This corridor of unmined coal apparently was not mined because of a rock parting that may have rendered this local area less appealing to historic mine operators because of the high ash content of the coal where this parting is present. The parting appears to be a very small, mid to late swamp, channel that meandered through the swamp and deposited some mud and clay (possibly sand and silt also) in a sinuous East-West trending pattern.

A corridor of unmined coal, between old workings, approximately 600 feet wide is planned to be used as the access point in to the deposit. This corridor is clearly high and dry, relative to ground water. Data from the eleven monitor well completions makes a compelling case and when coupled with the structural data helps explain the position of the water table relative to the seam to be mined.

Based on chemical analysis of coal, roof, and floor samples, overall sulfur content is relatively low, typical of the Hiawatha Seam in this region. However, sulfur in the coal demonstrates a bi-modal distribution. That is, organic sulfur is responsible for the background sulfur values of approximately 0.5% and presence of pyritic sulfur is obviously responsible for driving the sulfur content to over 1% in some local areas. As shown in Table 4, roof and floor waste may be acid forming however, ~~Acid~~ acid producing potential is considered generally low and the neutralization capacity of the roof and floor rock is relatively high due to the presence of significant quantities of calcium carbonate as the nearly exclusive matrix in the sandstones and mudstones and as a common cleat filling. This results in a relatively high neutralizing capacity and acid-forming potential. Similarly, chemical analysis generally indicates low concentrations of most potentially toxic metals and low alkalinity producing potential. The chemical analysis results and subsequent conclusions are generally consistent with chemical analysis of coal waste materials from previous mining operations involving production from the same coal seams in the area.

**R645-301-622 Cross-Sections, Maps and Plans**

**622.100 – 300**

Information presented on the geology maps, cross-sections, and isopachs include:

- Locations and elevations of drill sites and core holes
- Major structural features
- Depth, thickness designations, and outcrop locations of the Hiawatha Coal Seam (the seam to be mined )
- Dip and strike of major formations and Hiawatha Coal Seam
- Areas of coal previously mined out
- Location and depth of groundwater where encountered during exploration drilling

**622.400 Oil and Gas Wells**

There are no oil and gas wells, and no planned exploration drill holes within the Portal Block Permit Boundary.

Consistent with applicable provisions of R645-301-512, geologic maps and cross-sections have been prepared under the direction of, and certified by a qualified, registered engineer or land surveyor with assistance from experts in the related field.

## R645-301-623 Geologic Information

### 623.100 Chemical Characteristics of Coal and Associated Strata

As part of the 2006 Drilling Program coal core samples were analyzed for a variety of parameters including: Moisture, Ash, BTU, Sulfur, Volatile Matter, Fixed Carbon, Acid Potential (TCaCO3/1000T), Ash Fusion Temperatures. Ash Mineral Analysis includes, Ash Type, Specific Gravity, multiple Trace and major elements and others. Immediate roof and floor rock samples were separated and analyzed for toxic-metals and acid forming materials. The non-confidential portion of these data are located in Exhibit 19, 19(Geologic Information, Roof and Floor Analysis). The confidential portions of said data were submitted previously and reside in the DOGM library as Confidential Information under R645-300-124.

## R645-301-624

Table 4 (List of Roof & Floor Samples & w/ Data from Acid Forming and Neutralization Potential Analyses) presents the Acid Potential and the Neutralization Potential in samples taken from the Roof and Floor of the Hiawatha Coal Seam. These data are available to be used in Acid-Base Accounting (ABA) which is a common static test developed to evaluate coal mine waste (Sobek et al. 1978).

The acid production potential (APP) or Acid Potential, as shown on lab analysis from SGS, is determined from the Total sulfur content per the formula 31.25 X Percent Total S = APP. This formula assumes that two moles of acid will be produced for each mole of sulfur. Units for APP are metric tons of CaCO3 required to neutralize the acid potential in 1,000 metric tons of the rock material being tested. This method should be referred to as the MAXIMUM Acid forming potential because all three forms of sulfur present in sedimentary rocks are summed together as Total Sulfur; Organic, Pyritic, and Sulfate. Pyritic Sulfur is the only form clearly demonstrated to contribute to the acid forming potential. Sulfate has already reached its highest oxidation state and should not enter into the calculation. Data are unclear as to the role of organic sulfur, if any. This method, therefore, very conservative and likely overstates the APP.

The Neutralization Potential (NP) is determined by a simple titration where a standard sample (grind and weight) is treated with hydrochloric acid then the sample is boiled until the reaction stops. The resulting solution is back titrated to pH7 with sodium hydroxide to determine the amount of acid consumed in the reaction between hydrochloric acid and the sample. Units for NP are also metric tons of CaCO3 per 1000 metric tons of material.

The net Neutralization Potential (NNP) is arrived at by subtracting the APP from the NP.
Table 4 presents data from core collected in 2006 with 18 of the 24 analysis being completed in 2006. A wide range of analyses were performed on these samples including "Acid Potential". Six additional samples were retrieved from archived core from the same 2006 drilling program as were the other 18 samples. These six samples were analyzed during August 2010 and included both "Acid Potential" and "Neutralization Potential". All analyses were performed at SGS Denver laboratories and the lab reports are contained in Exhibit19, Geological Information, Roof and Floor Analyses.

These data do not include "Sulfur Forms" which data is held in confidential section,

however, a washability study was performed on coal from drill holes completed in the 1970's and concluded that Pyritic Sulfur accounted for that portion of Total Sulfur when the Total Sulfur values exceed approximately 0.50% in the Hiawatha Coal Seam. It is expected that a similar threshold also exists for Roof and Floor Rock considering the equivalent depositional environment.

**TABLE 4**

**LIST OF ROOF & FLOOR SAMPLES W/ DATA from ACID FORMIING AND NEUTRALIZATION POTENTIAL ANALYSES**

| | | | FOOTAGE | | | | | Acid Production Potential* | Neutralization Potential | Net |
|---|---|---|---|---|---|---|---|---|---|---|
| Drill Hole | Seam Site | Sample | From | To | *Saturation %* | *PH su* | *EC mmhos /cm* | Tons CaCO3 /1000Tons Material | Tons CaCO3 /1000Tons Material | Neutralization Potential |
| CR-06-01 | HIA Roof | 5B/5 | 75.6 | 76.4 | | | | 4.91 | | |
| CR-06-01 | HIA Roof | 5C/5 | 76.4 | 76.9 | *42.33* | *6.91* | *6.62* | 7.50 | | |
| CR-06-01 | HIA Roof | 6/5 | 78.5 | 79.0 | *56.45* | *3.74* | *9.37* | | | |
| CR-06-01 | HIA Roof | 1/6 | 78.2 | 78.8 | | | | 9.38 | | |
| CR-06-01 | HIA Floor | 1/7 | 87.5 | 89.3 | | 6.1 | 2.5 | 19.10 | 4.00 | -15.10 |
| CR-06-02 | HIA Roof | 1B-17 | 426.6 | 427.5 | | | | 2.19 | | |
| CR-06-02 | HIA Roof | 2/17 | 427.5 | 428.2 | *35.93* | *7.59* | *7.51* | 5.36 | | |
| CR-06-02 | HIA Floor | 3/18 | 436.7 | 437.1 | *57.68* | *4.08* | *11.56* | | | |
| CR-06-05 | HIA Floor | 2/1 | 1,043.0 | 1,043.5 | *54.08* | *7.24* | *1.00* | 13.44 | | |
| CR-06-05A | HIA Roof | 6/1 | 1,031.9 | 1,033.7 | | 8.1 | 1.5 | 2.50 | 43.00 | 40.50 |
| CR-06-05A | HIA Roof | 8/1 | 1,034.3 | 1,035.3 | *42.40* | *7.17* | *8.23* | 14.69 | | |
| CR-06-05A | HIA Roof | 1/2 | 1,036.0 | 1,036.3 | *55.35* | *7.13* | *0.80* | 21.25 | | |
| CR-06-05A | HIA Floor | 11/2 | 1,045.3 | 1,045.7 | | | | 15.63 | | |
| CR-06-05A | HIA Floor | 12/2 | 1,045.7 | 1,046.7 | | 4.1 | 4.4 | 11.10 | 0.05 | -11.05 |
| CR-06-09 | HIA Roof | 3/1 | 990.7 | 991.7 | | 6.3 | 3.6 | 23.70 | 38.90 | 15.20 |
| CR-06-09 | HIA Roof | 4/1 | 991.7 | 992.5 | | 4.4 | 5.4 | 40.10 | 21.10 | -19.00 |
| CR-06-09BLW | HIA Roof | 8/2 | 987.8 | 988.7 | *50.65* | *6.67* | *4.68* | 25.31 | | |
| CR-06-09BLW | HIA Roof | 9/2 | 988.7 | 989.4 | | | | 16.56 | | |
| CR-06-09BLW | HIA Floor | 6/3 | 1,001.3 | 101.8 | *51.91* | *5.03* | *6.62* | 30.00 | | |
| CR-06-10 | HIA Roof | 8/3 | 1,208.3 | 1,210.3 | | | | 3.60 | 7.70 | 4.10 |
| CR-06-10 | HIA Roof | 9A/3 | 1,210.3 | 1,210.7 | *51.83* | *7.07* | *2.60* | 11.56 | | |
| CR-06-10 | HIA Roof | 9B/3 | 1,210.7 | 1,211.3 | | | | 1.25 | | |
| CR-06-10 | HIA Roof | 10/3 | 1,211.3 | 1,244.8 | *53.14* | *6.64* | *2.45* | 13.75 | | |
| CR-06-10 | HIA Floor | 3/4 | 1,222.5 | 1,223.0 | *42.75* | *5.86* | *5.48* | 47.50 | | |
| AVERAGE | | | | | 49.54 | 6.13 | 4.96 | 15.47 | 19.13 | 2.44 |
| COUNT | 24 | | | | 12 | 17 | 17 | 22 | 6 | 6 |

Highlighted Samples were taken from archived core analyzed August 2010

* Represents "Maximum" or Ultimate Possible Acid Forming Potential.

*Italicized Values,* Samples were analyzed in 2008 as paste from pulp of samples previously analysed in 2006 @ SGS Labs

Approximately 12,000 cubic yards (CY) of coal were buried on the property during AML reclamation of the old Columbine Mine surface pad sites Map 45, Reclaimed Coal. This coal is herein referred to as "reclaimed coal" and will be removed from the site before construction of structures begins. Per the Divisions request, characteristics of this reclaimed coal are presented on Table 4A (Reclaimed Coal, October 2007 SGS Lab Analysis). Lab analysis sheets from which this table was formed may be found in Exhibit 6, Soils Information, Reclaimed Coal. Sample locations are shown on Map 34,
Topsoil To Be Disturbed, and Map 45, Reclaimed Coal. This "reclaimed coal" is also discussed in section 232.100 Chapter 2 Soils.

| TABLE 4A | | | | | | |
|---|---|---|---|---|---|---|
| RECLAIMED COAL, October 2007 SGS Lab Analysis | | | | | | |
| | | As Received Basis | | | | Acid |
| Sample ID | Location | Moisture | Ash | Sulfur | Btu/lb | Potential* |
| 4-CP | Old Stack Tube | 9.92 | 7.69 | 0.52 | 11266 | 16.3 |
| 5-CP | Old Stack Tube | 9.6 | 9.09 | 0.57 | 11071 | 17.8 |
| 6-CP | Old Stack Tube | 9.86 | 9.13 | 0.56 | 10803 | 17.5 |
| 7-CP | Old Stack Tube | 9.16 | 8.92 | 0.57 | 11124 | 17.8 |
| 8-CP | Old Stack Tube | 12.09 | 8.2 | 0.51 | 10584 | 15.9 |
| 9-CP | Old Stack Tube | 9.51 | 8.54 | 0.51 | 11071 | 15.9 |
| 10-CP | Old Stack Tube | 8.81 | 8.95 | 0.6 | 11181 | 18.8 |
| 11-CP | Old Stack Tube | 10.61 | 11.42 | 0.46 | 10486 | 14.4 |
| 12-CP | Old Stack Tube | 9.46 | 8.85 | 0.5 | 10941 | 15.6 |
| 13-CP | Old Stack Tube | 10.42 | 8.55 | 0.52 | 11018 | 16.3 |
| 15-CS-1 | Old Stack Tube | 9.22 | 13.17 | 0.45 | 9986 | 14.1 |
| 9-B | North Block | 8.48 | 11.75 | 0.66 | 10581 | 20.6 |
| D-4 | North Block | 12.47 | 41.28 | 0.44 | 5929 | 13.8 |
| DA-9-B | North Block | 15.19 | 34.89 | 0.4 | 6496 | 12.5 |
| D9-A Coal | North Block | 7.29 | 34.08 | 0.55 | 7726 | 17.2 |
| D9-A | North Block | 6.81 | 37.09 | 0.52 | 7312 | 16.3 |
| D-11 | North Block | 11.33 | 34.95 | 0.41 | 7063 | 12.8 |

*Acid Potential Calculate from Total Sulfur

The chemical analysis parameters used to evaluate coal, roof, and floor materials are listed on Table 5, (Analysis Parameters - Coal, Roof, and Floor Materials). Full chemical analyses for coal are considered confidential and are held as confidential information at SLC UDOGM library. Analyses of roof and floor materials together with the non-confidential portions of analyses for coal are included in Exhibit 19 (Geologic Information, Roof & Floor Analysis). This information is included for reference only. Coal Energy Group 3 has no plans to place roof and floor materials in long term stockpiles on the surface. Roof and floor materials cut during fault crossing, overcast and or under casts will be stored in designated in-mine rock storage areas. Should there arise an emergency need store mine development waste (roof and floor materials) on the surface, this material will be stored in the "off-spec coal" pile, or If the waste is categorized as coal processing waste it will be placed in the temporary coal processing wastepile Map 13 (Surface Facilities).

## TABLE 5
## ANALYSIS PARAMETERS - COAL, ROOF AND FLOOR MATERIALS

### COAL, ROOF AND FLOOR

| PROXIMATE ANALYSIS |
|---|
| % Moisture |
| % Ash |
| % Volatile |
| % Fixed Carbon |
| Btu/lb |
| % Sulfur |
| MAF Btu/lb |
| % MAF Volatile |
| % MAF Fixed Carbon |
| lb SO2/mm Btu |
| % Air Dry Loss |
| lb Sulfer/mm Btu |
| As Received Net Sample Wt. |

| TCLP EXTRACT ELEMENTS |
|---|
| Arsenic, As |
| Barium, Ba |
| Cadmium, Cd |
| Chromium, Cr |
| Lead, Pb |
| Mercury, Hg |
| Selenium, Se |
| Silver, Ag |

| MINERAL ASH ANALYSIS |
|---|
| **(Rock Forming Elements)** |
| Silicon Dioxide |
| Aluminum Oxide |
| Titanium Dioxide |
| Iron Oxide |
| Calcium Oxide |
| Magnesium Oxide |
| Potassium Oxide |
| Sodium Oxide |
| Sulfur Trioxide |
| Phosphorsus Pentoxide |
| Strontium Oxide |
| Barium Oxide |
| Manganese Oxide |
| Silica |
| Base:Acid Ratio |
| T 250 Temp |
| Ash TYPE |
| Fouling Index |
| Slagging Index |

### COAL ONLY with ROOF and FLOOR as part of COMPOSITE

| TRACE ELEMENTS |
|---|
| Antimony |
| Arsenic |
| Beryllium |
| Cadmium |
| Chromium |
| Cobalt |
| Copper |
| Lead |
| Mercury |
| Molybdenum |
| Nickel |
| Selenium |
| Thallium |
| Vanadium |
| Zinc |

### SELECTED SAMPLES OF COAL, ROOF AND FLOOR

| |
|---|
| Acid Forming Potential |
| Neutralization Potential |

If, for any unanticipated reason, temporary cessation of mining and/or reclamation operations for a period of 30 days or more becomes necessary, CRG3 will submit a notice of intention to UDOGM to temporarily cease or abandon operations. The notice will include a statement of the exact number of acres which have been disturbed prior to cessation, the nature and extent of any reclamation completed, and any reclamation, environmental monitoring, water treatment, or other activities which will continue during the period of temporary cessation. Environmental monitoring will include taking one composite sample of the temporary coal processing waste storage pile should there be coal processing waste rock in the temporary coal processing waste pile at time of cessation.

Should the temporary cessation continue for an extended period of time, Coal Energy Group 3 commits to take one composite sample every six months and report the findings to UDOGM so long as the said material remains in the temporary coal processing waste pile.

Roof and floor rock that is inadvertently taken during mining of the coal seam will be blended into the coal product stream and shipped out with the coal. When an area of high ash coal is encountered, or in areas where roof and or floor rock are difficult to avoid taking with the seam and the presence of this roof and floor rock raises the average ash content of the coal product above contract specifications, that coal will be temporarily stacked in the "off-spec" stacking tube then blended with "spec coal" as immediately as possible and will be shipped out with the coal product.

Should mining encounter such a large volume of high ash or low quality coal that blending with "spec coal" is not feasible, Coal Energy Group 3 will exercise the agreement with Arch Coal to sell the low quality coal, known in the industry as "distressed coal" to Arch Coal who will haul the material to their facility near Price for processing.

**R645-301-623.200**

Reclamation will be accomplished per discussions in Sections 2, 3, 4, 5, and 7.

**R645-301-623.300**

As discussed in Chapter 5 and elsewhere; first mining only is planned at this time therefore subsidence monitoring is not required.

## R645-301-624 Geologic Description

### 624.100 Description of Geology

The following discussion, cross sections, maps, and plans address regulations 624.110 and 624.120.

## Regional Geology

### Topography

The permit area is characterized as incised "Basin and Range style Topography". This topography consists predominately of parallel N-S valleys separated by flat-topped ridges, typical of "graben and horst" physiography. Strata in the area are composed of moderately weak fine-grained units interfingered with thick, resistant sandstone units. These units typically erode to moderate to steep weathered slopes.

Major canyons in and near the permit boundary include Pleasant Valley, Eagles Canyon, and Longs Canyon; all draining northward tributary to Scofield Reservoir. Elevations in the general permit area range from over 9,000 feet above sea level on the tops of the flat-topped ridges to about 7,600 feet above sea-level in Pleasant Valley.

### Stratigraphy and General Lithology

The general lithology of the area consists of thick accumulation of Upper Cretaceous and Tertiary strata, exposed in the Book Cliffs and Wasatch Coal Fields.

The Upper Cretaceous sediments of the section were deposited along the western margins of a north-south oriented Cretaceous Interior Seaway. This seaway is defined by the pattern of marine, marginal marine, and coastal plain sediments deposited at that time. A rapidly rising mountain belt to the west supplied clastic material for shoreline construction by wave-dominated delta systems. Throughout Cretaceous time, this seaway underwent a series of transgressive and regressive (advancing and retreating) phases depositing a number of broad sub aerial to submerged delta and prodelta sheet sandstones. These sandstones display landward shoreline pinch outs and seaward thinning and fining of sediment sizes. Major coal deposits found in Utah are usually formed immediately landward of shoreline delta sandstone pinch outs and on top of these regressive delta (foreshore) deposits.

Landward of the thick shoreline coal accumulations, lower coastal plain depositional influences come into play, generally creating a series of splits in the coal section by splays, small channels, and levee deposits. Above the delta sandstones, the coal seams are often thinner and/or split due to the decreased time available for peat deposition and common presence of additional "stacked" transgressive-regressive events which invaded the swamp system with interdeltaic features such as storm wash over fans, tidal inlet deltas, and lagoon mud flats.

Coals formed on delta sandstone sheets are usually very planar and continuous while coal seams found in the lower coastal plain are much more likely to exhibit rolls or undulations, scouring by fluvial channels, and discontinuous or lenticular geometry. A classic model of the Book Cliffs Delta Systems was developed by Balsley, 1980.

The formations are composed of, in ascending order, the Blue Gate Member of the Mancos Shale, the interfingering deltaic members of the Blackhawk Formation, the coal-bearing Blackhawk Formation, the unconformably overlying Castlegate Sandstone, the Price River Formation, and the North Horn Formation.

The Blue Gate Member of the Mancos Shale, which forms the valley floor and lower slopes

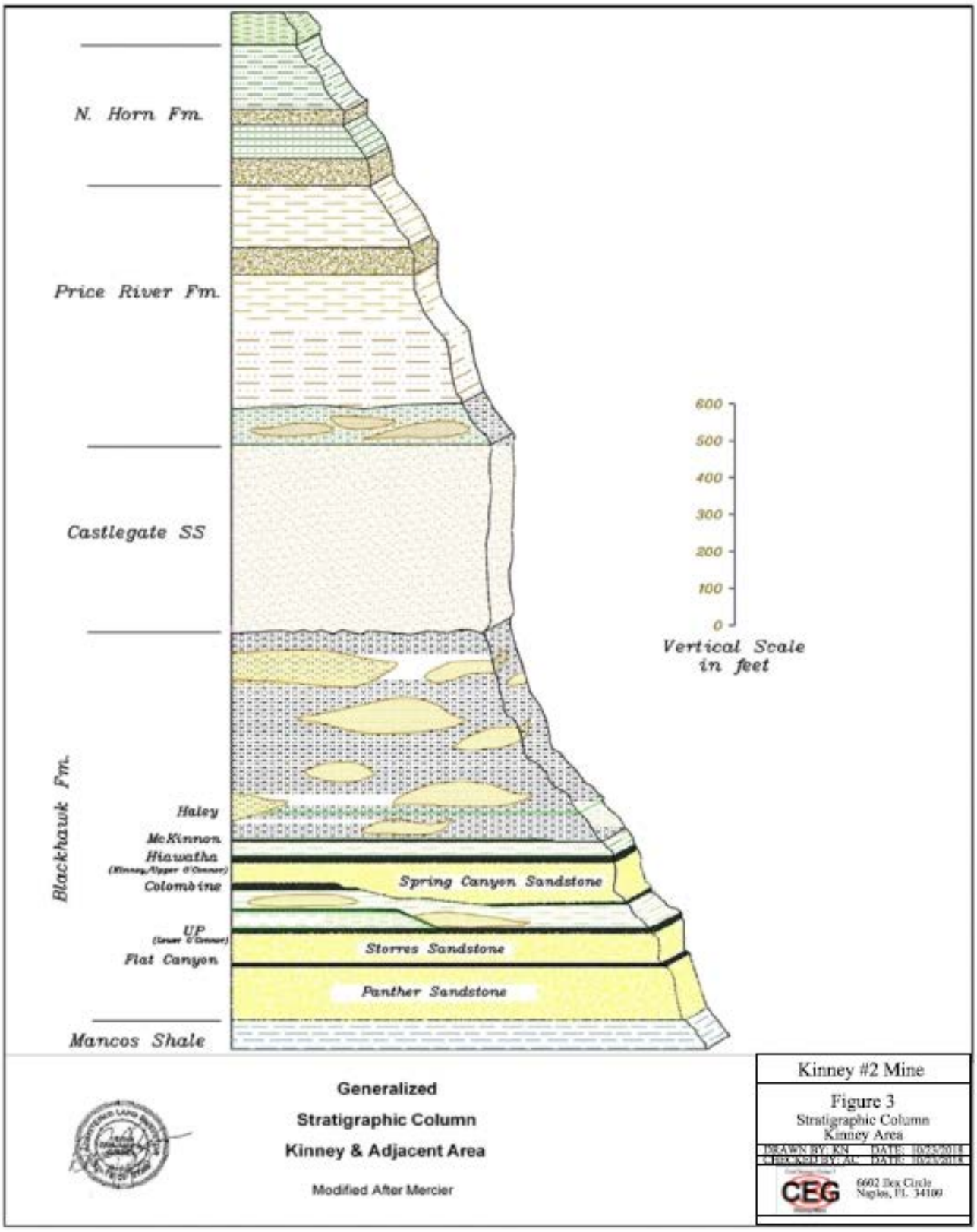
of the prominent cliffs, is over 4,000 feet thick in the area and consists primarily of interbedded marine shales. The Mancos is a clay-rich unit and is relatively impervious to water.

The base of the Blackhawk Formation is locally comprised of five deltaic cliff-forming sandstone members, the Panther, Storrs, Spring Canyon, Aberdeen, and Kenilworth Sandstones, in ascending order. These sandstone units interfinger to the west with the Mancos Shale. Locally the Panther, Storrs, and Spring Canyon Units have been combined under a formational status as the Star Point Sandstone. It is suggested here that these deltaic units be recognized as basal members of the Blackhawk. Lithologies are usually comprised of gradationally sorted sandstones; medium-grained and cross-bedded at the top and fine-grained to silty at their base. Figure 3 (Stratigraphic Column, Kinney Area).

The lower half of the Blackhawk, which contains the major coal seams, consists of sandstone, shale and coal. The upper part of the Blackhawk contains sandstone and a lesser amount of shale. The Blackhawk is about 900 to 1,300 feet thick in the Pleasant Valley District and is the exposed bedrock of the permit area Figure 4 (Regional Surface Geology & X-Section Lines).

**Structure**

The Kinney No. 2 Mine Permit area lies near the north end of the Wasatch Plateau structural province, immediately south of the north-west trending Fish Creek Graben which delineates the local northern border of the Castle Valley thrust. The position of the permit area, essentially at the intersection of the compression formed then extended Fish Creek Graben and the extensional Wasatch Plateau province, accounts for the very complex system of faults that chop up the property into relatively small mining blocks. Detailed description of faults is discussed in the following section, Structural Features and Controls.


N. Horn Fm.
Price River Fm.
Castlegate SS
Blackhawk Fm.
Haley
McKinnon
Hiawatha
(Kinney/Upper O'Connor)
Colombine
Spring Canyon Sandstone
UP
(Lower O'Connor)
Flat Canyon
Storres Sandstone
Panther Sandstone
Mancos Shale
600
500
400
300
200
100
0
Vertical Scale
in feet
Generalized
Stratigraphic Column
Kinney & Adjacent Area
Modified After Mercier
Kinney #2 Mine
Figure 3
Stratigraphic Column
Kinney Area
DRAWN BY: KN
DATE: 10/25/2018
CHECKED BY: AL
DATE: 10/25/2018
CEG
6602 Ibis Circle
Naples, FL 34109

**Structural Features and Controls**

Two and possibly three periods of structural deformation influenced deposition and are responsible for the present position of the strata of the Pleasant Valley District. The Sevier Orogeny, dating from post-Triassic to pre-Oligocene time, is characterized by compressional faulting and folding with the formation of the large Cretaceous clastic wedges west of the district and supplied the sediments that forced the Cretaceous sea eastward. The Laramide Orogeny, which overlaps the Sevier Orogeny in late Cretaceous through the Eocene Epoch, is characterized by vertical uplifts of the Rocky Mountains. The extent of influence of this tectonic event is uncertain in the Pleasant Valley District. Miocene to Recent relative uplift and block faulting is responsible for the present topography and position of the strata.

These structural events have imparted a regional dip of approximately 3 degrees North North-East and generally striking North-West South-East as can be observed on Figure 5 (Hiawatha Top Structure & X-Section Lines).

Local exceptions to the regional dip are numerous with some fault blocks even dipping south due to the complex faulting described below.

**Faults**

There are two distinct styles of faulting within the district. The oldest system is a conjugate set of strike-slip and or oblique-slip vertical faults. The dominant half of this set is oriented north ~57deg. west. The minor half of the set is oriented north ~60 east. The most prominent faults in this system form the Fish Creek Graben, the UP-South-Saddle-Fault, the UP-North Saddle-Fault, and the G-7 Fault. These structures were first formed in the early compressive episode and then were re-activated by regional uplift Figure 5 (Hiawatha Top Structure & X-Section Lines)

Elsewhere on the Eastern Wasatch Plateau, other faults in this system have been preferentially invaded with maffic dikes. This conjugate set of faults and dikes are cut by a later forming north-northeast set of normal faults. This later N-S fault system is by far the most dominant in terms of number, throw, and influence on the geomorphology. The largest local faults in this system have throws in excess of 600 feet. These faults form a series of "Basin and Range-style" horsts and grabens that are predominantly half grabens with the largest side dipping westerly. The N-S grabens are responsible for the N-S valleys that dominate the physiography.

Many of these N-S faults display characteristics of "curvy crossovers," some wandering in strike and most displaying "scissor action" or highly variable throw along strike. This is due, in part, to the perturbations to local stress fields caused by interaction between the early E-W compressional structures and the N-S extensional system.

The numerous grabens and interaction between the two types of fault systems has resulted in a complex geometry of N-S elongated fault controlled structural blocks, some large enough to mine and others too small and isolated by elevation differences to be economically mineable.

**FIGURE 5 (Hiawatha Top Structure & X-Section Lines)**
is considered Confidential Information under R645-300-124
and has been relocated to
Exhibit 3 Confidential Information.

Four major north-south grabens dominate the structural elements within and in near vicinity of the property. From west to east these are; the Pleasant Valley Graben, the Eagles Canyon Graben the Long Canyon Graben, and the Jump Creek Graben. This Basin and Range style structure is clearly viewed in X-Sections Figures 6 through 9. Lines of section are shown on Figures 4, (Regional Geology & X-Section Lines) and 5 (Hiawatha Top Structure & X-Section Lines). Figure 6 (W-E Structure X-Section A-A'), and Figure 8 (N-S Structure X-Section C-C' have the water table peizometric surface plotted while Figure 7 (W-E Structure X-Section B-B'), and Figure 9 (N-S Structure X-Section D-D') do not.

The Scofield area is unique in the Eastern Wasatch Plateau having the northwest-southeast Fish Creek Graben south of Scofield Town. The Fish Creek Graben forms the northern limit of mining in this area. Two other faults, UP-North Saddle Fault, and UP-South Saddle Fault, were formed in the same structural event that formed the Fish Creek Graben. These faults limit the north south length of individual mining blocks in the area.

The horsts, strata remaining standing high between the down-dropped grabens, have not been named, but the mining blocks within the horsts constrained by both the bounding faults and by legal boundaries have been given names Figure 10 (Hiawatha Overburden Isopachs& Mine Blocks). Of these mining blocks only the Portal block and part of the Scofield North blocks are located within the "Portal Block Permit Boundary" and are described below.

Overburden or "cover" covering the Mine Blocks ranges from zero at the outcrop along the west side of the Portal Block Permit Boundary to maximum of 1,000 feet along the east side of the Portal Block Permit Boundary, and of course mimics topography but modified by faulting, Figure 10 (Hiawatha Overburden Isopachs& Mining Blocks).

**Mining Blocks**

Experience mining throughout the Eastern Wasatch Plateau has shown that mining within most grabens is very problematic for several reasons. The lower relative elevations cause the coal there to be saturated with water, this together with the increased number of small faults and fractures within the grabens, in contrast to the horsts, make mining conditions in the grabens very unfavorable. Therefore planned mining blocks are predominately in the larger horsts within the property Figures 5,(Hiawatha Top Structure & X-Section Lines) 10,(Hiawatha Overburden Isopachs & Mining Blocks) and 11 (Hiawatha Thickness & Mining Blocks.

Portal Mining Block: The Portal Block will be accessed from outcrop via a narrow corridor

of coal left un-mined by previous operators. The Portal block is bounded on the West by outcrop, North and South-West by previous workings, but on the East by the Eagles Canyon Graben and on the South-East by the G-6 fault. From the Portal block mining will ramp southward down across the G-6 fault, approximately 50 vertical feet, to access the Scofield North Block.

Scofield North Mining Block: The Scofield North Block is created by bounding faults; on the North and West by the G-6 Fault; on the East by the Eagles Canyon Graben, on the South by the UP North Saddle Fault. All of the bounding faults display throws of approximately 100 feet except the Eagles Canyon Graben (or the southern extension of it) which has an apparent throw of approximately 20 feet.

**Joints**

A joint study on the permit property has not been completed, however, Wade Hutchings (1997) completed field mapping on property immediately adjacent to the north of the this property and found joint orientations consistent with those predicted by a model of regional geology (GL Hunt Unpublished data) by understanding of the regional geology and the position occupied by the property within it. This has strong implications relative to joint orientations within the Kinney Property and allows a rather high degree of comfort in predicting the joint patters within the permit boundary to be predominately N-S with fewer numbers of NW and NE joints.

**Stratigraphy and Lithology**

The predominate lithotype in the Blackhawk Formation is sandstone/siltstone. Above the thick marginal marine sandstones forming the base of the formation, are thick (10 - 50 foot) sequences of lenticular channel deposits interspersed with more moderate (5 - 15 foot) sequences of sheet sandstone deposits. These sandstones are medium to fine-grained with a high percentage of silica and/or calcite cement filling the sand matrix which generally produces a low permeability. An estimated 35 percent of the formation is composed of correlatable sandstones.

About 30 percent of the Blackhawk is formed of thin, dirty, or discontinuous sandstones. Another 35 percent of the unit is composed of siltstones, often interbedded with the thin sandstones, and the remainder of the formation is composed of mudstones, carbonaceous mudstones, or claystones. The finer grained materials, especially the siltstones, have a higher percentage of silica cement and are often very well indurated. The interbedded units range in thickness from a few tenths of a foot to over a hundred feet. Thick sequences of mudstones in the Blackhawk are less common in this area.

The coal seams in the permit area are contained in the bottom half of the Blackhawk Formation and are interbedded with sandstone and shale. They are, in ascending order, the Flat Canyon, U.P. (Union Pacific), Columbine, Hiawatha and Haley seams Figure 3 (Stratigraphic Column, Kinney Area).

The base of the coal-bearing section is a transition between the lower seams deposited on and above the “Panther Sandstone” and the Seams deposited on and above the “Spring Canyon Member of the Starpoint Sandstone". The westward pinchout of the “Spring Canyon Member of the Star Point Sandstone” occurs within the permit boundary, thus the immediate floor of the Hiawatha Seam changes westward from marine sandstone to

shale.

**Flat Canyon Seam**

The Flat Canyon Seam occurs near the bottom of the Blackhawk Formation a few feet above the Panther Sandstone. It reaches thicknesses of up to four feet locally but is split or absent over the permit area.

**U.P. Seam**

The U.P. Seam is the thickest seam found in the Pleasant Valley District. In the U.P. Pleasant Valley Mine it attained a thickness of thirty feet and is greater than twenty feet for at least half a mile south and southwest of that mine. To the north and east of the U.P. Pleasant Valley Mine the seam splits into two or more seams ranging from six feet to one foot. It lies 70 to 90 feet above the Flat Canyon zone. It is correlated to the Lower O'Connor Seam south and west of the Western Reserve properties and has been mined in the Clear Creek, U.P., and Winter Quarters mines. It is of mineable thickness in the permit area, as can be seen in cross sections of drill holes and on drill logs.

**Colombine Seam**

The Colombine Seam occurs in a limited area northeast of Scofield. The Colombine Mine was the only development of this seam where it is five feet thick. The seam thins and splits east of the mine. It lies 30 to 55 feet above the U.P. Seam. Insufficient reserves and lack of access eliminate this seam from mining considerations.

**Spring Canyon Member, Starr Point Sandstone**

This unit can generally be described as a series of seaward imbricated sheet sandstones locally containing fluvial channels and tidal inlet deposits on its upper surface. The upper portion of the Spring Canyon (upper shore face) is typically composed of silica and dolomite-cemented, medium-grained, well-sorted, coarsening upward, sandstone.

**Hiawatha Seam**

The Hiawatha Seam is the most laterally persistent seam in the Pleasant Valley District and is the only economically mineable seam within the permit boundary. The Hiawatha Seam directly overlies the Spring Canyon Sandstone throughout all but the western-most 500 feet of the permit area where the sandstone pinches out westward. The Hiawatha Seam overlies the U.P. zone by 80 to 130 feet. It is correlated to the Upper O'Connor Seam to the south and west. It has been mined in the Clear Creek, O'Connor, Belina, Utah No. 1, Utah No. 2, Kinney, Blue Seal and Monay, Blazon mines and is being developed in the Skyline mines. Historically it has been referred to as the Kinney Seam, but only at the Kinney Mine.

The Hiawatha Seam Ranges from 6 to 12 feet in thickness locally, and is the only seam to be mined within the Portal Block Permit Boundary, Figure 11 (Hiawatha Thickness & Mining Blocks).

**McKinnon Seam**

The McKinnon Seam lies 250-400 feet above the Hiawatha Seam. It reaches a maximum

thickness of four feet but is usually much thinner or parted and is not easily identified in drill holes over the permit area.

**Haley Seam**

The Haley Seam is very inconsistent in stratigraphic position and thickness. The seam is found only in the northeast corner of the study area. It overlies the Hiawatha by about 500 feet. The Haley Seam locally achieves a thickness of five feet but is usually absent or very thin. It was worked to a limited extent at the Haley Mine east of the Scofield Dam but is not considered economic in the permit area.

**Immediate Roof and floor of the Hiawatha Seam**

Strata enclosing the Hiawatha Seam with the potential of being mined together with the coal vary from marine sandstone, where the Spring Canyon Member of the Star Point Formation underlies the Seam, to fluvial dominated sandstones and overbank mudstones and siltstones.

The immediate roof rock of the Hiawatha Seam is typically composed of a locally thin veneer of clay-rich mudstones grading upwards into muddy to sandy siltstones. Meandering sandstone channels have been picked up by drill holes which intersect the top of the seam. The chemical composition of these strata are discussed in Section 623.100.

**Strata from Hiawatha Seam to Top of Blackhawk Formation**

Rocks overlying the seam are dominated by fluvial rocks containing an abundance of mudstone often rooted and carbon-rich with some ribbon shaped channel sands. This portion of the Blackhawk Formation above the Hiawatha Seam is extremely variable, being formed in a fluvial dominated system. This system produced numerous fluvial channel deposits and their related over bank deposits of siltstone, mudstone, claystone, and discontinuous inter-channel coals.

### 624.130 Sources of Geological Information

Geologic conditions in the permit and adjacent areas have been characterized in this section using information from studies and reports and previous and ongoing baseline characterization and monitoring activities. Available geologic information and relevance to this site are summarized below.

Interpretive data available include the following reports:

- Mounir Tawfik Moussa (1965)
- Vard H. Johnson Ph.D. (1977)
- Joel E. Palmer, Sanders Associates, Inc. (1979)
- Steven P. Knowles (1985)
- Wade Hutchings for Geo-Hunt Consulting (1997)
- David E. Pedersen Ph.D. for Geo-Hunt Consulting (1998)

Additional information was obtained from personal communications with Eric Robeck, who refined geologic interpretations together with Gregory Hunt. Additional data was obtained from work performed by W.R. Grace (1974) and Itel Resources (~1977).

**FIGURE 11 Hiawatha Thickness & Mining Blocks**
is considered Confidential Information under R645-300-124
and has been relocated to
Exhibit 3 Confidential Information.

The Geologic data set includes data from 70 drill holes from several vintages (26 are located within the Permit Boundary) Figure 2 (Drill Hole Locations w/Hiawatha Outcrop).

The data set also includes maps from four old mines that show the location of numerous faults and recorded coal thickness and conditions, limited surface outcrop exposures, and high quality aerial photography.
Drill hole data include:

1. gamma, density, caliper logs and down hole surveys
2. continuous core of the coal horizons and enclosing strata
3. chemical analysis of the coal seams and enclosing strata
4. rock mechanics data from the coal seams and enclosing strata

A comprehensive suite of data from the nine 2006 holes has been submitted and is considered Confidential Information under R645-300-124 and is located in Exhibit 3, Confidential Information).

Nine of the 2006 exploration drill holes, located on four of the drill sites, were completed as groundwater monitor wells with completions in the Hiawatha Seam and enclosing strata. Three of these locations are within the permit boundary. A digital color down-hole camera was lowered into and recorded continuous data from four of the completions to document the presence or non-presence of groundwater soon after the wells were completed. Subsequently, monthly and later quarterly baseline groundwater data have been collected from these monitor wells from 2006 to present with a hiatus during 2009.

Of the nine holes drilled in 2006 significant groundwater was encountered in CR-06-03 and CR-06-03ABV only. Minor amounts were encountered or suspected during drilling in all of the nine wells however it turns out that most of that water was from small perched aquifers as demonstrated by contrasting the data obtained from CR-06-02 and CR-06-02ABV. CR-06-09 and CR-06-09BLW encountered the water table but the volume of water demonstrated by airlifting during drilling from both of them are small. This suggests rather low permeability.

CR-06-02ABV was completed over 100 feet above the Hiawatha Coal Seam in a

perched aquifer and shows minor amounts of water. CR-06-02 is completed in the Hiawatha Coal Seam and is DRY. The completion process "cased-off" the small perched aquifer the CR-06-02ABV is complete in and has a screen isolated in the Hiawatha Coal Seam. This clearly demonstrates the presence of small perched aquifers in the area.

Two additional groundwater monitor wells were complete in July 2010 and both penetrated the regional water table. Data from all monitor wells is presented and discussed in Chapter 7.

Data from all sources have been integrated to form a conceptual geologic model which is here presented as a digital representation of that conceptual model in the form of maps and descriptions.

## 624.200 Underground Coal Mining and Reclamation Activities

### 624.210 Lithologic Logs and Material Analyses

Information gathered from previous drilling and exploratory programs varied considerably in completeness, format, and uniformity of the resulting data. Significant data gaps included the lack of geophysical logs, incomplete cutting logs, generalized core descriptions, rare and/or partial coal core analyses, and non-existent geotechnical descriptions for several of the prior exploration programs.

The primary focus of the 2006 exploration program was the development of ground water monitor wells to gather groundwater data for the permitting process. In conjunction with well drilling activities, geologic data was also collected to address existing gaps in the baseline geologic data.

Holes were both rotary drilled and spot cored. Cuttings were collected on ten foot increments and described for lithologic type, color, and significant grain size, mineral and carbon content. Drilling conditions are noted and are summarized by drill logs included in Exhibit 3, (Confidential Information).

Core sample descriptions include sample increments, recovery rates, strength designations, discontinuity descriptions and graphs, lithologic columns, detailed lithologic descriptions, and photographs. Any water, gas, fractures, etc. encountered during drilling were noted. Holes were deepened approximately 20 feet beyond the lowest strata of interest to create a "rat hole" for cuttings prior to geophysical logging or installation of well screen and casing.

Holes were geophysical logged producing curves including but not limited to Natural Gamma, Compensated Density, and Caliper. Geophysical logging information is provided as both hard-copy and in digital format. Four of the groundwater monitor wells were logged with a digital down-hole camera, providing color video of the hole, casing conditions, water inflow zones and water level. A comprehensive suite of data collected from the 2006 drilling program is included in Confidential Information).

Coal core samples were analyzed for a variety of parameters including: Moisture, Ash, BTU,

Sulfur, Volatile Matter, Fixed Carbon, Acid Potential (TCaCO3/1000T), Ash Fusion Temperatures. Ash Mineral Analysis includes, Ash Type, Specific Gravity, multiple Trace and major elements. Immediate roof and floor rock samples were separated and analyzed for acid forming or toxic-forming materials. Coal and roof/floor analysis results are included in Exhibit 19, (Geologic Information, Roof & Floor Analysis), and are discussed in Section 623.100, Chemical Characteristics of Coal and Associated Strata.

Any significant ground water encountered during drilling was reported to UDOGM. Each drill hole collar was surveyed after installation of the well monitoring equipment, and the drill sites reclaimed. All significant drilling parameters, hydrologic, and physical data about the hole is recorded on a Hole Completion Report with detailed backup residing in the accompanying drill hole file folder. Core not taken for laboratory analysis is being held for possible future geotechnical or geochemical testing.

**R645-301-624.310**

A complete and comprehensive drill hole data set for nine drill holes (CR-06-01, CR-06-02, CR-06-03, CR-06-03-ABV, CR-06-05, CR-06-05A, CR-06-09, CR-06-09BLW, CR-06-10) have been submitted. These data show lithologic characteristics, including physical properties and thickness of each stratum that may be impacted by mining.

**Drill Data are considered Confidential Information under R645-300-124 and have been relocated to Confidential Information.**

**Ground Water Occurrence**

Occurrence of groundwater is addressed in Chapter 7, Hydrology. However, detailed geology, particularly that of fault architecture, detail of fault boundary materials and how those features influences groundwater flow is not covered in Chapter 7 but is covered here in Chapter 6.

**FAULTS and "VADOS ZONE SPRINGS"**

The one spring within the permit boundary (Aspen Spring) and the two in nearest proximity to the permit area (Angle Spring, and Sulfur Spring), are all located within the vados zone, above the water table or above the saturated zone also known as phretic zone, See Figure 12 (Vadose Zone Cartoon) below.

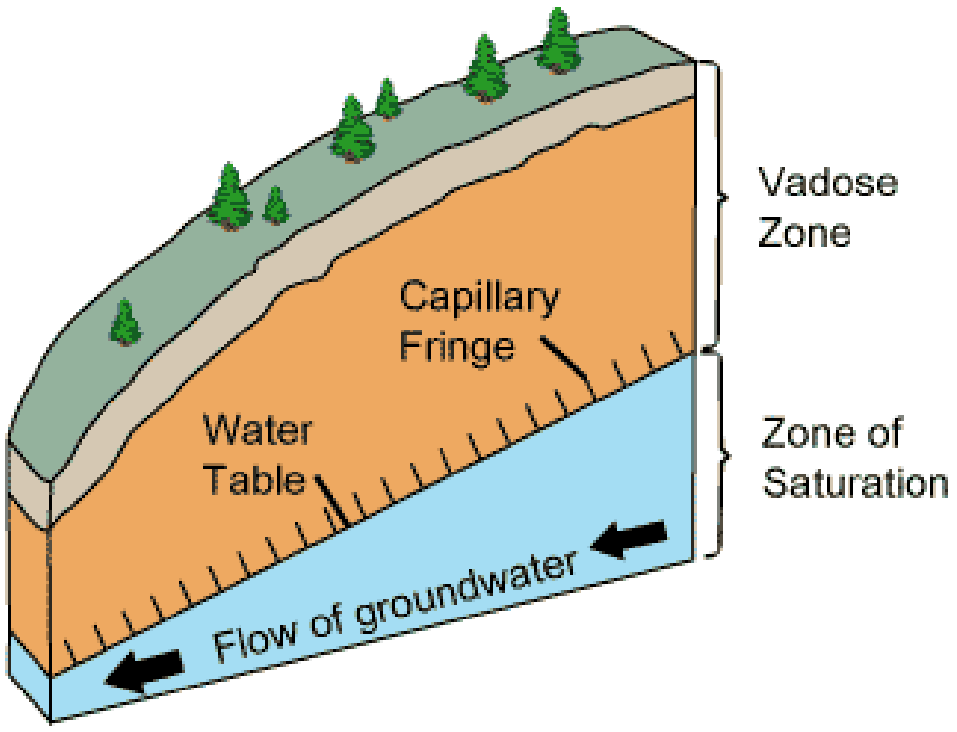



**Figure 12:** Cartoon depicting Vadose Zone as including all soil and bedrock lying above the Water Table (also known as Zone of Saturation or phretic zone).

As demonstrated on Map 7, Regional Hydrology, Aspen and Angle Springs are located more than one hundred feet above the peizometric surface. Sulfur Spring issues from the vados zone but just barely; it lies less than 30 feet above the peizometric surface at that point.

Anecdotal data from local cattle ranchers, together with personal observations and baseline monitoring data indicate that Aspen and Angle Springs are both intermittent. Angle Spring dries up in late summer – early fall - many years but not every year. Aspen Spring appears to flow in spring and summer only. Sulfur Spring appears to be perennial as it has never been observed to not flow water.

Springs located below the water table, in the zone of saturation, are rather easy to understand. More difficult to explain are springs issuing from the vados zone.
Many "apparent vados zone springs" are actually water table springs with "confined plumbing" connected to the water table (peizometric surface) at a point where elevation of the peizometric surface is higher than where the spring is issuing from.

Years of studying structural geology on the Eastern Wasatch Plateau have provided many examples of a correlation between major faults and springs. In fact, it is hard to find an example of a major spring on the Eastern Wasatch that is not connected to a fault. The study of structural geology includes in-depth study of the architecture of typical faults and how they interact with ground water. The author has personally observed many vados zone fault crossings underground in coal mines where the detailed architecture of fault geometry together with the omnipresent difference in rock moisture

content across the faults and evidence of water migration through the breccia zone on one side of the faults only.

One such example is the Bear Canyon Graben, where rock tunnels in the Plateau Mine penetrated both sides of the graben at right angles in the graben crossing. This allowed careful observation of the fault planes.

The photograph in Figure 13 (Oblique Photo, Western Boundary Fault) below is an oblique aerial view of the west boundary fault of the Bear Canyon Graben as observed in outcrop of north wall of Tie Fork Canyon. This photograph shows two fault planes together with joints in the Castlegate Sandstone, with increased joint density near the westernmost and largest fault. This view shows only the large scale features because weathering on the outcrop obscures the fine detail. This structure was also observed underground in rock tunnels that crossed this graben approximately four thousand feet north of this photo location.

Figure 13A (Fault Detail) below, is a schematic of the detail observed in the rock tunnels and is typical of faults in the vados zone observed throughout the Eastern Wasatch Plateau. In addition to the breccia and gouge zones depicted, the rock west of the gouge zone was more moist than that of the east side. The west side breccia zone also contained limonite and goethite stains (rusty iron stains) indicating historic presence of oxidized water having passing through the conduit formed by this breccia zone.

The moisture difference observed underground accounts for the resistivity anomaly recorded from a surface survey prior to crossing the fault with the rock tunnels. This resistivity anomaly is also typical of those observed in the Eastern Wasatch Plateau suggesting the asymmetry in moisture content is the rule and not the exception. The presence of this moisture is accounted for by downward percolation of terrestrial water on its path to the water table.

**FIGURE 13** **OF THE "WESTERN BOUNDARY FAULT"**
Of the "Bear Canyon Graben", in the Castlegate Sandstone, along north wall of Tie Fork Canyon.

**Figure 13**

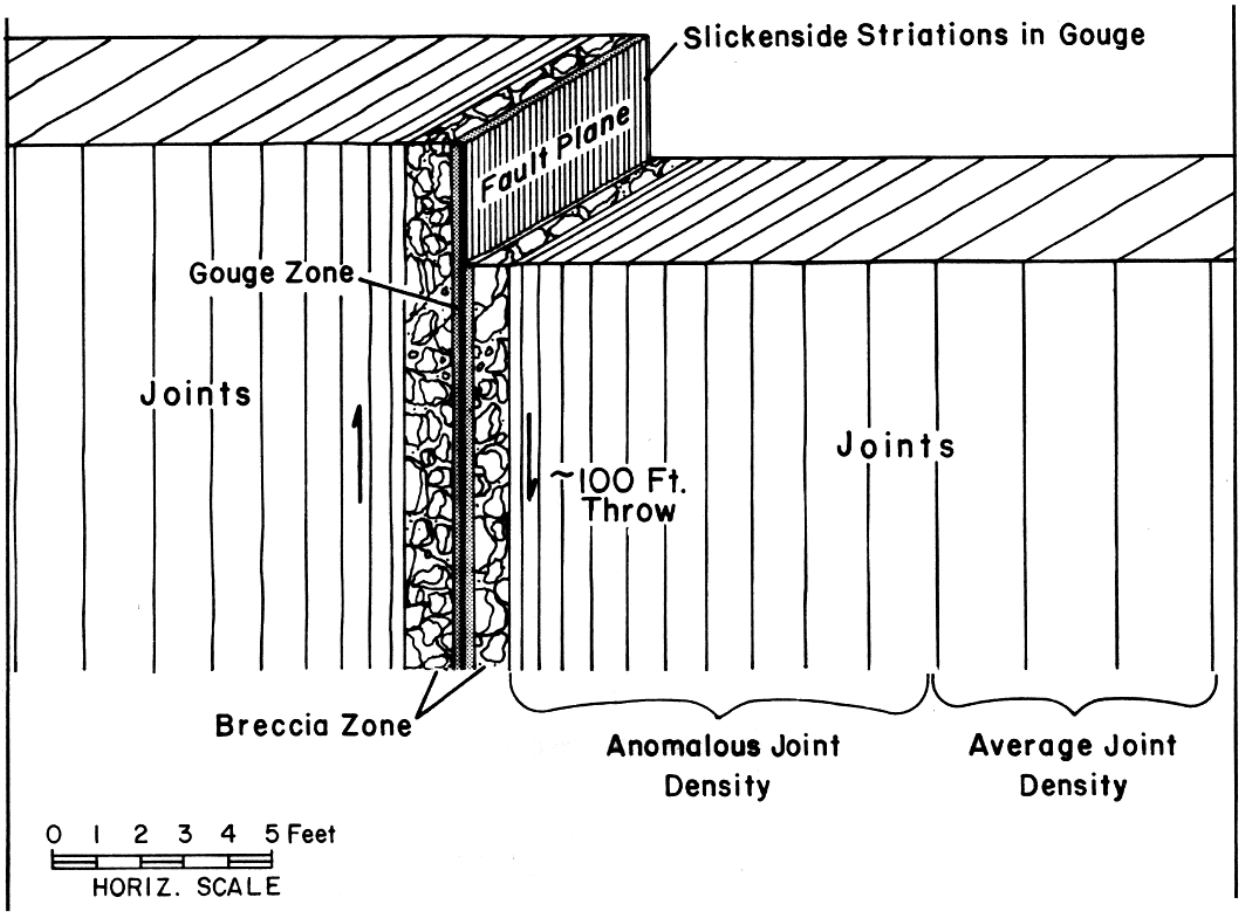



**FIGURE 13A:** Detail of typical fault plane in Cretaceous Sandstone and Coal of the Eastern Wasatch Plateau observed from in-mine penetrations.

This mechanism is demonstrated in a dramatic manner, approximately one mile west of the Figure 13 (Oblique Photo, Western Boundary Fault) location, where the southern extension of the Pleasant Valley Graben is also exposed along the north wall of Tie Fork Canyon. At this location the Tie Fork Spring issues from along the east side breccia zone of the Pleasant Valley Graben eastern boundary fault. The spring is perennial but the flow changes greatly, flowing in the neighborhood of 30 GPM in spring but reducing to less than 5 GPM in the fall. This flow pattern was traced to an obvious flow path where a large spring/seep complex discharges from the upper Price River Formation then migrates down-dip (westward) where it encounters the Pleasant Valley Graben east boundary fault then percolates along the fault downward and then southward to issue at the spring. This entire flow path is in the vados zone but is controlled by the dual nature of the fault, acting both as a horizontal flow barrier and a vertical and horizontal conduit providing the plumbing for direct recharge of the Tie Fork Spring.

Figure 13B (Excavated Dike) is a photograph of a splinter fault off the Pleasant Valley Graben truncating a dike in the mouth of Short Canyon (approximately five miles north of Tie Fork Canyon and twelve miles south of Kinney Mine). This photo shows graphically a breccia zone that developed between two small pieces of this fault system.

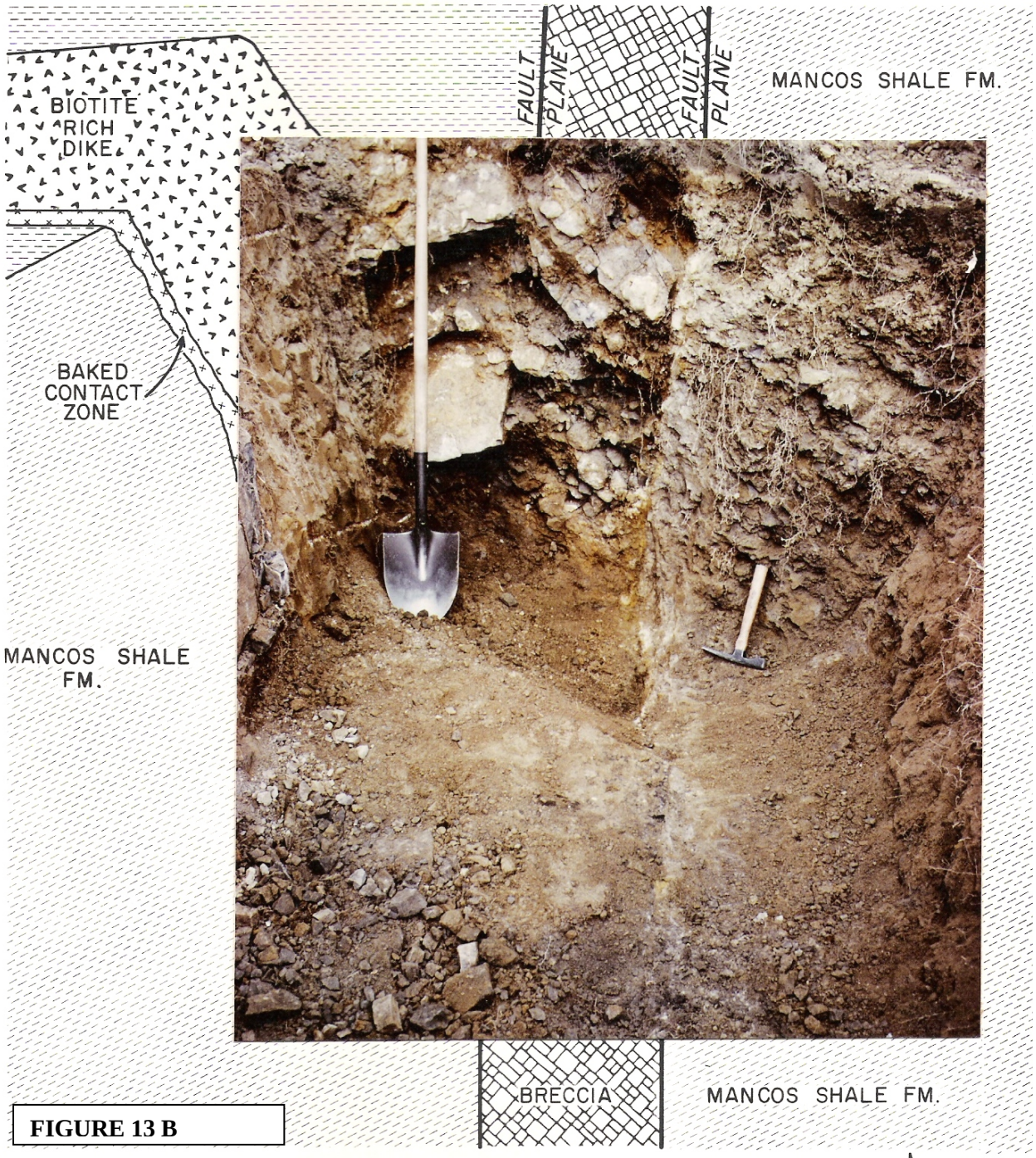



**FIGURE 13 B**

**EXCAVATED N. 80° W. BIOTITE RICH DIKE**
Truncated by N-S Normal Fault at the mouth of Short Canyon, in NuckWoodward Canyon.

The gouge zone at this location is approximately five millimeters (less than one quarter on one inch) and does not display the asymmetric moisture content or iron staining present along underground encounters with faults of larger displacement.

The relationship between fault displacement and width of gouge and breccia zones has been observed by many investigators. E.C. Robertson (Mining Engineering, October 1983) describes this relationship observed in many locations throughout the west in underground mine penetrations and outcrops. This investigator has observed the detail of faults with varying displacement and in varying Lithologies on the Eastern Wasatch Plateau in the Skyline and Plateau Mines. These observations have lead to a rule of thumb – faults with displacement of 100 feet or more produce gouge zones up of five inches. Five inches of gouge appears to be thick enough to behave as a barrier to groundwater flow, at least in the vados zone. It is not know to what extent a five inch gouge zone behaves as a groundwater barrier in the saturated zone where a head may exist. Information is not available from saturated zone fault penetrations, however, data presented here from the Kinney Mine area suggests that one; either faults having displacement of 100+ feet do not partition groundwater flow in the saturated zone, or two; the faults are "short" enough to allow groundwater to migrate around their ends in the saturated zone. There are likely ridges and valleys caused by the many faults in the peizometric surface at Kinney that are not reflected in the mapped peizometric surface (Map 7) due to insufficient data. However, the larger picture seems clear that a semi-regional water table exists and at that scale appears rather predictable.

With the understanding that 100+ ft. faults typically have a double role relating to water moving through the vados zone. Faults act as both flow barriers and conduits. That is, as rain water makes its journey from point of impact in a drainage basin, having substantial topography, it flows on an oblique trajectory downward to the zone of saturation. The trajectory is determined by many variables, hillside slopes in the drainage basin, plant cover, soil type, geologic formations with varying permeability's and transmissivities, structural discontinuities including faults, fractures, and joints. The flow trajectory typically tends down-slope, with a large amount being lost to evaporation or evapotransporation in warm months, gradually penetrating into the bedrock. In the case of Eagles Canyon, which is an Influent stream (loosing water to the water table), rainwater migrates downward to the water table via the path of least resistance. Likely much of the water migrates to the water table via encountering the gouge zone of a fault then utilizing the adjacent breccia zone conduit flows down to the water table. This suggests that there should be a very local ridges in the peizometric surface along man faults.

**624.220 and 624.230 Please refer to 623.100**

**624-300 Underground Coal Mining and Reclamation Activities**

**624-310 Please refer to 624.210.**

**624-320 and 624-330 Please refer to 623.100**

**624-340 Please refer to 624.100**

**R645-301-627 Overburden Thickness and Lithology**

**Coal and Overburden/Interburden Characteristics**

Geologic information from various sources obtained between 1977 and the present were used to evaluate the physical and chemical characteristics of coal and non-coal strata within the proposed lease and adjacent areas. Generally, the historical information is very limited. The 2006 Drilling Program generated the lion's share of the available data that include geophysical logging, and laboratory analyses of coal, roof, and floor samples from the Hiawatha Seam.

During exploration drilling, drilling conditions were recorded and core samples were described. Descriptions included sampling increments, recovery rates, strength designations, discontinuities, and detailed lithology. Occurrences of water, gas, and fractures were also noted. At a minimum, boreholes were logged for natural gamma, compensated density, and caliper.

Geologic logs and core data for the permit area are presented in Exhibit 3 (Confidential Information). Drill Data are considered Confidential Information under R645-300-124. These logs provide valuable information which has been used to characterize the lithologic characteristics of coal reserve areas and define site-specific information on the thickness of coal and other strata within the proposed permit area. The locations of the drillholes in the permit area are shown on the Figure 2 (Drill Hole Locations w/ Hiawatha Outcrop). Geologic information is also graphically illustrated by the Geologic Cross-Sections, Figures 6 through 9.

**Physical Properties of Coal/Overburden/Interburden**

Regionally and in the permit area, the Spring Canyon Member of the Starr Point Sandstone has historically been considered a regional aquifer. The well sorted, fine to medium-grained nature of the Spring Canyon Member even with moderate cementation, appeared to allow for ground water migration. However, more recent observations throughout the Eastern Wasatch Plateau has shown that the Spring Canyon is quite well cemented restricting the permeability and transmissivity to a degree as to render the Spring Canyon Member only a marginal regional aquifer. The one thing it has going is lateral persistence. The major coal seams having large secondary permeability due to cleating are better aquifers than is the Spring Canyon Member.

Ribbon shaped (plan view) and lenticular (x-section view) fluvial sandstones, occurring in the Blackhawk Formation act as perched aquifers and in some cases as small reservoirs for methane or natural gas. Experience in coal mines throughout the Eastern Wasatch Plateau Coal Field shows that coal units drain quickly when encountered by mining due to their limited thickness and lateral continuity. Interconnection of permeable units by crosscutting joints appears to be rare due to limited jointing and "healing" of most fractures by calcite cement.

Virtually no rock mechanics data were available prior to the 2006 drilling program. Testing of collected coal core and core of representative rock units above and below the Hiawatha seam provide the available data set.

Uniaxial Compressive Strength for the Hiawatha seam and associated immediate roof

and floor found in the proposed permit area are summarized by Table 5A, Strength Characteristics of Coal, Roof, and Floor Materials.

**TABLE 5A**
**STRENGTH CHARACTERISTICS OF COAL, ROOF, AND FLOOR MATERIALS**

| Specimen No. | | Lithologic Description | Failure Load (lb) | UCS* (psi) | Failure Mode |
|---|---|---|---|---|---|
| 06-CR-06-01_5B/4-U-01 | Hiawatha Upper Roof | Sandstone | 27,700 | 3,180 | |
| 06-CR-06-01 5B/5-U-02 | Hiawatha Upper | Sandstone | 49,220 | 5,951 | |
| 06-CR06-05A-5/1-U-13* | Hiawatha Roof | Mudstone | 40,850 | 5,561 | 45° fracture |
| 06-CR06-05A-6/1-U-14* | Hiawatha Roof | Sandstone | 79,850 | 11,033 | Axial fractures |
| 06-CR-06-02_1A/17-U-06 | Hiawatha Roof | Silty Sandstone | 142,800 | 17,299 | |
| 06-CR06-05A-8/2-U-03 | Hiawatha Seam | Sandstone | 8,200 | 1,162 | Axial fractures |
| 06-CR06-05-5/1-U-08 | Hiawatha Floor | Sandstone | 16,530 | 2,363 | 45° fracture |
| 06-02-CR-02_5A/18-U-07 | Hiawatha Floor | Sandstone | 57,930 | 6,998 | |

The

* UCS values for samples with L/D<2.0 are corrected as per ASTM D2938-86.

Lab reports supporting Table 5A are found in Exhibit 19 (Geological Information, Rock Strength Data).

## R645-301-630 Operation Plan

### 631 Plans for Casing and Sealing Exploration Holes

Generally, a determination will be made either prior to or during completion of any exploration holes or boreholes whether or not the hole(s) will be utilized for ground water monitoring purposes. If the hole is to be utilized for monitoring it will be cased, completed and developed as a monitoring well consistent with Figure 21 (Typical Well Completion Diagram) and as described in Chapter 7 Section 301-738 Completion as Ground Water Monitoring Wells. If the hole(s) is not to be utilized as a monitoring well or when an existing well is no longer required for ongoing monitoring, it will be sealed by filling the borehole or casing with cement to form a plug from the bottom of the hole to at least 20 feet above any zone of completion or water-bearing zone; filling the remainder of the hole to within 20 feet of the ground surface; and filling the remainder of the hole to the ground surface with cement to form a surface plug. A steel fence post will be placed in the center of the surface plug before the cement sets-up to provide a permanent marker for the hole location.

In the event a water monitoring well is transferred to use as a water well, it will be done under regulation R645-301-731.400.

### 632 Subsidence Monitoring

No full extraction mining, or pulling of pillars is planned at the Kinney No. 2 Mine, therefore subsidence will not take place. No subsidence monitoring is necessary.

## R645-301-640 Performance Standards

Performance will be maintained as in 631 and 632.

# Chapter 7

# R645-301-700 Hydrology

# Kinney No 2 Mine

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Please refer to a full treatment of this topic in Chapter 5 under R645-301-526 Mine Facilities – Mine Development Waste. Design and Operations Plans for handling Non-coal Waste Disposal, are described underR645-301-747 Disposal of Noncoal Mine Waste, below and will effectively protect ground and surface water resources by minimizing the potential for pollution or contamination from placement and handling of waste materials generated by mining and related operations. ..... 132
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**R645-301-710 General Contents**

This section describes the hydrologic conditions and resources within the permit and adjacent areas that could potentially be affected or impacted by the mining and reclamation activities. Information in this section was developed following applicable regulatory guidelines (R645-301-700) for coal mine permitting in the State of Utah.

Hydrologic conditions in the permit and adjacent areas have been characterized in this section using information from ongoing baseline characterization and monitoring. This hydrology description represents a consolidation of monitoring data specific to the Kinney No. 2 Mine permit area (Exhibit 9, Seep and Spring Survey, Exhibit 10, Surface and Ground Water Field Measurements, Exhibit 11, Monitor Well Completion Details, Exhibit 12, Surface and Ground Water Quality Data; Spread sheet prints, and Lab Analyses, Exhibit 20, Ephemeral Drainage Determination). Ongoing baseline monitoring activities are as specified herein, and within R645-301-724 and R645-301-724.100.

This hydrology description represents a consolidation of regional information and recent monitoring data specific to the Kinney No. 2 Mine permit area. Ongoing baseline monitoring activities to be a part of the Baseline Hydrology Monitoring Plan for the Kinney No. 2 Mine are discussed briefly below. The purpose of the plan is to collect and evaluate baseline hydrologic data specific to the Kinney No. 2 Mine. Data collected under the plan is used to characterize existing surface water and ground water in the area and evaluate potential impacts to these resources from mining and reclamation activities. The monitoring plan consists of a comprehensive seep and spring survey completed by Rock Logic Consulting, LLC of Cedaredge, Colorado in 2006 Exhibit 9, Seep and Spring Survey. The survey resulted in the identification of 25 spring/seep locations. Unfortunately, several nomenclature issues have occurred relative to seeps and springs, wherein springs and seeps were originally given one name during the spring and seep survey then later, during collection of baseline data from those locations, the names were inadvertently changed introducing some confusion when reviewing the data. In addition to the seep and spring survey, well drilling, testing, and monitoring has been completed on ~~11~~ 15 wells (one has been plugged and abandoned) to evaluate geohydrologic conditions including the occurrence of ground water and hydraulic characteristics of the aquifers. Additional baseline data have been collected from the two perennial streams near the permit area (Mud Creek, and Miller Canyon), and from nearby Scofield Reservoir. Nomenclature problems also plague data collected from streams, the groundwater wells and Scofield Reservoir. Clarification of the nomenclature confusion is found below under General Requirements and on Map 7, Regional Hydrology where the preferred name and the AKA's are also shown.

References to design criteria methods used throughout Chapter 7 of the MRP include:

Curve Number Methodology

| | |
|---|---|
| Sec 732 | Discharge Rate Calculation |
| Sec 732 | Volume Calculation |
| Sec 732 | Modeling Methodology |

Ditch Design

| | |
|---|---|
| Sec 742.300 | Collection Ditches and Associated Structures |
| Sec 724.400 | Road Drainages |

| | |
|---|---|
| Pond Design | |
| Sec 742.220 | Sedimentation Ponds |
| Sec 728 | Surface Water Consequences |
| Sec 731.110 | Retention of Drainage in Sedimentation Pond Structures |
| Sec 732 | Table 16 – Design Rainfall Events |
| Reclamation | |
| Sec 760 | This section discusses reclamation activities based on the criteria set in Sections 728 through 742.220 |

**R645-301-712 Certification**

All cross sections, maps and plans required by R645-301-722 as appropriate, and R645-301-731.700 have been prepared and certified according to R645-301-512.

**R645-301-721 General Requirements**

This permit application document includes a description of the existing, premining hydrologic resources within the proposed permit and adjacent areas that may be affected or impacted by the proposed coal mining and reclamation operation.

All surface and well monitoring stations utilized for baseline monitoring for the Kinney No. 2 Mine permit area are listed in Table, 6 Kinney # 2 Mine Baseline Monitoring Stations. Operational monitoring stations are shown in Table 7, Kinney No. 2 Mine Operational Monitoring Stations. Surface and ground water monitoring locations are shown on Map 7, Regional Hydrology, and Map 28, Surface and Ground Water Monitoring Sites. During the preparation of the mine permit application it was discovered that some monitoring stations had inadvertently been given different names during data collection. Attempts have been made to rectify this situation including the identification of a preferred monitoring station name. However, the following clarification is provided in the event that old references are located within the permit or its appendices.

| **Preferred Name** | **AKA's (Alternate Documented Names)** |
|---|---|
| CR-06-03-ABV | CR-06-03 |
| Eagle Spring | Miller Spring, Eagle Springs |
| Miller Outlet | Eagle Outlet, Eagle Outlook |
| Mud Creek | Muddy Creek |
| Res-1 | Scofield Res. 1 |
| Sulfur Spring | Sulfur Springs, Sulfer Spring, Sulfer Springs |
| Aspen Spring | Eagle Pond 1 |
| Eagle Seep 1 | Eagle Spring 1 |
| Eagle Seep 1A | Eagle Spring 1A |

Baseline hydrologic monitoring has been performed for the Kinney No. 2 Mine permit area at the following frequency:

**Springs –** R645-301-724.100 requires minimum baseline monitoring of TDS or Specific Conductance, pH, total iron and manganese, and approximate rate of discharge or usage. Springs and seeps identified in Table 6 have been monitored for several years to establish baseline conditions for aqueous parameters according to the schedule provided in Table 20, Hydrologic Monitoring Schedule.

Certain springs and seeps identified in the Seep and Spring Survey (Exhibit 9) were not chosen for monitoring stations for the following reasons. Eagle Springs 1, 1A, 2, Eagle Seep 3, Eagle Pond 2 are all located along a 1,290 ft. stretch of Upper Eagle Canyon and apparently are all issuing from the fault related perched aquifer system there. Angle Spring was chosen to monitor the fault related perched aquifer in Eagles Canyon and was monitored for one year (Sept. 05 – Sept. 06). When access to Angle Spring was prohibited, Aspen Spring (named Eagle Pond 1 in the Spring and Seep Survey) was chosen to replace Angle Spring and continue the monitoring of the fault related perched aquifer in Eagles Canyon. Aspen Spring has been visited in the field ~~eight~~ fifteen times, ~~five~~ twelve of those visits yielded data which was collected from ~~June 2008~~Nov. 2007 through ~~Sept 2010~~Jun. 2017 (Table 6 and Exhibit 10).

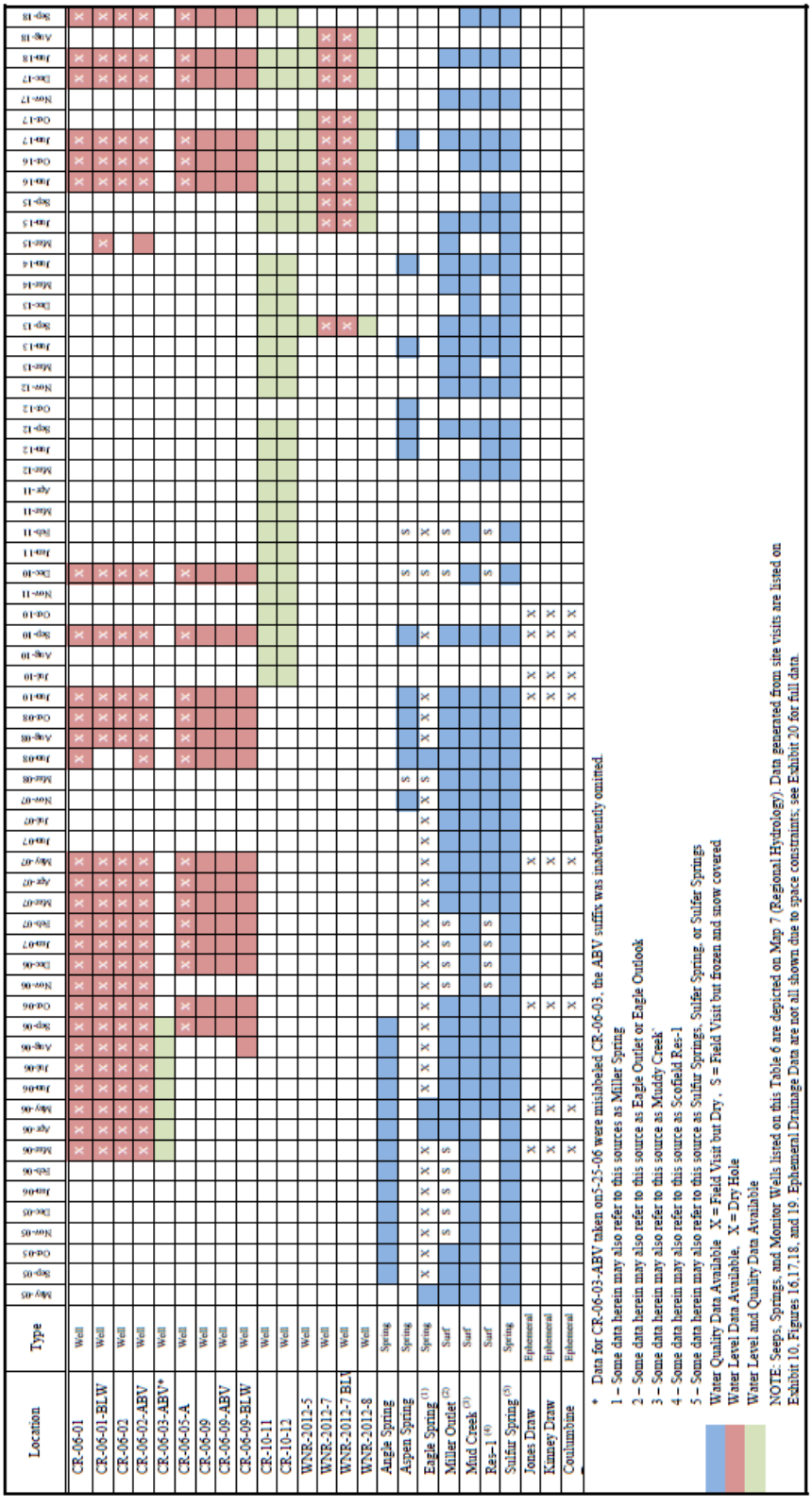
Monitoring of Aspen Spring, as with all other ground and surface water monitor stations, was interrupted during 2009 due to lack of funding. It is noted that, in general, patterns established in the data prior to the 2009 hiatus continue with no substantive deviation in data collected after monitoring was resumed. This suggests the hiatus served only to spread the data collection over more years which provides additional confidence in the patterns observed.

**Stream Stations** - R645-301-724.200 requires minimum baseline monitoring of Total Suspended Solids, TDS or Specific Conductance, pH, total iron and manganese, and the rate of discharge or usage. Flow and field water quality parameters have been measured on a monthly basis for two years then on a quarterly basis for the Miller Outlet and Mud Creek surface stations, and for the Scofield "Res-1" site during periods wherein access is not limited due to ice. All stream stations have been monitored for a two-year period to establish baseline conditions for aqueous parameters according to the schedule provided in 20, Hydrologic Monitoring Schedule. Flow measurements for Miller Outlet (aka Miller Creek in Miller Canyon) and Sulfur Spring were calculated via the following method. Both water sources flow beneath Highway 96 through culverts whose diameter and length have been measured. At each field outing the depth of water passing through each culvert is measured and a stick is dropped into the flow at one end of the culvert and timed as it passes through the culvert. These data have been used to calculate flow volumes presented on Figure 17, Field Data and Exhibit 10, Field Measurements Surface and Ground Water. Flow volume for Mud Creek is obtained via internet from the USGS real-time monitoring station at the mouth of Winter Quarters Canyon and the Scofield Reservoir Pool Elevation is measured in the field on the staff gauge near the dam and via the internet from the Bureau of Reclamation real-time measuring station also located at the Scofield Dam. Estimates of flow from the springs also utilize standard field techniques. All field data can be found on Figure 17, Field Data and Exhibit 10, Field Measurements Surface and Ground Water.

**Monitoring Wells** - R645-301-724.100 requires minimum baseline monitoring of TDS or Specific Conductance, pH, total iron and manganese, the rate of discharge or usage (if applicable) and depth to water. Wells shown on Map 28, Surface and Ground Water Monitoring Sites, have or will be sampled on a monthly basis for a one year period, through each of the four seasons (when the well is accessible, and when sufficient water exists to extract a sample) to establish baseline conditions for aqueous parameters according to the schedule provided in Table 20, Hydrologic Monitoring Schedule. ~~Five~~ Seven of the ~~eleven~~ fifteen monitor wells are DRY thus providing zero-point data.

Monitor Wells CR-10-11 and CR-10-12 were completed at the request of UDOGM to be added as operational-phase down-gradient augmentation to the nine (9) existing baseline ground water monitor well completions. The two new wells were completed in July of 2011 and have been monitored monthly, to date accumulating eight months of monitoring data. Four additional wells were drill and developed as part of and exploration plan outside of the plan boundaries in 2012. Table 6, Exhibits 10, and 12 have been updated to include these data.

## Table 6 Kinney #2 Baseline Monitoring Stations



* Data for CR-06-03-ABV taken on5-25-06 were mislabeled CR-06-03, the ABV suffix was inadvertently omitted.

1 – Some data herein may also refer to this sources as Miller Spring

2 – Some data herein may also refer to this source as Eagle Outlet or Eagle Outlook

3 – Some data herein may also refer to this source as Muddy Creek

4 – Some data herein may also refer to this source as Scofield Res-1

5 – Some data herein may also refer to this source as Sulfur Springs, Sulfer Spring, or Sulfer Springs

Water Quality Data Available. X = Field Visit but Dry , S = Field Visit but frozen and snow covered

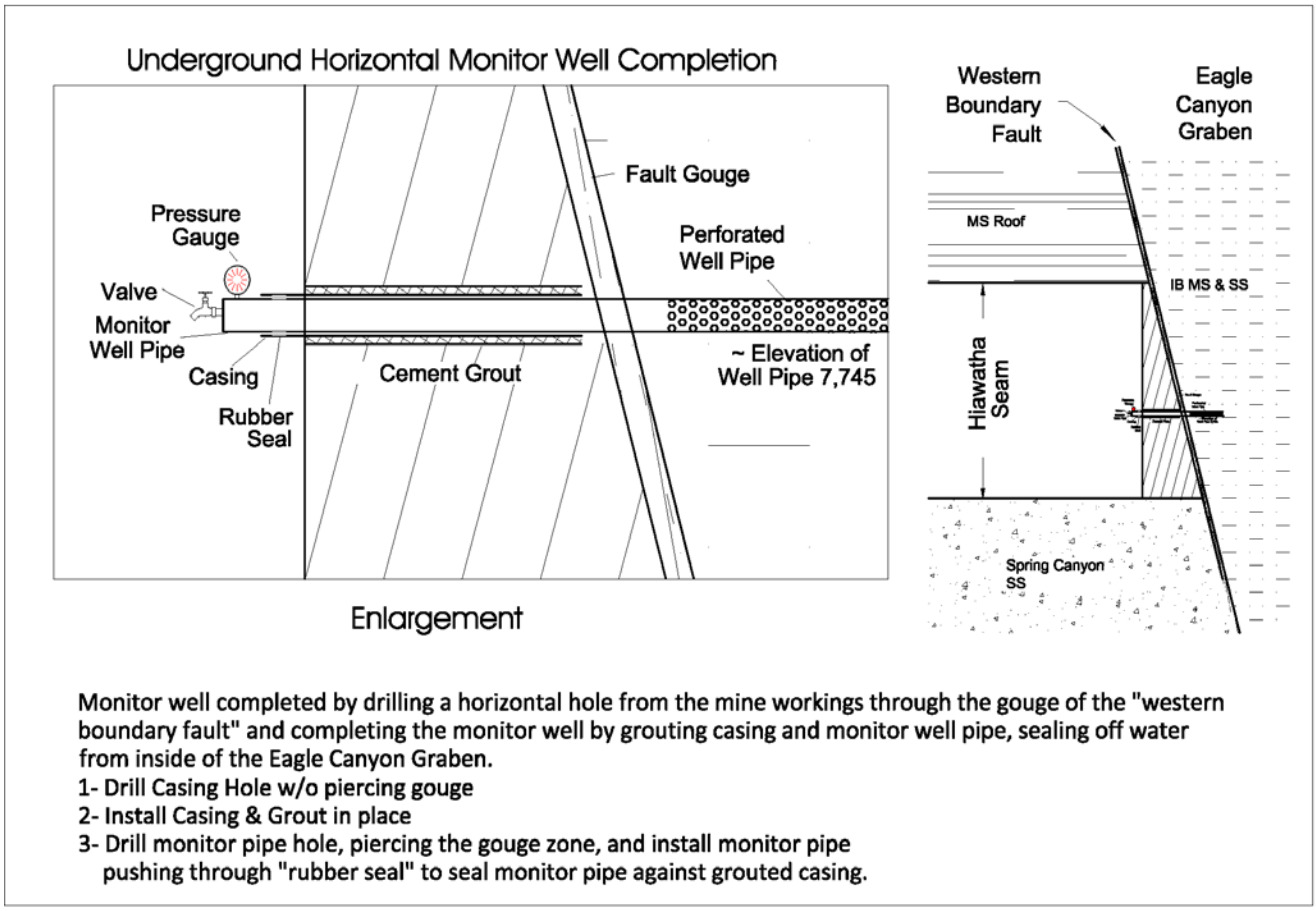
Water Level Data Available. X = Dry Hole

Water Level and Quality Data Available

NOTE: Seeps, Springs, and Monitor Wells listed on this Table 6 are depicted on Map 7 (Regional Hydrology). Data generated from site visits are listed on Exhibit 10, Figures 16,17,18, and 19. Ephemeral Drainage Data are not all shown due to space constraints; see Exhibit 20 for full data.

As a result of CR-06-03-ABV being decommissioned only six months of groundwater data were collected from within the Eagles Canyon Graben. Coal Energy Group 3 commits to replace CR-06-03-ABV with an in-mine monitor well. As mining extends eastward to the Western Boundary Fault of the Eagles Canyon Graben Coal Energy Group 3 will complete an in-mine monitoring well to monitor ground water inside of the Eagles Canyon Graben. Due to the differential in water level within the Eagles Canyon Graben and immediately west of this Graben, a monitor well will consist of piercing the gouge zone of the graben and installing a grouted-in differential pressure gauge and valve to monitor the water level and quality within the Eagles Canyon Graben, Figure 15.

**Figure 15. Underground Horizontal Monitor Well Completion**



## Table 7 - Kinney Mine Operational Monitoring Stations

**TABLE 7 - Kinney Mine Operational Monitoring Stations**

| Location | Type | Water Level or Flow | Field Parameters | Laboratory Analytical Parameters |
|---|---|---|---|---|
| * CR-06-01 | Well | X | X | X |
| * CR-06-01-BLW | Well | X | X | X |
| * CR-06-02 | Well | X | X | X |
| * CR-06-02-ABV | Well | X | X | X |
| * CR-06-05-A | Well | X | X | X |
| CR-06-09-ABV | Well | X | X | X |
| CR-06-09-BLW | Well | X | X | X |
| CR-10-11 | Well | X | X | X |
| CR-10-12 | Well | X | X | X |
| WNR-2012-5 | Well | X | X | X |
| *WNR-12-07 | Well | X | X | X |
| *WNR-12-07BLW | Well | X | X | X |
| WNR-2012-8 | Well | X | X | X |
| Aspen Spring/Pond | Spring/Pond | X | X | X |
| Eagle Spring 2 & Pond 2 | Spring/Pond | X | X | X |
| Eagle Seep 1 | Seep | X | X | X |
| Eagle Seep 1A | Seep | X | X | X |
| Eagle Seep 3 | Seep | X | X | X |
| Eagle Spring (1) | Spring | X | X | X |
| Miller Outlet (2) | Surface | X | X | X |
| Mud Creek (3) | Surface | X | X | X |
| Res–1 (4) | Surface | X | X | X |
| Sulfur Spring (5) | Spring | X | X | X |
| * Jones Draw | Ephemeral | X | X | X |
| * Kinney Draw | Ephemeral | X | X | X |
| * Columbine Draw | Ephemeral | X | X | X |
| * These Monitor Wells and Ephememeral Drainages are considered to be Dry, however, monitoring will continue and presence of water will allow collection and reporting of data | | | | |
| 1 – Some baseline data herein may also refer to this sources as Miller Spring | | | | |
| 2 – Some baseline data herein may also refer to this source as Eagle Outlet or Eagle Outlook | | | | |
| 3 – Some baseline data herein may also refer to this source as Muddy Creek' | | | | |
| 4 – Some baseline data herein may also refer to this source as Scofield Res-1 | | | | |
| 5 – Some baseline data herein may also refer to this source as Sulfur Springs, Sulfer Spring, or Sulfer Springs | | | | |
| NOTE: Seeps, Springs, and Monitor Wells listed on this Table 7 are depicted on Map 7 (Regional Hydrology). Baseline Data generated from site visits are listed on Exhibit 10, (Field Parameter Measurements) Figures 16,17,18, and 19. Complete Laboratory Analysis Data can be found in Exhibit 12 (Water Quality Data). Baseline and Operational Laboratory Paramaters are located on Table 20 Hydrologic Monitoring Schedule. | | | | |

Data obtained from the baseline monitoring plan characterizes current surface and ground water flows, water quality conditions, and any seasonal variations in these characteristics. Approximately ~~four~~ thirteen years of baseline data are available from the surface monitoring locations and approximately ~~one~~ five to twelve years of groundwater baseline hydrologic data is now available for most stations ~~for UDOGM's technical adequacy review of this permit application~~. Adequate baseline data have been collected, per discussions with UDOGM personnel, and CEG3 has now moved into quarterly sampling. The "two down peizometric slope" monitor wells CR-10-11 and CR-10-12 were added to the group of groundwater monitor wells at the request of the Division.

Per UDOGM request Coal Energy Group 3 ~~commits to~~has added additional water monitoring stations in Long Canyon to collect the appropriate data to support an expansion of the MRP eastward from the present permit boundary. These data points ~~will be determined and added to the MRP~~were added in the field season of ~~2011~~2012.

**R645-301-722 Cross Sections and Maps**

Hydrologic information is presented in various locations within the permit including:

| | |
|---|---|
| • Other Permits | Exhibit 4 |
| • Springs and seeps | Exhibit 9 (Map 10) |
| • Field Measurements , Surface and Groundwater | Exhibit 10 |
| • Monitor Well Completion Details | Exhibit 11 |
| • Surface and Groundwater Quality Data | Exhibit 12 |
| • Water Quality Rights | Exhibit 13 |
| • Runoff Control | Exhibit 16 |
| • CHIA (UDOGM) | Exhibit 17 |

| | |
|---|---|
| • Surface water bodies | Map 7 |
| • Boreholes and test wells | Map 7 |
| • X-Section A–A' | Map 7A |
| • X-Section –C-C' | Map 7B |
| • Faults and other geologic structures affecting hydrology | Map 8 |
| • Ground Water Level Data | Map 9 |
| • Regional Water Quality | Map 10 |
| • Surface Facilities | Map13 |
| • Drainage and Sediment Pond Controls, Undisturbed Area | Map 23 |
| • Drainage and Sediment Pond Control, Disturbed Area | Map 24 |
| • Sediment Pond 1 | Map 25 |
| • Runoff Control | Map 27 |
| • Surface and ground water monitoring locations | Map 28 |

### 301-722.400 Water Wells In The Permit and Adjacent Area

Four water wells exist within 1 mile of the permit boundary as shown on Map 30, Ground Water, Water Rights as follows:

Water Right No.
91-3401 – No depth information is available in the Utah Division of Water Rights information.
91-3402 – No depth information is available in the Utah Division of Water Rights information.
91-4889 – The well is listed as 6", with a depth of 100-500 feet.
A34946(91-5106) – The well is listed as 6" and depth of 100-500 feet.
These water wells are addressed in response to R645-301-724.100 to follow.

## R645-301-723 Sampling and Analysis

All water quality samples have been and will continue to be analyzed according to the most current copy of the Standard Methods for the Examination of Water and Wastewater, a joint publication of the American Public Health Association, the American Water Works Association, and the Water Pollution Control Federation.

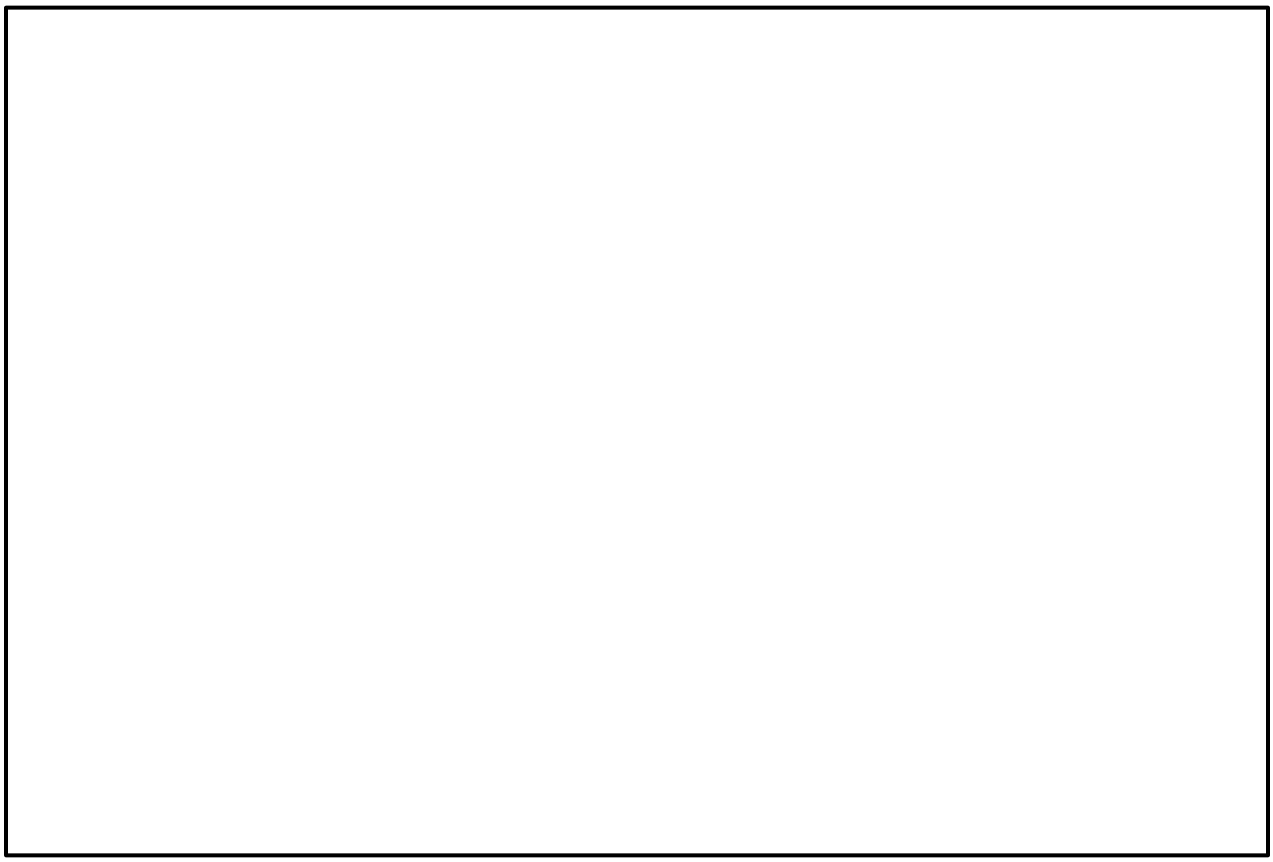
**Table 20 Hydrologic Monitoring Schedule**

| Field Measurements | Reported As | Baseline | | Operational & Post-Mining | |
|---|---|---|---|---|---|
| | | Surf | GW | Surf | GW |
| Water Level or Flow | Depth, Flow | | | | |
| pH | Std Units | | | | |
| Specific Conductivity | umhos/cm @ 25 °C | | | | |
| Temperature | °C | | | | |

| Laboratory Measurements | Reported As | Baseline | | Operational & Post-Mining | |
|---|---|---|---|---|---|
| | | Surf | GW | Surf | GW |
| Total Dissolved Solids | mg/l | | | | |
| Total Suspended Solids | mg/l | | | | |
| Total Hardness ($CaCO_3$) | mg/l | | | | |
| Total Alkalinity | mg/l | | | | |
| Acidity | mg/l | | | | |
| Aluminum (Dissolved) | mg/l | | | | |
| Arsenic (Dissolved) | mg/l | | | | |
| Boron (Dissolved) | mg/l | | | | |
| Carbonate | mg/l | | | | |
| Bicarbonate | mg/l | | | | |
| Cadmium (Dissolved) | mg/l | | | | |
| Calcium (Dissolved) | mg/l | | | | |
| Chloride | mg/l | | | | |
| Copper (Dissolved) | mg/l | | | | |
| Iron (Dissolved) | mg/l | | | | |
| Iron (Total) | mg/l | | | | |
| Lead (Dissolved) | mg/l | | | | |
| Magnesium (Dissolved) | mg/l | | | | |
| Manganese (Dissolved) | mg/l | | | | |
| Manganese (Total) | mg/l | | | | |
| Molybdenum (Dissolved) | mg/l | | | | |
| Ammonia | mg/l | | | | |
| Nitrates | mg/l | | | | |
| Nitrites | mg/l | | | | |
| Potassium (Dissolved) | mg/l | | | | |
| Phosphate (Ortho) | mg/l | | | | |
| Selenium (Dissolved) | mg/l | | | | |
| Sodium (Dissolved) | mg/l | | | | |
| Sulfate | mg/l | | | | |
| Zinc | mg/l | | | | |
| Oil & Grease | | | | | |
| Settleable Solids | UPDES | | | | |
| Cations | meq/l | | | | |
| Anions | meq/l | | | | |

Data submittals will be made to UDOGM on the following Basis:

Quarterly – Lab water quality results will be submitted within 90 days of the end of the quarter.



Annually – Hydrologic review and summary of data will be submitted on or before June 1st.

**Figure 14 Ariel View of Permit Area**

The topography and general hydrogeology of the mine permit area is typical of central Utah mountain areas, containing both valley and mountain segments. The direct permit area lies within a north south trending mountain range traversed by small east to west drainages as shown in Figure 14, Arial View of Permit Area. The figure, looking to the north-east shows the general topographic nature of the area, Scofield Reservoir to the north, the town of Scofield in the bottom central portions, the railroad which goes through the town of Scofield then bends to the east, then crosses and parallels the highway as it continues northward, a private mountain access road that zigzags up the mountain side within the southern portions of the permit area, and an un-named ephemeral drainage lying just south of the mountain access road. In general, the permit area includes the area north of the un-named ephemeral drainage, south of the point where the railroad crosses the highway, and within 1,500 feet east of Utah highway 96.

The relatively dry climate and limited up-gradient drainage area limit local ground water recharge and surface water runoff. The majority of seeps and springs identified within the general area were found within the north-south trending drainages lying to the east and south of the permit area including Long Canyon, Merrill Canyon, Eagle Canyon, and UP Canyon, Exhibit 9, Seep and Spring Survey.

Semi-arid climatic conditions and precipitation patterns result in a high loss of moisture to runoff, evaporation, and sublimation reducing the amount of water available for recharge or stream flow. Recharge to underlying units is also limited by flat lying units. Downward movement of recharge through the stratigraphic sequence to underlying units is limited by low vertical permeabilities of the units (which are often fine-grained, well cemented, or massive), the presence of relatively impermeable shale units acting as confining layers. Downward movement of recharge is predominately accomplished within the breccia zones of the faults, predominately the N-S faults.

As noted below in (R645-301-724.100) and on Table 6 and in Exhibit 11, static water levels that may be interpreted as representing a regional water table have been encountered in only four of the eleven monitor wells (CR-06-03ABV, CR-06-09, CR-10-11, and CR-10-12). Data from these monitor wells together with data from the two perennial streams (Mud Creek & Miller Creek) and from Scofield Reservoir, have been interpreted to indicate a regional ground water table with a piezometric surface dipping westward indicating an east to west flow of groundwater in the regional water table. This interpretation suggests groundwater is not entirely partitioned by the N-S faults or Stratigraphy, therefore flowing across strata and some faults in a westerly direction. As noted elsewhere in this chapter, drilling of one or more additional ground water monitor wells will be required to confirm this interpretation and or supplant it with the alternate interpretation of a North North-Easterly ground water flow in the regional groundwater table following stratigraphic units down the regional dip.

The coal mining operations planned for the site will include mine portals, office and maintenance facilities, coal handling, storage, and loadout facilities, roads, and runoff control facilities. The facilities will be constructed on a series of pads interconnected by roads. Runoff control facilities will consist of a series of ditches, culverts, and a single flow/sediment pond located at the extreme north end of the disturbed area.

Five alternate sediment control areas are planned for the mining operation. The first and main area is a topsoil stockpile area planned to be located east of and adjacent to highway 96, and immediately south of the main entrance and access road. This alternate sediment control area will utilize a downhill berm, small drainage channel, and silt fencing and/or straw bales to control sediment runoff. The second and third areas involve small overland flow zones immediately adjacent to the entrance off Highway 96. These small areas will discharge into small sediment traps. The fourth and fifth areas involve additional soil stockpile areas located just north and south of culvert CP-2 within the small triangular permit area west of Highway 96. Details regarding the runoff control plan are provided on Map 24 and within R645-301-731 – 738.

**R645-301-724.100 Ground Water Information**

Ground water occurrence in the permit and adjacent areas has been quantified by the completion of a seep and spring survey, exploratory well drilling geologic analysis of potential water-bearing strata, the identification of potential ground water storage in underground mines, and the analysis of water quality and quantity characteristics and by completing a total of ~~eleven~~ fifteen groundwater monitor wells located in ~~eight~~ eleven different locations in and around the permit area, and from surface water conditions known to exist within Long Canyon, Miller Canyon, Mud Creek, and Scofield Reservoir. Locations of monitor wells are shown on Map 7, Regional Hydrology. Wells CR-06-01, CR-06-02, CR-06-05A and CR-06-09 all penetrate and are screened within the Hiawatha coal seam. Wells CR-06-02-ABV, CR-06-03-ABV, and CR-06-09-ABV

are all screened into potential water bearing zones (perched sands) above the Hiawatha coal seam, while wells CR-06-01-BLW and CR-06-09-BLW are completed in zones below the Hiawatha seam. Monitor wells CR-10-11 and CR-10-12 are completed into the regional water table within the pleasant valley graben and as a result are completed far above the Hiawatha Coal Seam because the Seam has been dropped down approximately 600 feet inside of the graben. To maintain nomenclature these two monitor wells should have been given the ABV suffix but were not. Wells WNR-2012-5 and WNR-2012-8 are completed in zones below the Hiawatha seam. Well WRN-2012-7 is completed in the UP seam, while WRN-2012-7BLW is below the UP seam which is below the Hiawatha seam. Completion details for all monitoring wells are included within Exhibit 11, Monitor Well Completion Details.

It will be noted that a concerted effort was made to complete some of the wells a significant depth beneath the seam to be mined (Hiawatha). As can be seen by on the completion diagram for Monitor Well CR-06-01-BLW, the top of the ten foot well screen is one hundred fifty-four (154) feet below the base of the Hiawatha Seam.

Field data collected from the monitoring wells are included within Exhibit 10, Surface and Ground Water Field Measurements and on Table 6, Kinney #2 Mine Baseline Monitoring Stations. ~~Five~~ Seven of the ~~eleven~~ fifteen monitor wells are "dry". Comparing the Ground Water Field Measurements with the Monitor Well Completion Diagrams reveals that all the water levels recorded in these ~~five~~ seven dry holes are within the ten-foot blank below the base of the screened interval in each of these ~~five~~ seven wells as discussed above.

Raw data, referred to above, have been reviewed to develop interpretations and reach the conclusions presented in this section. As previously noted, only limited ground water exists within the permit and adjacent areas; it is mostly limited to the underlying regional water table, and in alluvial/colluvial deposits that form shallow unconfined aquifers associated with small area drainages. Some water may also be found within localized perched ground water systems within the stratigraphic sequence, and small vertical aquifers adjacent to faults, and as stored water in adjacent abandoned underground mine workings. These ground water occurrences, especially within the proposed permit area are not significant as water supplies due to the limited regional continuity of the associated units, low overall permeabilities, limited recharge and, in the case of the water table aquifer, relative depth and lack of confinement. Surface water sources, dominated by Mud Creek, provide a much more consistent and reliable water supply source.

While some ground water recharge undoubtedly occurs within the permit and adjacent areas, recharge is limited both by the factors noted above and by the low overall permeability of the stratigraphic sequence which effectively limits significant vertical ground water movement.

The exception to this generality is some of the N-S faults which are suspected of providing vertical conduits for recharge. On a regional basis, recharge is believed to occur through isolated outcrop areas where permeable units are exposed to direct precipitation.

Consistent with applicable provisions of R645-301-512, hydrologic information has been prepared under the direction of, and certified by a qualified registered professional engineer or land surveyor with assistance from experts in the related fields. To aid in the following discussion, Map 8, Works-Wells-Springs-Faults has been created to assist in showing the inter-relationships between important geologic and man-made features.

The regulatory definition for "Renewable Resource Lands" includes geographic areas which are

important in supporting and maintaining water supplies and areas which contribute significantly to agricultural production. The water supply component of this definition specifically includes those areas containing ground water aquifers and associated recharge areas.

While there are known, but limited, ground water occurrences within the permit and adjacent areas, none of the identified aquifers are important water supply sources. In general, the sparse vegetation, geologic stratification, and semi-arid climate combine to limit ground water infiltration, with either runoff or evaporation/transpiration accounting for most of the precipitation received. Based on this and test drilling data, we conclude that the area does not provide significant recharge to any regional ground water aquifer. The most important local feature is the areas importance as a watershed for local surface drainages. There are no known significant historical nor recent agricultural activity within the permit or adjacent areas and the USDA-SCS has issued a negative determination for prime farmlands for the area as discussed and documented in R645-301-211, 222, and 223, Prime Farmlands.

**Ground Water Environment**

The geology of the permit and adjacent areas is described in detail in R645-301-610 - 627, however, the regional hydrostratigraphy of the area is reflective of the following primary formations, listed and described in order beginning with the lowermost stratigraphic unit of interest:

**Mancos Shale** - A massive grey marine shale. Commonly fine grained, the Mancos Shale is generally interbedded with fine to medium-grained sandstones. While the shale members are characterized by relatively low permeability, any ground water percolating through the more permeable interbedded sandstones may come in contact with associated evaporites such as gypsum resulting in rapid degradation of water quality. The Mancos Shale is laterally continuous in the proposed permit area.

**Blackhawk Formation** - The principal coal-bearing formation of the Mesa Verde Group, the Blackhawk Formation, is a sequence of alternating sandstone, mudstone, and coal. The coal seams of greatest economic importance occur within the lower portions of the formation. The sandstones are fine to medium-grained and are typically well cemented resulting in relatively low permeabilities. The shale units are similar in character to the Mancos Shale and are relatively tight, acting as aquitards to limit vertical ground water movement.

In ascending order, major units of the Blackhawk Formation include the Panther sandstone, Flat Canyon coal seam, Storres sandstone, Lower UP coal seam, Columbine coal seam, Spring Canyon sandstone, Hiawatha coal seam, McKinnon coal seam, and Haley Coal Seam

**Castle Gate Sandstone** - A fine to medium-grained, argillaceous to slightly calcareous massive sandstone. The Castle Gate Sandstone grades to shale both along its basal contact with the Blackhawk Formation and, in many locations, near the top of the unit. Due to its massive occurrence and strong cementation, it is highly resistant to weathering forming prominent cliffs throughout the region, and exhibits relatively low permeability. The thickness of this unit typically ranges from 100 to 500 feet.

**Price River Formation** - Medium-grained sandstone and shaley sandstone grading to

a grey to green shale. The Price River Formation is generally characterized by low primary permeability with some localized increases in permeability due to extensive fracturing.

**North Horn Formation** - A series of shales, sandstones, conglomerates, and freshwater limestone deposits, which throughout the region can be 2,400 feet thick, and laterally discontinuous in rugged topography. The shales are relatively tight, functioning as aquitards to minimize downward ground water movement.

Although ground water can occur in all of the major stratigraphic units identified, all are considered poor to moderate aquifers. Ground water yields are limited within the proposed permit area by small recharge basins, the semi-arid climate of the region which limits recharge to the units, low permeabilities, and the lack of regional lateral continuity resulting from dissection by deep drainage valleys. While many of the minor stratigraphic units (such as sandstones and coal seams) are capable of storing and transmitting ground water, regional ground water transmission capabilities are limited by the relatively thin and laterally discontinuous nature of these semi-permeable units.

### Ground Water Aquifers

Ground water aquifers within the proposed lease and adjacent areas have been characterized on the basis of information obtained from field investigations, well drilling, and ongoing monitoring activities. These activities include borehole drilling and well installation, geologic and geophysical logging, observations of the occurrence of water during exploration drilling, aquifer testing, routine water level monitoring, and routine ground water quality analyses. Ground water occurrence and movement in the proposed permit boundary and adjacent areas can best be characterized by describing the four primary aquifer systems identified through field investigations and monitoring activities to date.

The four aquifer systems include the:

- Alluvial/Colluvial Surficial Aquifer System
- Perched / Isolated Ground Water Systems
  Includes narrow vertical systems within breccia zones of some faults.
- Regional Ground Water System
- Stored Mine Water System

These aquifer systems are individually described below.

#### Alluvial/Colluvial Aquifer System

The alluvial/colluvial aquifer system consists of shallow ground water contained in limited alluvial/colluvial deposits associated with area surface drainages. In the smaller drainages, these alluvial/colluvial deposits are very narrow and may store and transmit relatively minor amounts of ground water. The only alluvial/colluvial aquifers of any significance occur along the channels of the perennial drainages of Mud Creek and Miller Creek downstream of the permit area and are generally confined to the active stream channel, immediately adjacent areas, and any hydrologicaly connected inactive or abandoned channel segments.

The alluvial/colluvial aquifer system in the area appears to be closely tied to the surface water system with ground water recharge occurring during periods of high flow and ground water discharge occurring near Scofield Reservoir on a relatively continuous basis but becoming more pronounced during periods of low flow when stream levels may drop below the existing potentiometric surface of the alluvial/colluvial aquifer. Some lateral discharge from the shallow ground water aquifer to Mud Creek may also occur from side channel tributaries during late season low flow periods. The regional aquifer system may also be a source of recharge to the alluvial/colluvial system in the lower reaches of Mud and Miller Creeks.

**Perched Ground Water System**

Perched ground water in the permit area can occur within limited semi-permeable strata-bound units within the Blackhawk Formation. Typically, perched ground water systems consist of isolated lithologic members which have sufficient permeability to store and transmit ground water and are connected to a natural source of recharge.

Perched ground water occurrence are typically ribbon shaped sand-rich fluvial paleo-channels that are enclosed in an envelope of rather impervious mudstone and siltstone. These channels become water bearing in two ways. 1. much of the water in perched systems is connate as determined from isotope age dating of water from these ribbon channels from other mines throughout the Eastern Wasatch. 2. because these channels have extremely long lateral extent along their axis, they either daylight as an outcrop in a recharge zone or "sub-crop" against a fault and receive recharge from water that is moving downward within the breccia zone of the fault when structural dip of the fault block in which they reside is favorable.

A second group of perched aquifers consist of coal seams. Coal seams have inherently low permeability and transmissivity but possess rather large secondary permeability and transmissivity due to cleating. The coal seams are also enclosed, generally, by rather impervious mudstone and siltstone but unlike the narrow sinuous shapes of paleo-channels, coal seams have large areal extent. The same two basic recharge mechanisms apply to coal seams as apply to channels.

A third group of perched aquifers are the narrow vertical aquifers adjacent to faults. These small volume perched aquifers appear to be responsible for many of the springs located within and near the permit boundary and indeed within the Eastern Wasatch Plateau Region. The springs in Eagle Canyon, Angle, and Aspen show strong evidence for being fed by a fault controlled perched aquifer. They both occur above the regional water table and both display very high-quality water, (low TDS and dissolved elements etc.) both have short flow periods each year. Flowing in the early spring and drying up, or reducing in flow significantly in midsummer to early fall on a yearly basis.

The thickness of strata-bound perched (unconfined) aquifers vary significantly, corresponding to the thickness of the sandstone or other water-bearing units. Many of the perched aquifers in the upper portion of the stratigraphic section are limited in areal extent by the numerous large and small surface drainages which dissect the area and truncate the relatively flat-lying sedimentary units.

The small aquifers in the perched ground water system are recharged almost exclusively by direct precipitation and near-surface ground water infiltration. Principal recharge areas for the perched ground water system include formation outcrops in basins where runoff or snowfall accumulations provide supplemental recharge. The combination of steep terrain and relatively

low permeabilities typical of the region, limit infiltration to less than 5 percent of annual precipitation (Price and Arrow, 1974; USGS, 1979), and the limited areal extent of the water-bearing strata result in low discharge rates from the perched ground water system.

Discharge from the perched ground water system occurs primarily in the form of seeps and springs at sandstone-shale interfaces where the water-bearing strata outcrop. Limited discharge from the perched ground water system to the regional ground water system may also occur due to fracture or fault related secondary permeability. It is possible that vertical losses may be occurring locally within faulted and fractured units.

A comprehensive spring and seep inventory of the permit and adjacent areas, conducted in June 2006, identified 6 active seeps and 27 active springs. The locations of known springs and seeps are shown within the report included as Exhibit 9, Seep and Spring Survey. As can be seen in Table 9, Seep and Spring Flow Summary, discharges were reported to typically vary from small or negligible seeps to approximately 10 GPM. Isolated flows in two springs have flows recorded up to 15 to 20 GPM, and one spring (Sulfur spring) has flows up to 80 GPM. As is typical of the intermountain region, discharges from the perched ground water system, which feed local seeps and springs, will exhibit significant seasonal variation with maximum discharge following spring snowmelt followed by a decline in discharge with many springs and seeps drying up during late summer and early fall. This is shown in the data collected as part of the baseline monitoring. Springs and seeps are discussed further in R645-301-724, Surface Water Information. Of the springs identified in the survey, Eagle (AKA Miller), Sulfur, Angle, and Aspen (AKA Eagle Pond 1), are included within the ground water monitoring program, data for which is included within Exhibit 10, Surface and Ground Water Field Measurements. As can be seen from the data, Eagle spring only flows during the April-May time period in response to spring snowmelt events. Sulfur Spring flows year round with the highest flows occurring in the fall and winter periods. During the period of measurement, Angle Spring was found to flow between 0.25 and 1.25 GPM, the highest flows occurring during the spring and early summer of 2006. Angle Spring has not been measured since September of 2006 due to access issues discussed previously.

**Stored Mine Water System**

Historic coal mining in the area has resulted in well documented underground mine workings. In those areas where the mine workings are below the local ground water table or where subsidence has resulted in fractures connecting to the perched ground water system to a portion of an old mine that lies upon an aquitard, mine inflows may have resulted in the gradual accumulation of stored ground water in the underground workings. Mining planned for this permit will include the extraction of coal from seams overlying abandoned workings, and thus are not anticipated to have any potential impact on the underlying ground water systems resulting from mining activities including subsidence.

The total volume of ground water storage in the old mine workings is unknown since abandoned mine workings in the area have been sealed. Any water accumulations however (if they exist) would occur within down-dip workings. To the applicant's knowledge, there are no known mine water discharges reported from old workings. This of course is expected because the regional dip is down to the North East away from the coal seam outcrops along the Eastern side of Pleasant Valley.

**Regional Aquifer System**

The regional aquifer consists of a water table, an aquifer in which all units below the normal

water table have sufficient permeability to contain and transmit ground water to some degree. The peizometric surface of the regional aquifer system includes the deeper portions of the Blackhawk Formation and extends into the underlying Star Point and Mancos Formations. Map 7, Regional Hydrology, depicts the present understanding of a piezometric surface inclined westward to Scofield Reservoir. Map 7A, W-E X Section A-A', and Map 7B, N-S X Section C-C" also display the piezometric surface and include its relationship to the coal seams in the lower Blackhawk Formation. Because the lower portion of the Blackhawk Formation is the primary coal-bearing sequence in the area, the regional aquifer system is the only ground water system which could be directly affected by the mining operations in areas where elevation of the Seam to be mined is below the regional groundwater table.

The permit and adjacent areas display classic Basin & Range Style structural geology. With multiple north-south trending fault systems which have created a series of local horsts and grabens. These geologic mountain / valley sections dominate the local geomorphology and to varying degrees create blocks and impediments (partitions) to the horizontal movement of ground water, and limit the ability of water to move freely within a consistent and homogeneous aquifer system. Notwistanding the interference to free movement of groundwater, there does appear to be a regional ground water aquifer that appears to show east to west movement towards Mud Creek and Scofield Reservoir. For a number of reasons, including the fact that the impervious portions of the faults do not extend over great distances N-S thus allowing ground water to flow around the ends of these "short faults." It is expected these faults create local irregularities in the regional peizometric surface but do not compartmentalize the regional aquifer to an extreme extent.

Information characterizing the ground water flow regime and hydraulic parameters of the regional aquifer comes from ~~eleven~~ fifteen wells located in ~~eight~~ eleven different locations in and around the permit area, and from surface water conditions known to exist within Long Canyon, Miller Canyon, Mud Creek, and Scofield Reservoir. The locations of all wells shown on Map 7, Regional Hydrology. Wells CR-06-01, CR-06-02, CR-06-05A and CR-06-09 all penetrate and are screened within the Hiawatha coal seam. Wells CR-06-02-ABV, CR-06-03-ABV, and CR-06-09-ABV all penetrate and are screened into potential water bearing zones above the Hiawatha coal seam, while wells CR-06-01-BLW and CR-06-09-BLW penetrate and are completed in zones below the Hiawatha seam. Wells WNR-2012-5 and WNR-2012-8 are completed in zones below the Hiawatha seam. Well WRN-2012-7 is completed in the UP seam, while WRN-2012-7BLW is below the UP seam which is below the Hiawatha seam. Well completion details for all monitoring wells are included within Exhibit 11, Monitor Well Completion Details. Field data collected for the monitoring wells is included within Exhibit 10, Surface and Ground Water Field Measurements.

Recharge to the local and regional aquifer systems appears to occur primarily in higher elevation areas where limited outcrop zones are exposed to direct precipitation and near-surface infiltration. This recharge mechanism is, however, limited by steep slopes and relatively small outcrop exposure areas. Similarly, recharge from vertical ground water movement through the overlying sediments is believed to be relatively minor due to the presence of mixed overlying low permeability units. Some recharge of the regional aquifer system may occur where the associated formations are exposed in deep drainage canyons and as a result come into direct contact with either surface drainages or the associated alluvial/colluvial aquifer system, such as Long Canyon, Miller Canyon, and Jump Creek.

A review of available data that provides three dimensional geometry of groundwater occurrences or potential representations of a regional piezometric surface (Scofield Reservoir,

perennial reaches of Mud and Miller Creeks, static water levels measured in CR-06-03-ABV, CR-06-09, CR-10-11, CR-10-12, and the absence of a static water level in CR-06-01-BLW, and CR-06-05A) may be interpreted in one of two ways. The preferred interpretation is that a regional aquifer system does underlie the Kinney Mine permit area and, due to the universal influence of gravity on groundwater causing it to flow down-gradient, and assuming the absence of thick large scale sedimentary units (except the Mancos Shale) that could be true tight aquacludes in the sedimentary strata involved, flows in a general east to west direction toward Mud Creek and Scofield Reservoir. The alternative interpretation of the data suggests ground water may be confined by a combination of stratigraphic aquacludes and fault gouge causing groundwater to flow in a generally northward northeasterly direction (down dip), both within the Pleasant Valley Graben and the Eagles Canyon and Long Canyon Grabens. A minimum ~~on~~ of one additional monitor well in the area south and perhaps east of CR-06-09 will be required to determine which interpretation is correct.

During the early stages of review, it was felt that there was a general lack of data to document the presence of the regional system. It was later recognized that perennial reaches of the two creeks and Scofield Reservoir as a baseline could be used to assist in modeling the regional groundwater system.

As documented by the Seep and Spring Survey included as Exhibit 9, there are many seeps and springs located within Long Canyon, Miller Canyon, and UP Canyon. The report documents in excess of 8 springs and 3 seeps in Long Canyon, 2 springs and 3 seeps in Eagle Canyon, and 1 spring in UP Canyon, and acknowledging that each of these water sources is a surface manifestation of local ground water.

High elevation seeps and springs within Long Canyon were not used as potential ground water points since some of these features are ephemeral in nature. The portions of Long and Miller Canyon however near and downstream of their confluence is perennial, indicative of continued year-round connection with the water table. Points along these perennial stream sections were used in the development of the regional water table surface projection. On the downstream side, Mud Creek and Scofield Reservoir also become additional points of contact defining the western boundary of the regional aquifer.

Evaluating these combined well and surface data points using a triangular extrapolation program has resulted in the development of the projected regional ground water table as shown on Map 7. Note that the piezometric contours coincide with perennial portions (lower reaches) of Long Canyon and Miller Creek on the north and northeast, and the surface waters of Mud Creek and Scofield Reservoir on the west. The resulting contours show that flow is generally to the west-northwest. Refer to R645-301-726 Modeling, below for more detail.

Seasonal variation of the regional water table is believed to be small as characterized by the general lack of change in well and surface data. Specifically, water level data from monitored wells has shown very little to no variation over the period of measurement. Connecting data with the changing surface of Mud Creek 2,000 feet to the west by 3 feet would have virtually no impact on the regional water table within the mine permit area. In fact, when considering the basic hydrogeologic principals of the shallow valley aquifer, it is unlikely that any significant change would be noted in the regional ground water aquifer along the valley margin due to changes in Mud Creek flows.

Through reservoir operations water levels within Scofield reservoir located 1 mile to the north and

northwest may change by several feet. It is believed however that these changes would have the greatest impact in the areas immediately adjacent to the shoreline, but have relatively small impact on the regional water table to the east.

In a similar fashion, seasonal variation within the northern areas of Long Canyon and Miller Creek are also believed to be small. Although there is annual variation in perennial flow within the Canyons, water is present throughout the year thus maintaining constant data points. Seasonal recharge to the regional water table is expected to result in a corresponding delayed seasonal fluctuation in the water table, especially to the east in the area of Long and Miler Canyons east of the permit area. Little change will be noted along the west and northern boundaries due to the relatively fixed surface water reference points. Considering the above factors, one is lead to the conclusion that with relatively stable water table conditions on the west, north, and northeast, that seasonal variations in the regional water table are small.

Within and down the peizometric slope of the permit area, potential impacts to the regional aquifer system due to mining are believed to be small to non-existent. Although there is some potential to drain overlying small perched and isolated water bearing zones, there are no plans to discharge the water to the surface environment. The limited amount of water anticipated to be encountered within the mine will be diverted to sumps within the mine workings where it will create a storage pool, which over time will contribute to the regional system via horizontal and downward leakage to adjacent units.

**Ground Water Occurrence**

The evaluation of the occurrence and movement of ground water is based on ground water characteristics and site-specific information obtained during drilling, testing, and monitoring of wells and springs within the permit area.

It has been observed through data collected that there is a mix of local water resources. Areas to be mined have been shown to have limited water resources through exploratory drilling, while surrounding areas east of planned mining show the presence of more significant seeps and springs, all of which are influenced by local confining geologic strata. The most significant, yet least preferable water source within the general area is Sulfur Spring, located adjacent to Highway 96 along the western slope of the permit area. Although this spring flows year-round at an approximate 80 GPM, its water quality is relatively poor, having a strong sulfur smell. Flows from this spring are not used directly, but cross the highway and enter the Scofield Reservoir flood plain.

**Table 9. Seep and Spring Flow Summary**

| Spring | Location | Est. Flow (GPM) |
|---|---|---|
| Sulfur Spring | Adjacent to Highway 96 | 80 – Yr Round |
| Miller Spring (AKA Eagle Spring) | 1 ¼ mile north of Sulfur Spring, east of Highway 96 | 1 |
| UP Spring | South Fork, UP Canyon | Seep |
| Angle Spring | Eagle Canyon | 0.5 – Yr Round |
| Eagle Seep 1(AKA Eagle Spring 1) | | < 0.5 |
| Eagle Seep 1A (AKA Eagle Spring 1A) | | < 0.5 |
| Eagle Pond 1 (AKA Aspen Spring) | | Seep under pond- |
| Eagle Seep 3 (AK Eagle Spring 3) | | Estimated to be a maximum of 5 |
| Eagle Spring 2/Eagle Pond 2 | | <0.5 |
| Eagle Seep 3 | | < 0.5 |
| Long Canyon Seep 1 & 2 | Long Canyon | Seep |
| Long Canyon Seep 3 | | |
| Long Canyon Spring 1 | | 10 |
| Long Canyon Spring 2 | | 0.5 |
| Long Canyon Spring 3 | | 3 |
| Long Canyon Spring 4 | | < 0.5 |
| Long Canyon Spring 5 & 5A | | 5 |
| Long Canyon Spring 6 | | 10 |
| Long Canyon Spring 7 | | 7 |
| Long Canyon Spring 8 | | 20 |
| Merrill Spring 1 | Merrill Canyon | 10 |
| Luis Spring | (Tributary to Long Canyon) | 10 - 15 |
| Guzman Spring | | 0.5 |
| Merrill Spring 2 | | 10 |
| Merrill Spring 4 | | 5 |
| Merrill Springs 5 & 5A | | 10 |
| Merrill Spring 6 | | < 1 |
| JC Spring 1 | Jump Creek | 10 |
| JC Spring 2 | | 5 |
| JC Spring 3 | | < 1 |
| JC Spring 4 | | < 1 |
| JC Spring 5 | | < 1 |

Foot Note:
Eagle Pond 1 is shown on the Seep and Spring Survey Map, between Eagle Seep 1A and Eagle Seep 2, but the flow was not measured due to lack of opportunity to do so. The spring feeds a small pond and either seeps into upgradient soil with no distinct outlet or discharges to the pond from beneath the water surface or a combination of both. Eagle Pond 1 was later renamed Aspen Spring and was picked up as a monitoring station. As a result, it has never been possible to measure flow from this spring.

As documented within the 2006 Seep and Spring Survey, discussed earlier, no other springs of significance are found along the western slopes, either north or south of the permit area. Flows within Eagle Canyon, the next north-south trending drainage east of the mine portals have limited flows. Aspen Spring, as described in the footnote for Table 9, does not have a measured flow. Based on a water balance of the spring/pond an estimate, as allowed by rule 724.100, has been prepared to provide a maximum value to cover the anticipated flows from this source. Exhibit 10 presents these estimate calculations together with a Rock Logic memo reviewing Aspen Spring Field Data. All other seeps/springs in the canyon flow at less than ½ GPM each. Based on these flows and estimates, the total flow from Eagle Canyon springs and seeps has a maximum flow of 7.5 gpm. Not until Long Canyon, located 1 ½ miles east of the mine portals, does one encounter flows of any significance. The 2006 Seep and Spring discussed three seeps with only minor flows, and springs with flows ranging between 0.5 and 20 GPM. Combined, flows from these 9 springs at the time of the field investigation averaged 6.8 GPM and totaled 61 GPM.

Seeps and springs located within Jump Creek and Merrill Canyon, located 2 ½ miles east of the mine portals were also relatively significant. Of the 11 springs identified, three had minor flows of less than 1 GPM, four had flows of 5gpm, three of 10 GPM, and one of between 10 and 15 GPM.

On a regional basis, ground water occurrence and movement are believed to be stratigraphic and structurally controlled. Faulting is believed to have impact on ground water movement as is the layered geologic strata. At times, shales in or adjacent to fractured or faulted zones will swell, acting as an aquitard thus limiting vertical ground water movement via the fault, and horizontal movement through the fault. Folding is also limited to low-gradient regional features which may influence the overall direction and rate of regional ground water movement but have limited localized influence.

Although there have been ~~eleven~~ fifteen monitoring wells constructed, there use is limited to determine local and regional ground water flow directions due to the presence of many interrupting faults that form localized horst, and graben systems. Generally speaking, it is believed that the general ground water flow direction is to the west-northwest as shown on Map 7, Regional Hydrology. Information that is available to characterize the occurrence and movement of ground water within the permit area comes from the installation, testing, and routine monitoring of the wells installed and used within the Baseline Hydrologic Monitoring Plan, from seeps and springs, and from surface sources including Mud Creek and Scofield Reservoir as discussed above. Two cross-sections of the regional water table were prepared based on information provided on Map 7. The east-west section (A-A') is shown taken through the center of the permit area is shown on Map 7A. The north-south section (C-C') taken through the western portions of the permit area near the mine portals is shown on Map 7B.

Map 7A shows the connection of the regional water table with Mud Creek and Scofield Reservoir on the left with an upward gradient to the east beneath Long Canyon that is expected to continue upward to at least Jump Creek. The regional water table shown is based on a triangular interpolation model using fixed data points at the wells and surface water features. Note through a comparison of Maps 7A and 7B with Map 7 that the piezometric surface appears to not match up directly with wells shown; this is because those having water level data are out of the line of the cross-section. Some wells however are shown in the cross-sections for general reference.

Data showing available water level elevations for all monitoring wells are provided in Exhibit 10, Surface and Ground Water Field Measurements. Data plots and graphs are provided in R645-

301-724.

**Ground Water Quality**

Although water quality data has been collected from surface water and spring/seep sources, ground water quality from wells is limited to ~~three~~ five wells, CR-06-03ABV, CR-10-11 ~~and~~ , CR-10-12, WNR-2012-5 and WNR-2012-8, as shown in Exhibit 10, Surface and Ground Water Field Measurements. Well water quality data is limited by the general lack of water encountered within the wells subsequent to drilling. As discussed previously, water levels within the majority of the wells remains within the lowermost blank casing section indicative of dry holes. Field water quality data collected from well CR-06-03ABV show that the well has moderately variable pH, Dissolved Oxygen, Specific Conductivity and Temperature ranges of 6.87-7.28, 1.1-5.7, 245-689, and 20.7-28.3 respectively. A complete set of field and laboratory water quality data is provided in Exhibit 10, Surface and Ground Water Field Measurements and Exhibit 12, Surface and Ground Water Quality Data, respectively. A summary of water quality data is provided in Table 10, Surface and Ground Water Quality Summary.

A plot of major anions and cations for base water quality data collected ~~during the summer of 2006~~ (shown on Map 10, Regional Water Quality), shows that although the waters are generally of calcium bicarbonate type, there are some distinct variations between sources as shown on Map 10, Regional Water Quality. Waters from Angle and Sulfur Springs, and from well CR-06-03ABV show a strongly calcium bicarbonate type water. Miller Outlet, Mud Creek, and Res-1 also show calcium bicarbonate type waters, but with slightly lesser contents than Angle and Sulfur springs and Well CR-06-03 ABV. Mud Creek also appears to show stronger content of sodium potassium, magnesium, and sulfate than other samples, most likely the result of upstream mine discharges. Wells WNR-2012-5 and WNR-2012-8 also show stronger content of sodium potassium, magnesium and sulfate. The real water quality anomaly lies with Eagle spring which shows a sodium - calcium bicarbonate type water, but at much higher quality than other sources. From the data shown it can be concluded that a clear distinction lies between the water type of Eagle Spring and all other local waters tested. The data also shows a clear distinction between ground waters and surface waters, ground waters having higher calcium and bicarbonate contents than surface waters.

Basic anion-cation data and total dissolved solids for Eagle Spring shows a significantly higher water quality than other local sources. Average TDS of Eagle Spring is 152 for the documented period of record whereas Angle, Aspen and Sulfur Springs have TDS values of ~~303~~ 306, 326 and ~~366~~ 375 mg/l respectively.

The average TDS of well CR-06-03 ABV is calculated to be ~~401~~ 399 mg/l and surface sources including Miller Outlet, Mud Creek and RES-1 are ~~299~~301, ~~470~~ 429 and ~~322~~ 304 mg/l respectively. It is interesting to note that local general surface water quality is quite good, Mud Creek having the poorest water quality of the samples taken. Again, the degradation of water quality in Mud Creek is believed to be the result of upstream mine discharges.

## Table 10. Surface and Ground Water Quality Summary

| Table 10. Surface and Ground Water Quality Summary | | | | |
|---|---|---|---|---|
| Angle Spring thru | 10/14/2012 | | | |
| | | | | |
| Analyte | Count | Max | Min | Avg |
| Acidity | 12 | 12.00 | 0.00 | 1.00 |
| Alkalinity,(As CaCO3) | 13 | 320.00 | 285.00 | 298.08 |
| Aluminum | 13 | 0.03 | 0.00 | 0.00 |
| Ammonia (as N) | 13 | 0.17 | 0.00 | 0.02 |
| Arsenic | 13 | 0.01 | 0.00 | 0.00 |
| Bicarbonate (As CaCO3) | 13 | 320.00 | 0.00 | 275.77 |
| Boron | 13 | 0.03 | 0.00 | 0.00 |
| Cadmium | 13 | 0.09 | 0.00 | 0.01 |
| Calcium | 13 | 100.00 | 90.00 | 97.30 |
| Carbonate (As CaCO3) | 13 | 5.00 | 0.00 | 0.38 |
| Chloride | 14 | 67.00 | 17.00 | 25.64 |
| Conductivity | 2 | 670.00 | 600.00 | 635.00 |
| Copper | 14 | 0.02 | 0.00 | 0.00 |
| Hardness (as CaCO3) | 13 | 340.00 | 220.00 | 317.69 |
| Iron - Diss | 16 | 0.03 | 0.00 | 0.00 |
| Iron - Total | 12 | 0.36 | 0.00 | 0.03 |
| Lead | 14 | 0.01 | 0.00 | 0.00 |
| Magnesium | 14 | 21.37 | 17.00 | 18.81 |
| Manganese - Diss | 16 | 0.04 | 0.00 | 0.00 |
| Manganese - Total | 12 | 0.04 | 0.00 | 0.00 |
| Molybdenum | 14 | 0.01 | 0.00 | 0.00 |
| Nitrate (as N) | 27 | 1.40 | 0.00 | 0.51 |
| Nitrite (as N) | 0 | na | na | na |
| Oil & Grease | 13 | 5.50 | 0.00 | 2.95 |
| pH @ 25° C | 3 | 7.80 | 7.04 | 7.52 |
| Phosphate, ortho (as P) | 14 | 0.05 | 0.00 | 0.01 |
| Potassium | 14 | 2.27 | 0.00 | 1.42 |
| Selenium | 14 | 0.05 | 0.00 | 0.01 |
| Settleable Solids | 13 | 0.00 | 0.00 | 0.00 |
| Sodium | 14 | 21.00 | 8.70 | 10.46 |
| Sulfate | 14 | 26.00 | 0.00 | 15.86 |
| TDS | 13 | 400.00 | 190.00 | 303.54 |
| TSS | 13 | 0.00 | 0.00 | 0.00 |
| Zinc | 14 | 0.11 | 0.00 | 0.03 |

| Table 10. Surface and Ground Water Quality Summary | | | | |
|---|---|---|---|---|
| Aspen Spring thru 10/14/2012 | | | | |
| Analyte | Count | Max | Min | Avg |
| Acidity | 12 | 16.00 | -286.00 | -20.83 |
| Alkalinity,(As CaCO3) | 13 | 282.00 | 75.00 | 217.15 |
| Aluminum | 12 | 0.03 | 0.00 | 0.01 |
| Ammonia (as N) | 12 | 1.63 | 0.00 | 0.34 |
| Arsenic | 12 | 0.01 | 0.00 | 0.01 |
| Bicarbonate (As CaCO3) | 13 | 282.00 | 71.00 | 216.85 |
| Boron | 12 | 0.03 | 0.00 | 0.01 |
| Cadmium | 12 | 0.00 | 0.00 | 0.00 |
| Calcium | 13 | 113.80 | 20.00 | 77.20 |
| Carbonate (As CaCO3) | 13 | 5.00 | 0.00 | 2.31 |
| Chloride | 12 | 36.10 | 5.80 | 21.58 |
| Conductivity | 6 | 660.00 | 500.00 | 615.00 |
| Copper | 12 | 0.01 | 0.00 | 0.01 |
| Hardness (as CaCO3) | 7 | 290.00 | 70.00 | 168.00 |
| Iron - Diss | 11 | 5.20 | 0.00 | 0.65 |
| Iron - Total | 15 | 25.80 | 0.05 | 4.22 |
| Lead | 12 | 0.01 | 0.00 | 0.00 |
| Magnesium | 14 | 15.00 | 4.70 | 11.69 |
| Manganese - Diss | 10 | 0.75 | 0.00 | 0.08 |
| Manganese - Total | 16 | 0.90 | 0.00 | 0.20 |
| Molybdenum | 12 | 0.01 | 0.00 | 0.00 |
| Nitrate (as N) | 12 | 3.41 | 0.00 | 1.38 |
| Nitrite (as N) | 12 | 0.06 | 0.00 | 0.03 |
| Oil & Grease | 7 | 6.40 | 0.00 | 2.67 |
| pH @ 25° C | 6 | 8.00 | 5.70 | 7.30 |
| Phosphate, ortho (as P) | 8 | 0.16 | 0.00 | 0.05 |
| Potassium | 13 | 24.10 | 1.14 | 7.95 |
| Selenium | 12 | 0.02 | 0.00 | 0.01 |
| Settleable Solids | 8 | 1.50 | 0.00 | 0.39 |
| Sodium | 13 | 27.00 | 5.80 | 11.51 |
| Sulfate | 13 | 29.10 | 1.70 | 13.85 |
| TDS | 13 | 396.00 | 120.00 | 327.23 |
| TSS | 8 | 344.00 | 5.00 | 101.50 |
| Zinc | 12 | 0.03 | 0.00 | 0.01 |

| Table 10. Surface and Ground Water Quality Summary | | | | |
|---|---|---|---|---|
| Eagle Spring thru 6/16/2008 | | | | |
| | | | | |
| Analyte | Count | Max | Min | Avg |
| Acidity | 4 | 24.00 | 0.00 | 10.50 |
| Alkalinity,(As CaCO3) | 4 | 64.00 | 34.00 | 45.00 |
| Aluminum | 4 | 3.90 | 0.94 | 1.89 |
| Ammonia (as N) | 4 | 0.09 | 0.07 | 0.08 |
| Arsenic | 4 | 0.01 | 0.00 | 0.00 |
| Bicarbonate (As CaCO3) | 4 | 64.00 | 34.00 | 45.00 |
| Boron | 4 | 0.08 | 0.00 | 0.02 |
| Cadmium | 4 | 0.00 | 0.00 | 0.00 |
| Calcium | 4 | 15.00 | 11.00 | 13.00 |
| Carbonate (As CaCO3) | 4 | 0.00 | 0.00 | 0.00 |
| Chloride | 4 | 5.00 | 3.80 | 4.63 |
| Conductivity | 0 | na | na | na |
| Copper | 4 | 0.01 | 0.01 | 0.01 |
| Hardness (as CaCO3) | 4 | 55.00 | 28.00 | 43.00 |
| Iron - Diss | 4 | 1.30 | 0.75 | 1.02 |
| Iron - Total | 4 | 2.70 | 1.10 | 2.18 |
| Lead | 4 | 0.00 | 0.00 | 0.00 |
| Magnesium | 4 | 3.50 | 2.70 | 3.05 |
| Manganese - Diss | 4 | 0.02 | 0.00 | 0.01 |
| Manganese - Total | 4 | 0.02 | 0.01 | 0.01 |
| Molybdenum | 4 | 0.00 | 0.00 | 0.00 |
| Nitrate (as N) | 3 | 0.10 | 0.00 | 0.04 |
| Nitrite (as N) | 3 | 0.04 | 0.01 | 0.02 |
| Oil & Grease | 4 | 5.40 | 3.30 | 3.85 |
| pH @ 25° C | 0 | na | na | na |
| Phosphate, ortho (as P) | 4 | 0.13 | 0.06 | 0.09 |
| Potassium | 4 | 4.50 | 1.10 | 2.15 |
| Selenium | 4 | 0.00 | 0.00 | 0.00 |
| Settleable Solids | 4 | 0.00 | 0.00 | 0.00 |
| Sodium | 4 | 25.00 | 4.40 | 13.85 |
| Sulfate | 4 | 6.20 | 4.80 | 5.73 |
| TDS | 4 | 200.00 | 120.00 | 152.50 |
| TSS | 4 | 36.00 | 8.00 | 22.50 |
| Zinc | 4 | 0.03 | 0.02 | 0.03 |

| Table 10. Surface and Ground Water Quality Summary | | | | |
|---|---|---|---|---|
| Miller Outlet thru 6/9/2018 | | | | |
| | | | | |
| Analyte | Count | Max | Min | Avg |
| Acidity | 45 | 86.00 | -226.00 | -1.89 |
| Alkalinity,(As CaCO3) | 47 | 309.00 | 203.00 | 246.34 |
| Aluminum | 45 | 0.24 | 0.00 | 0.01 |
| Ammonia (as N) | 44 | 0.20 | 0.00 | 0.07 |
| Arsenic | 44 | 0.01 | 0.00 | 0.00 |
| Bicarbonate (As CaCO3) | 46 | 309.00 | 178.00 | 242.83 |
| Boron | 44 | 0.06 | 0.00 | 0.01 |
| Cadmium | 45 | 0.05 | 0.00 | 0.00 |
| Calcium | 47 | 100.10 | 61.81 | 79.61 |
| Carbonate (As CaCO3) | 47 | 25.00 | 0.00 | 3.83 |
| Chloride | 47 | 39.00 | 8.00 | 11.32 |
| Conductivity | 15 | 600.00 | 0.57 | 480.70 |
| Copper | 45 | 0.01 | 0.00 | 0.00 |
| Hardness (as CaCO3) | 32 | 330.00 | 180.00 | 266.44 |
| Iron - Diss | 46 | 1.30 | 0.00 | 0.04 |
| Iron - Total | 46 | 10.26 | 0.24 | 2.30 |
| Lead | 44 | 0.01 | 0.00 | 0.00 |
| Magnesium | 47 | 19.80 | 14.00 | 16.70 |
| Manganese - Diss | 47 | 0.15 | 0.00 | 0.02 |
| Manganese - Total | 47 | 0.58 | 0.03 | 0.13 |
| Molybdenum | 44 | 0.01 | 0.00 | 0.00 |
| Nitrate (as N) | 44 | 0.92 | 0.00 | 0.27 |
| Nitrite (as N) | 43 | 0.05 | 0.00 | 0.02 |
| Oil & Grease | 46 | 460.00 | 0.00 | 13.60 |
| pH @ 25° C | 16 | 8.70 | 6.90 | 8.06 |
| Phosphate, ortho (as P) | 40 | 0.13 | 0.00 | 0.03 |
| Potassium | 46 | 3.16 | 1.10 | 2.06 |
| Selenium | 44 | 0.08 | 0.00 | 0.01 |
| Settleable Solids | 44 | 1.20 | 0.00 | 0.18 |
| Sodium | 46 | 19.00 | 5.40 | 8.79 |
| Sulfate | 46 | 48.00 | 11.00 | 25.68 |
| TDS | 46 | 620.00 | 200.00 | 300.96 |
| TSS | 47 | 430.00 | 8.00 | 124.06 |
| Zinc | 45 | 0.09 | 0.00 | 0.01 |

| Table 10. Surface and Ground Water Quality Summary | | | | |
|---|---|---|---|---|
| Mud Creek thru 9/22/2018 | | | | |
| Analyte | Count | Max | Min | Avg |
| Acidity | 48 | 68.00 | -224.00 | -1.90 |
| Alkalinity,(As CaCO3) | 52 | 300.00 | 160.00 | 238.33 |
| Aluminum | 48 | 0.05 | 0.00 | 0.01 |
| Ammonia (as N) | 47 | 0.57 | 0.00 | 0.05 |
| Arsenic | 47 | 0.02 | 0.00 | 0.00 |
| Bicarbonate (As CaCO3) | 51 | 298.00 | 150.00 | 232.33 |
| Boron | 47 | 0.19 | 0.00 | 0.03 |
| Cadmium | 47 | 0.05 | 0.00 | 0.00 |
| Calcium | 52 | 100.00 | 48.00 | 67.06 |
| Carbonate (As CaCO3) | 52 | 55.00 | 0.00 | 6.46 |
| Chloride | 52 | 63.00 | 6.90 | 19.48 |
| Conductivity | 17 | 1000.00 | 0.68 | 664.75 |
| Copper | 48 | 0.01 | 0.00 | 0.00 |
| Hardness (as CaCO3) | 33 | 480.00 | 120.00 | 333.30 |
| Iron - Diss | 52 | 0.17 | 0.00 | 0.02 |
| Iron - Total | 52 | 7.18 | 0.11 | 0.64 |
| Lead | 47 | 0.01 | 0.00 | 0.00 |
| Magnesium | 52 | 58.00 | 14.00 | 34.45 |
| Manganese - Diss | 52 | 0.09 | 0.00 | 0.02 |
| Manganese - Total | 52 | 0.50 | 0.01 | 0.04 |
| Molybdenum | 48 | 0.01 | 0.00 | 0.00 |
| Nitrate (as N) | 47 | 2.17 | 0.00 | 0.31 |
| Nitrite (as N) | 46 | 0.22 | 0.00 | 0.02 |
| Oil & Grease | 51 | 360.00 | 0.00 | 10.64 |
| pH @ 25° C | 19 | 8.90 | 6.60 | 8.09 |
| Phosphate, ortho (as P) | 43 | 0.07 | 0.00 | 0.02 |
| Potassium | 51 | 9.70 | 1.90 | 5.88 |
| Selenium | 47 | 0.11 | 0.00 | 0.01 |
| Settleable Solids | 47 | 0.70 | 0.00 | 0.11 |
| Sodium | 51 | 118.10 | 12.63 | 39.01 |
| Sulfate | 52 | 290.00 | 38.00 | 125.19 |
| TDS | 51 | 720.00 | 230.00 | 429.29 |
| TSS | 53 | 489.00 | 4.00 | 42.53 |
| Zinc | 48 | 0.16 | 0.00 | 0.01 |

| Table 10. Surface and Ground Water Quality Summary | | | | |
|---|---|---|---|---|
| RES-1 thru 9/22/2018 | | | | |
| Analyte | Count | Max | Min | Avg |
| Acidity | 31 | 10.00 | -188.00 | -4.29 |
| Alkalinity,(As CaCO3) | 35 | 406.00 | 120.00 | 201.17 |
| Aluminum | 31 | 0.04 | 0.00 | 0.01 |
| Ammonia (as N) | 30 | 0.30 | 0.00 | 0.09 |
| Arsenic | 31 | 0.01 | 0.00 | 0.00 |
| Bicarbonate (As CaCO3) | 35 | 330.00 | 0.00 | 179.57 |
| Boron | 30 | 0.05 | 0.00 | 0.02 |
| Cadmium | 30 | 0.00 | 0.00 | 0.00 |
| Calcium | 35 | 81.00 | 21.00 | 50.22 |
| Carbonate (As CaCO3) | 35 | 140.00 | 0.00 | 22.34 |
| Chloride | 35 | 86.00 | 3.60 | 22.65 |
| Conductivity | 14 | 590.00 | 0.61 | 415.04 |
| Copper | 31 | 0.01 | 0.00 | 0.00 |
| Hardness (as CaCO3) | 20 | 430.00 | 130.00 | 264.00 |
| Iron - Diss | 35 | 0.15 | 0.00 | 0.03 |
| Iron - Total | 36 | 10.00 | 0.00 | 1.06 |
| Lead | 31 | 0.01 | 0.00 | 0.00 |
| Magnesium | 36 | 75.50 | 14.00 | 25.90 |
| Manganese - Diss | 35 | 0.47 | 0.00 | 0.07 |
| Manganese - Total | 36 | 1.10 | 0.01 | 0.17 |
| Molybdenum | 31 | 0.01 | 0.00 | 0.00 |
| Nitrate (as N) | 31 | 0.37 | 0.00 | 0.07 |
| Nitrite (as N) | 31 | 0.15 | 0.00 | 0.02 |
| Oil & Grease | 34 | 340.00 | 0.00 | 13.41 |
| pH @ 25° C | 15 | 8.70 | 6.80 | 8.11 |
| Phosphate, ortho (as P) | 16 | 0.12 | 0.00 | 0.03 |
| Potassium | 35 | 15.00 | 1.30 | 4.05 |
| Selenium | 31 | 0.07 | 0.00 | 0.01 |
| Settleable Solids | 32 | 5.50 | 0.00 | 0.63 |
| Sodium | 34 | 42.00 | 8.30 | 20.43 |
| Sulfate | 35 | 140.00 | 11.60 | 48.23 |
| TDS | 36 | 620.00 | 96.00 | 304.19 |
| TSS | 36 | 1674.00 | 5.00 | 149.06 |
| Zinc | 31 | 0.04 | 0.00 | 0.01 |

| Table 10. Surface and Ground Water Quality Summary | | | | |
|---|---|---|---|---|
| Sulfur Spring thru | 9/22/2018 | | | |
| | | | | |
| Analyte | Count | Max | Min | Avg |
| Acidity | 48 | 80.00 | -336.00 | 1.06 |
| Alkalinity,(As CaCO3) | 50 | 380.00 | 290.00 | 339.28 |
| Aluminum | 48 | 0.04 | 0.00 | 0.01 |
| Ammonia (as N) | 47 | 0.44 | 0.00 | 0.10 |
| Arsenic | 47 | 0.01 | 0.00 | 0.00 |
| Bicarbonate (As CaCO3) | 50 | 380.00 | 290.00 | 339.88 |
| Boron | 47 | 0.07 | 0.00 | 0.02 |
| Cadmium | 47 | 0.00 | 0.00 | 0.00 |
| Calcium | 50 | 95.00 | 82.00 | 88.96 |
| Carbonate (As CaCO3) | 49 | 10.00 | 0.00 | 1.84 |
| Chloride | 50 | 11.00 | 5.10 | 6.78 |
| Conductivity | 19 | 890.00 | 0.86 | 666.36 |
| Copper | 48 | 0.01 | 0.00 | 0.00 |
| Hardness (as CaCO3) | 33 | 390.00 | 210.00 | 364.48 |
| Iron - Diss | 50 | 0.15 | 0.00 | 0.01 |
| Iron - Total | 52 | 0.43 | 0.00 | 0.04 |
| Lead | 47 | 0.01 | 0.00 | 0.00 |
| Magnesium | 49 | 38.00 | 31.00 | 35.49 |
| Manganese - Diss | 49 | 0.16 | 0.00 | 0.03 |
| Manganese - Total | 52 | 0.17 | 0.03 | 0.03 |
| Molybdenum | 47 | 0.01 | 0.00 | 0.00 |
| Nitrate (as N) | 46 | 0.15 | 0.00 | 0.02 |
| Nitrite (as N) | 46 | 0.10 | 0.00 | 0.02 |
| Oil & Grease | 37 | 540.00 | 0.00 | 17.98 |
| pH @ 25° C | 20 | 9.50 | 2.00 | 6.88 |
| Phosphate, ortho (as P) | 28 | 0.02 | 0.00 | 0.00 |
| Potassium | 49 | 5.92 | 3.97 | 4.84 |
| Selenium | 48 | 0.10 | 0.00 | 0.01 |
| Settleable Solids | 33 | 0.10 | 0.00 | 0.01 |
| Sodium | 50 | 19.00 | 7.40 | 9.21 |
| Sulfate | 49 | 91.00 | 29.00 | 45.88 |
| TDS | 51 | 440.00 | 230.00 | 377.08 |
| TSS | 38 | 20.00 | 0.00 | 2.50 |
| Zinc | 48 | 0.12 | 0.00 | 0.01 |

| Table 10. Surface and Ground Water Quality Summary | | | | |
|---|---|---|---|---|
| CR-06-03 ABV thru 8/21/2006 | | | | |
| | | | | |
| Analyte | Count | Max | Min | Avg |
| Acidity | 7 | 0.00 | 0.00 | 0.00 |
| Alkalinity,(As CaCO3) | 7 | 410.00 | 370.00 | 387.14 |
| Aluminum | 7 | 0.12 | 0.00 | 0.02 |
| Ammonia (as N) | 7 | 0.10 | 0.00 | 0.01 |
| Arsenic | 7 | 0.04 | 0.01 | 0.03 |
| Bicarbonate (As CaCO3) | 7 | 410.00 | 370.00 | 387.14 |
| Boron | 7 | 0.00 | 0.00 | 0.00 |
| Cadmium | 7 | 0.00 | 0.00 | 0.00 |
| Calcium | 7 | 130.00 | 110.00 | 120.00 |
| Carbonate (As CaCO3) | 7 | 0.00 | 0.00 | 0.00 |
| Chloride | 7 | 63.00 | 17.00 | 27.00 |
| Conductivity | 1 | 800.00 | 800.00 | 800.00 |
| Copper | 7 | 0.07 | 0.00 | 0.01 |
| Hardness (as CaCO3) | 7 | 460.00 | 280.00 | 412.86 |
| Iron - Diss | 0 | na | na | na |
| Iron - Total | 7 | 4.30 | 0.31 | 1.17 |
| Lead | 7 | 0.00 | 0.00 | 0.00 |
| Magnesium | 7 | 31.00 | 28.00 | 29.71 |
| Manganese - Diss | 0 | na | na | na |
| Manganese - Total | 7 | 0.15 | 0.02 | 0.06 |
| Molybdenum | 7 | 0.00 | 0.00 | 0.00 |
| Nitrate (as N) | 6 | 0.09 | 0.00 | 0.04 |
| Nitrite (as N) | 6 | 0.03 | 0.00 | 0.01 |
| Oil & Grease | 0 | na | na | na |
| pH @ 25° C | 1 | 7.14 | 7.14 | 7.14 |
| Phosphate, ortho (as P) | 7 | 0.07 | 0.00 | 0.02 |
| Potassium | 7 | 2.50 | 1.40 | 2.07 |
| Selenium | 7 | 0.00 | 0.00 | 0.00 |
| Settleable Solids | 0 | na | na | na |
| Sodium | 7 | 25.00 | 8.70 | 14.70 |
| Sulfate | 7 | 50.00 | 31.00 | 38.57 |
| TDS | 7 | 460.00 | 350.00 | 398.57 |
| TSS | 0 | na | na | na |
| Zinc | 7 | 2.80 | 0.23 | 0.70 |

| Table 10. Surface and Ground Water Quality Summary | | | | |
|---|---|---|---|---|
| CR-10-11 thru 9/22/2018 | | | | |
| | | | | |
| Analyte | Count | Max | Min | Avg |
| Acidity | 23 | 50.00 | -216.00 | 0.09 |
| Alkalinity,(As CaCO3) | 25 | 235.00 | 175.00 | 215.28 |
| Aluminum | 23 | 0.10 | 0.00 | 0.02 |
| Ammonia (as N) | 23 | 0.10 | 0.00 | 0.06 |
| Arsenic | 23 | 0.01 | 0.00 | 0.01 |
| Bicarbonate (As CaCO3) | 25 | 235.00 | 175.00 | 215.28 |
| Boron | 23 | 0.04 | 0.00 | 0.02 |
| Cadmium | 23 | 0.00 | 0.00 | 0.00 |
| Calcium | 25 | 84.59 | 69.10 | 79.67 |
| Carbonate (As CaCO3) | 25 | 5.00 | 0.00 | 3.00 |
| Chloride | 25 | 23.00 | 14.20 | 16.38 |
| Conductivity | 17 | 680.00 | 0.67 | 503.57 |
| Copper | 23 | 0.01 | 0.00 | 0.01 |
| Hardness (as CaCO3) | 10 | 257.00 | 223.00 | 247.70 |
| Iron - Diss | 25 | 0.03 | 0.00 | 0.02 |
| Iron - Total | 28 | 26.12 | 0.05 | 3.56 |
| Lead | 23 | 0.01 | 0.00 | 0.01 |
| Magnesium | 25 | 13.10 | 6.79 | 11.70 |
| Manganese - Diss | 25 | 0.02 | 0.00 | 0.00 |
| Manganese - Total | 28 | 0.75 | 0.00 | 0.08 |
| Molybdenum | 23 | 0.01 | 0.00 | 0.00 |
| Nitrate (as N) | 23 | 2.78 | 0.05 | 2.30 |
| Nitrite (as N) | 23 | 0.37 | 0.00 | 0.06 |
| Oil & Grease | 1 | 0.00 | 0.00 | #DIV/0! |
| pH @ 25° C | 16 | 8.00 | 6.10 | 7.46 |
| Phosphate, ortho (as P) | 0 | na | na | na |
| Potassium | 25 | 8.33 | 0.00 | 1.54 |
| Selenium | 23 | 0.08 | 0.00 | 0.02 |
| Settleable Solids | 3 | 6.50 | 0.10 | 2.23 |
| Sodium | 25 | 14.77 | 9.01 | 10.96 |
| Sulfate | 25 | 11700.00 | 26.00 | 961.86 |
| TDS | 28 | 470.00 | 278.00 | 315.39 |
| TSS | 3 | 2690.00 | 14.00 | 912.67 |
| Zinc | 23 | 0.14 | 0.00 | 0.02 |

| Table 10. Surface and Ground Water Quality Summary | | | | |
|---|---|---|---|---|
| CR-10-12 thru 9/22/2018 | | | | |
| | | | | |
| Analyte | Count | Max | Min | Avg |
| Acidity | 23 | 11.00 | -178.00 | -4.48 |
| Alkalinity,(As CaCO3) | 25 | 212.00 | 169.00 | 180.60 |
| Aluminum | 23 | 0.32 | 0.00 | 0.05 |
| Ammonia (as N) | 23 | 0.10 | 0.00 | 0.06 |
| Arsenic | 22 | 0.01 | 0.00 | 0.01 |
| Bicarbonate (As CaCO3) | 25 | 212.00 | 169.00 | 180.60 |
| Boron | 23 | 0.05 | 0.00 | 0.01 |
| Cadmium | 23 | 0.00 | 0.00 | 0.00 |
| Calcium | 25 | 99.90 | 66.20 | 80.01 |
| Carbonate (As CaCO3) | 25 | 5.00 | 0.00 | 3.00 |
| Chloride | 25 | 27.20 | 15.00 | 20.07 |
| Conductivity | 17 | 960.00 | 0.65 | 545.57 |
| Copper | 23 | 0.01 | 0.00 | 0.01 |
| Hardness (as CaCO3) | 10 | 286.00 | 191.00 | 222.70 |
| Iron - Diss | 25 | 0.17 | 0.00 | 0.03 |
| Iron - Total | 28 | 135.00 | 0.39 | 28.74 |
| Lead | 23 | 0.01 | 0.00 | 0.01 |
| Magnesium | 25 | 11.95 | 6.10 | 7.21 |
| Manganese - Diss | 25 | 0.09 | 0.00 | 0.01 |
| Manganese - Total | 28 | 2.65 | 0.01 | 0.57 |
| Molybdenum | 22 | 0.01 | 0.00 | 0.00 |
| Nitrate (as N) | 0 | na | na | na |
| Nitrite (as N) | 47 | 6.70 | 0.01 | 2.11 |
| Oil & Grease | 1 | 0.00 | 0.00 | #DIV/0! |
| pH @ 25° C | 17 | 8.60 | 5.80 | 7.33 |
| Phosphate, ortho (as P) | 0 | na | na | na |
| Potassium | 25 | 1.70 | 0.74 | 1.03 |
| Selenium | 23 | 0.05 | 0.00 | 0.01 |
| Settleable Solids | 3 | 42.00 | 0.00 | 23.33 |
| Sodium | 25 | 25.70 | 10.21 | 17.29 |
| Sulfate | 25 | 11500.00 | 27.00 | 961.20 |
| TDS | 28 | 620.00 | 240.00 | 357.54 |
| TSS | 3 | 6380.00 | 95.00 | 3868.33 |
| Zinc | 23 | 0.12 | 0.00 | 0.01 |

| Table 10. Surface and Ground Water Quality Summary | | | | |
|---|---|---|---|---|
| WNR-2012-5 thru 8/25/2018 | | | | |
| | | | | |
| Analyte | Count | Max | Min | Avg |
| Acidity | 6 | 10.00 | -418.00 | -64.67 |
| Alkalinity,(As CaCO3) | 6 | 487.00 | 280.00 | 410.50 |
| Aluminum | 6 | 0.03 | 0.03 | 0.03 |
| Ammonia (as N) | 6 | 0.50 | 0.10 | 0.25 |
| Arsenic | 6 | 0.02 | 0.01 | 0.01 |
| Bicarbonate (As CaCO3) | 6 | 487.00 | 269.00 | 406.17 |
| Boron | 6 | 0.10 | 0.06 | 0.08 |
| Cadmium | 6 | 0.00 | 0.00 | 0.00 |
| Calcium | 6 | 86.44 | 9.69 | 37.18 |
| Carbonate (As CaCO3) | 6 | 15.00 | 5.00 | 7.67 |
| Chloride | 6 | 23.00 | 13.00 | 16.67 |
| Conductivity | 8 | 1150.00 | 0.64 | 833.83 |
| Copper | 6 | 0.01 | 0.01 | 0.01 |
| Hardness (as CaCO3) | 0 | na | na | na |
| Iron - Diss | 6 | 0.05 | 0.03 | 0.03 |
| Iron - Total | 9 | 0.85 | 0.17 | 0.48 |
| Lead | 6 | 1.91 | 0.01 | 0.33 |
| Magnesium | 6 | 67.99 | 52.57 | 63.15 |
| Manganese - Diss | 6 | 2.05 | 0.00 | 0.35 |
| Manganese - Total | 9 | 0.11 | 0.00 | 0.03 |
| Molybdenum | 6 | 2.05 | 0.01 | 0.35 |
| Nitrate (as N) | 6 | 0.05 | 0.05 | 0.05 |
| Nitrite (as N) | 6 | 0.05 | 0.05 | 0.05 |
| Oil & Grease | 0 | na | na | na |
| pH @ 25° C | 8 | 8.80 | 6.20 | 7.56 |
| Phosphate, ortho (as P) | 0 | na | na | na |
| Potassium | 6 | 111.60 | 41.23 | 86.86 |
| Selenium | 6 | 0.19 | 0.02 | 0.08 |
| Settleable Solids | 2 | 0.10 | 0.10 | 0.10 |
| Sodium | 6 | 30.45 | 22.46 | 27.33 |
| Sulfate | 6 | 128.00 | 101.00 | 110.83 |
| TDS | 9 | 640.00 | 526.00 | 589.00 |
| TSS | 2 | 20.00 | 12.00 | 16.00 |
| Zinc | 6 | 1.86 | 0.00 | 0.38 |

| Table 10. Surface and Ground Water Quality Summary | | | | |
|---|---|---|---|---|
| WNR-2012-8 thru 8/25/2018 | | | | |
| | | | | |
| Analyte | Count | Max | Min | Avg |
| Acidity | 6 | 5.00 | -390.00 | -60.83 |
| Alkalinity,(As CaCO3) | 6 | 199.00 | 181.00 | 190.00 |
| Aluminum | 6 | 0.03 | 0.03 | 0.03 |
| Ammonia (as N) | 6 | 0.10 | 0.10 | 0.10 |
| Arsenic | 6 | 0.03 | 0.01 | 0.01 |
| Bicarbonate (As CaCO3) | 6 | 199.00 | 181.00 | 187.67 |
| Boron | 6 | 0.08 | 0.02 | 0.07 |
| Cadmium | 6 | 0.00 | 0.00 | 0.00 |
| Calcium | 6 | 23.38 | 17.02 | 19.93 |
| Carbonate (As CaCO3) | 6 | 10.00 | 5.00 | 5.83 |
| Chloride | 6 | 15.00 | 5.00 | 8.33 |
| Conductivity | 8 | 680.00 | 0.68 | 490.09 |
| Copper | 6 | 0.03 | 0.01 | 0.01 |
| Hardness (as CaCO3) | 0 | na | na | na |
| Iron - Diss | 6 | 0.05 | 0.03 | 0.03 |
| Iron - Total | 9 | 1.89 | 0.13 | 0.67 |
| Lead | 6 | 0.01 | 0.01 | 0.01 |
| Magnesium | 6 | 24.83 | 21.21 | 22.55 |
| Manganese - Diss | 6 | 0.01 | 0.00 | 0.00 |
| Manganese - Total | 9 | 0.05 | 0.00 | 0.02 |
| Molybdenum | 6 | 0.03 | 0.01 | 0.02 |
| Nitrate (as N) | 6 | 0.64 | 0.05 | 0.39 |
| Nitrite (as N) | 7 | 1.17 | 0.05 | 0.26 |
| Oil & Grease | 0 | na | na | na |
| pH @ 25° C | 8 | 8.80 | 5.90 | 7.39 |
| Phosphate, ortho (as P) | 0 | na | na | na |
| Potassium | 6 | 47.41 | 31.43 | 40.20 |
| Selenium | 6 | 0.09 | 0.02 | 0.03 |
| Settleable Solids | 2 | 0.10 | 0.10 | 0.10 |
| Sodium | 6 | 23.28 | 17.23 | 21.00 |
| Sulfate | 6 | 43.00 | 41.00 | 41.83 |
| TDS | 9 | 309.00 | 252.00 | 272.44 |
| TSS | 2 | 18.00 | 14.00 | 16.00 |
| Zinc | 6 | 1.29 | 0.01 | 0.37 |

**Ground Water Rights and Use**

Ground water rights within a 2-mile radius of the central mine area are shown on Map 30, Ground Water Right Locations, and listed in Table 11, Ground Water Rights. None of the ground water rights identified are believed to be potentially impacted by the mining operation for the reasons discussed below.

The closest ground water rights to the mining operation are located approximately ¼ mile to the southwest, and are associated with a change application (a34946-right 91-5106) for a well, diverting water for use at a home. This water right is limited to 1.0 acre-foot of water. The next closest water rights to the mining operation are located approximately ½ mile to the southwest, and are associated with a small domestic single-family dwelling. Water rights 91-3401 and 91-3402 (included within Exhibit 13, Water Rights) are supplemental rights to each other with a total domestic and stock watering withdrawal limit of 0.73 acre-feet. Exchange application E1912 exchanges surface water flows for ground water flows tributary to Scofield Reservoir and is limited to a 1.0 acre-foot withdrawal for domestic purposes. These water rights are all located within valley alluvium, and lie within an unconfined ground water aquifer zone fed by local surface sources, and geologically below the elevation of the coal seams to be mined. With dry conditions encountered during exploration and the fact that geologic strata dip to the north-east, there is little to no potential for mining activities to affect these water rights.

Water rights west of Mud Creek follow a similar impact potential since they are 1) hydrologicaly disconnected from surface sources, and 2) geologically disconnected from the coal seam and overlying strata.

Water rights 91-4891 and exchange application rights E1934 (see Exhibit 13, Water Rights), are located over 2 miles to the north near the mouth of Miller Canyon, are domestic and irrigation ground water rights that have either been changed or exchanged from surface water sources. The volume of water allowed to be diverted under the rights are 2.0 and 20.0 acre-feet respectively. No impact to these water rights is anticipated since 1) the ground water would be withdrawn adjacent to Scofield Reservoir at relatively shallow depths, 2) the rights are located north of planned mined areas, 3) the coal seams to be mined are relatively dry and are located hydrologicaly above the water right areas.

**Ground Water/Surface Water Interactions**

Ground water/surface water interactions in the permit area are controlled by stratigraphy, lithology, localized topography, and climatic conditions, which affect recharge, subsurface flow paths and direction, and discharge areas.

In many cases, shallow perched ground water discharges as springs or seeps to the small tributary surface drainages both from outcrop exposures on exposed slopes above the drainages and from stratigraphic exposures within the drainage channels. Discharge of perched ground water to the surface drainage system occurs most frequently where flat lying, relatively low permeable, and consequent low infiltration stratigraphic units are found.

## Table 11. Ground Water Rights

Table 11. Ground Water Rights

| WRNUM | CHEXNUM | TYPE | STATUS | PRIORITY | USES | CFS | ACFT | LOCATION | OWNER | SOURCE |
|---|---|---|---|---|---|---|---|---|---|---|
| 91-3401 | | Underground | DIL | 18950000 | DS | 0.011 | 0.000 | N625 E710 S4 32 12S 7E SL | WAINO E. BURTON | Underground Water Well |
| 91-3402 | | Underground | DIL | 18950000 | DS | 0.011 | 0.000 | N570 E690 S4 32 12S 7E SL | WAINO E. BURTON | Underground Water Well |
| 91-5160 | a34946 | Underground | APPLAPP | 20081016 | DIS | 0.000 | 1.000 | S1235 W1351 E4 32 12S 7E SL | BOYD L. PETERSON AND PEGGY PETERSON TRUS | Underground Water Well |
| 91-4889 | E1912 | Underground | APPLAPP | 19810611 | D | 0.000 | 1.000 | N2145 W1350 E4 05 13S 7E SL | JIM NICOLODEMOS | Scofield Reservoir |
| 91-4891 | E1934 | Underground | APPLAPP | 19810629 | O | 0.000 | 20.000 | N1320 0 S4 21 12S 7E SL | UCO INCORPORATED | Scofield Reservoir |
| 91-4891 | E1934 | Underground | APPLAPP | 19810629 | O | 0.000 | 20.000 | N1771 E210 S4 21 12S 7E SL | UCO INCORPORATED | Scofield Reservoir |
| 91-4891 | E1934 | Underground | APPLAPP | 19810629 | O | 0.000 | 20.000 | N2220 E420 S4 21 12S 7E SL | UCO INCORPORATED | Scofield Reservoir |
| 91-4891 | E1934 | Underground | APPLAPP | 19810629 | O | 0.000 | 20.000 | N2640 E630 S4 21 12S 7E SL | UCO INCORPORATED | Scofield Reservoir |
| 91-5165 | A34604 | Underground | APD | 20080701 | O | 0.000 | 1.000 | N1347 W995 S4 05 13S 7E SL | ROBERT & HELEN RADAKOVICH MARITAL/FAM. T | Scofield Reservoir |
| 91-4909 | E2567 | Underground | SUPP | 19871013 | O | 0.000 | 30.000 | S1056 W1451 N4 S05 13S 7E SL | SCOFIELD TOWN | Scofield Reservoir |

Significant alluvial/colluvial deposits, particularly in the flatter reaches of area drainages, form localized ground water storage systems which may or may not be laterally continuous along the length of the drainage depending on localized conditions. During periods of high runoff, the alluvial/colluvial deposits are recharged. As surface flows recede, limited stored ground water may discharge to the surface system extending the period of active surface flow. Residual ground water storage in the alluvial/colluvial system may be retained, may serve as a source of recharge to more permeable exposed bedrock units, or may be depleted through normal evapo-transpiration during extended dry periods.

### Ground Water Summary

Ground water resources in the permit and adjacent areas are limited in both extent and quantity. Ground water occurrences are limited to: shallow alluvial/colluvial valley-fill deposits in local drainages; perched ground water in thin, laterally discontinuous geologic units and in narrow near vertical aquifers adjacent to faults; ground water accumulated over time in lower underground mine workings; and, the regional aquifer consisting of deeper units in the Blackhawk Formation extending into the underlying Star Point and Mancos Formations.

Ground water movement is limited by low transmissivities, the general lack of significant secondary permeabilities except in limited areas along faults, and limited recharge in outcrop zones. It is likely that ground water has gradually accumulated over time in the down-dip workings of abandoned and sealed mines underlying the Hiawatha Coal seam, resulting in potentially significant volumes of water. Mine inflows are minimal.

## R645-301-724.200 Surface Water Information

Surface water in the permit and adjacent areas is limited to Scofield Reservoir, perennial flows within Mud Creek, Miller and Long Canyon, and ephemeral flows from various side tributaries. Flows have been quantified by analysis of water quality and quantity characteristics, historic flow and quality data for Mud Creek, Miller Canyon (Miller Outlet), Scofield Reservoir, Angle Spring, Eagle Spring, Sulfur Spring, and Aspen Spring. Some flow data is available for seeps and springs identified in the Seep and Spring survey completed in 2006. The evaluation of surface water involved the collection of surface water data in the permit and adjacent areas and an assessment of regional hydrologic information from adjacent areas. Raw data have been reduced by standard scientific methods to develop interpretations and reach conclusions presented in this section.

### Surface Water Environment

As discussed in the ground water section (R645-301-724), both surface and ground water hydrologic features and regimes within the permit and adjacent areas are reflective of and strongly influenced by geologic structure, stratigraphy, lithology, and localized topography and climatic conditions. Map 7, Regional Hydrology and Map 10, Regional Water Quality display surface topography and watersheds in the permit area.

The climate in the proposed lease area and adjacent areas is arid to semi-arid. Table 13, Summary of Temperature Data, Table 14, Summary of Precipitation Data – Scofield Dam(WRCC Data 07/01/1948 to 06/10/2016), and Table 15, Summary of Wind Data – Price, Utah provide

data believed to be representative to the mine site. Wind data provided was the closest found to the project site.

According to the data, the area has an average annual precipitation of 14.56 inches. Average monthly precipitation ranges from 0.90 inches in June to 1.65 inches in January. Most of the precipitation falling as snowfall occurs during November, December, January, February, March and April, although it often falls in October and May, and sometimes in June. Like many areas within the State, precipitation falling as rainfall, commonly occurs in response to high-intensity short-duration storms of limited aerial extent (Butler and Marsell, 1972).

Temperatures in the proposed permit area are seasonal, with the high mean monthly temperature occurring in July and the low mean monthly temperature occurring in February. Evaporation and infiltration rates in the proposed lease and adjacent areas vary with vegetation, soil type, and time of year. The average annual potential evaporation in central Utah is 40 inches per year (Geraghty, et al., 1973).

The permit area is located near the north end of the Wasatch Plateau, which is an uplifted N-S elongated geomorphic feature extending over more than 60 miles in Central Utah. The Wasatch Plateau forms the transition zone between the Basin and Range and Colorado Plateau Structural Provinces. The Uintah Basin structural element also affects this northern end of the Wasatch Plateau, causing the northward "regional dip" of the beds in the area. Generally, the topography in the area is fairly mountainous with shallow narrow valleys and side channel tributaries. The mountainous terrain combined with climate influence the surface drainage configuration and flow characteristics. Most drainage channels contain no flowing water except during snowmelt and/or precipitation events. Rapid runoff from snowmelt and thunderstorm precipitation often cause relatively brief, high velocity flows in the smaller drainages, and significant flow variation in the larger drainages.

Velocities in Mud Creek measured since May of 2005 have varied between 11.0 and 131.1 CFS. Measured stream flows in Miller Canyon to the north range from 0.0 during winter months when the stream is frozen to 1.21 CFS which occurred on April 26, 2005.

**Drainages and Surface Water Bodies**

**Drainages**

The permit and adjacent areas fall within the upper Price River drainage basin. Miller Canyon and Mud Creek are the major perennial streams in the area adjacent to the mine site. These water sources are tributary to Scofield Reservoir, which is the source of headwaters for Price River. Minor perennial streams drain watersheds adjacent to the proposed permit area including several small ephemeral tributaries are located within and adjacent to the permit area, including UP Canyon to the south and Eagle Canyon to the north. The majority of the smaller drainages exhibit an ephemeral flow pattern with sustained flows only in response to spring snowmelt and major thunderstorms Exhibit, 20 Ephemeral Drainage Determination. All or portions of the following named drainages fall within a two-mile radius of the permit area. Drainage west of Pleasant Valley as well as Mud Creek are hydraulically disconnected to potential impacts from potential mining activities.

| Perennial | Ephemeral |
|---|---|
| **Drainages East of Pleasant Valley** | |
| Mud Creek | Eagle Canyon |
| Miller / Long Canyon | UP Canyon |
| **Drainage West of Pleasant Valley** | |
| Bear Canyon Creek | Number Four Gulch |
| Fish Creek | Tucker Canyon |
| Green Canyon | Woods Canyon |
| Winter Quarters Canyon | Winter Quarters |

General basin characteristics are rolling uplands and open parks above the Price River Canyon, with vegetation communities of sagebrush/grasslands and mixed coniferous/aspen forests.

Mud Creek where it enters Scofield Reservoir drains an area of approximately 42 square miles. The headwaters lie approximately 9 miles south of the proposed lease area. Elevations range from approximately 10,394 feet to 7,612 feet at its confluence with Scofield Reservoir. Mud Creek, having a length of 11.2 miles is the only major tributary to Scofield Reservoir within the vicinity of the proposed permit area.

The general local basin topography can be characterized as moderately steep mountain lands with narrow valleys having a mixed vegetation consisting of pinion, quaking aspen, and sagebrush vegetative mixes. Stream flow from local ephemeral drainages is commonly very low.

### Surface Water Bodies

Scofield Reservoir, a man-made reservoir is not located within the permit area, but is located a short distance to the north west. Several very small stock-watering ponds and beaver dams were however, identified in the Seep and Spring Survey, basically located within the small canyon drainages to the east, including Eagle and Long Canyons. As is typical of the region, stock ponds are commonly associated with local springs.

The sedimentation structure planned for the Kinney No. 2 Mine surface facility will exist solely for the containment and retention of disturbed area runoff to allow for settling of suspended solids prior to release and discharge to natural drainages. The active sedimentation pond will be monitored on a regular basis to verify compliance with all applicable regulatory provisions and effluent discharge limitations. Because the sediment pond will be utilized solely for temporary retention of stormwater runoff, no water rights or beneficial uses are associated with it. Water rights associated with springs and/or stock ponds are provided in Exhibit 13, Water Rights.

### Perennial Streams

As previously described under the sub-heading "Drainages", the perennial streams in the permit and adjacent areas include Mud Creek, and Long/Miller Canyons. All other area drainages are characterized by ephemeral flow patterns. In the vicinity of the permit area, the floodplain areas of the perennial streams have experienced only limited disturbance. Disturbance along Mud Creek is mostly confined to areas through the Town of Scofield, and very minor disturbance in grazing areas along the creek. Flood plain disturbance within Long and Miller Canyons appears to be basically limited to small road and ranch property zones within the lower reaches

of Miller Canyon, and stock watering ponds within the reaches of Long Canyon.

Based on available information, some floodplain areas in the immediate vicinity and downstream of Scofield, Utah have a limited history of irrigation or farming. These small areas bordering Mud Creek are shown on aerial photography easily visible on aerial photography to be west of the proposed permit area and Highway 96. Small irrigated areas are also visible on photography in the vicinity of the ranch house located within Miller Canyon downstream of the confluence of Miller and Long Canyons.

According to the Utah Division of Water Quality, surface water sources including Mud Creek and Scofield Reservoir have stream classifications of 1C, 2B, 3A and 4 in the areas adjacent to the proposed lease area. Definitions of each classification are:

- 1C – Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water.
- 2B – Protected for secondary contact recreation such as boating, wading, or similar uses.
- 3A – Protected for cold water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.
- 4 – Protected for agricultural uses including irrigation of crops and stock watering.

These drainage classifications indicate that the Scofield Reservoir and associated tributaries are designated for culinary use when treated, recreation, as cold-water non-game fish habitat, and irrigation and stock watering with no associated natural resource waters restrictions other than applicable effluent standards for discharges.

**Ephemeral Drainages**

Four Ephemeral Drainages are found to cross from, East to West, portions of the Permit Boundary. Three additional Ephemeral Drainages are found in near proximity to the Permit Boundary. Five of the Seven Ephemeral Drainages are shown as no-name drainages on the USGS Scofield Quadrangle Map but are here given names for utility in referencing. These new names appear on nearly all of the Exhibits within this Permit Application that have a topographic base map; Figure 2, Drill Hole Locations w/ Hiawatha Outcrop, in Chapter 6 is a good example. New names for the drainages, derived from the old mine portals located in them are, from North to South, Monay Draw, Blue Seal Draw, Kinney Draw, Columbine Draw, and Jones Draw. Monay and Blue Seal Draws are located North of the Permit Boundary with the other three lying within the Permit Boundary. The other two Ephemeral Drainages are named on the USGS Scofield Quadrangle as Eagle Canyon and UP Canyon. Eagle Canon is the northern-most of the seven drainages and UP Canyon is the southern-most of the seven with the five newly named Drainages positioned between. UP Canyon is South of the Permit Boundary and does not cross the Boundary at any part, while Eagles Canyon exits the mountain front North of the Permit Boundary, however, Eagles Canyon bends sharply southward and crosses a portion of the Permit Boundary on its East Side.

Baseline Surface Water Data were NOT collected from these Seven Drainages simply because there was NO WATER to collect. As part of an “Ephemeral Drainage Determination” Coal Energy Group 3 documented the absence of flowing water on 22 separate days spread over four years, and on one occasion photographed the absence of water in the four drainages that cross the Permit Boundary (Eagle Canyon, Kinney Draw, Columbine Draw, and Jones Draw). These photos together with an in-depth analysis of the drainages 3D geometry, geomorphic character,

alluvial and vegetative material, and notably their position elevated above the water table is contained in Exhibit 20, Ephemeral Drainage Determination.

**Drainages and Surface Water Bodies**

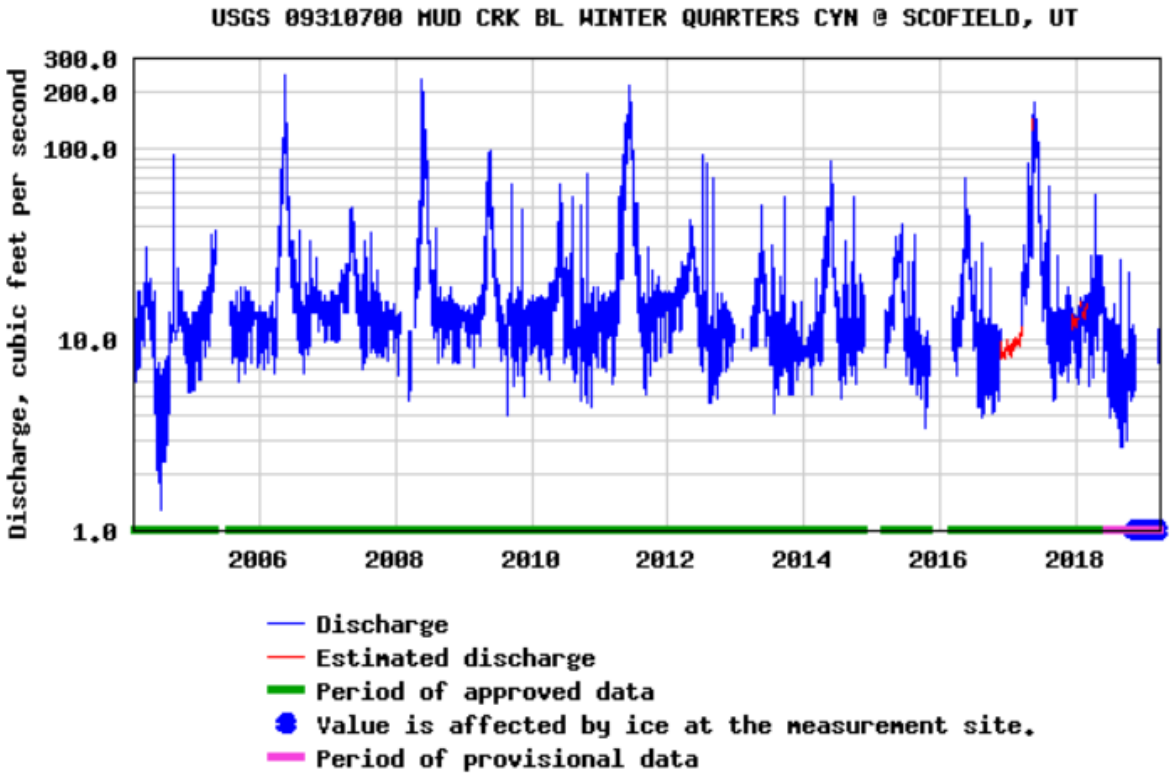
**Surface Water Occurrence**

Significant runoff characteristics relative to both definition of baseline condition and evaluation of any potential mining related impacts include, peak flow rate, low flow rate, mean annual discharge rate, and any seasonal variations in flow. These runoff parameters will be defined through baseline monitoring for individual drainages at approved monitoring stations.

Mean annual discharge for Mud Creek, as measured from 1978-2007 at USGS station 09310700, Mid CRK BL WINTER QUARTERSCYN SCOFIELD, UT, is 16.9 CFS (12,260 ac-ft/yr). This station is located on Mud Creek just south of the town of Scofield, Utah and approximately 0.75 miles southwest of the proposed mine portals. A plot of USGS data is shown in Figure 16 Mud Creek Flows.

No historic monitoring information is available for the named and unnamed minor area drainages, most of which are dry over much of the year. In May 2005, in conjunction with development of the Kinney No. 2 Mine Project, Coal Energy Group 3 (CEG3) began monitoring Scofield Reservoir, Mud Creek, and Miller Canyon, the three major surface water sources in the mine vicinity. Ongoing monitoring will supplement existing data and provide a basis for definition of existing hydrologic baseline conditions. Surface water monitoring locations are shown on Map 10, Regional Water Quality. The water level in Scofield Reservoir can be seen in Figure 16 below. It should be noted that the Bureau of Reclamation records the lake level in North American Vertical Datum of 1929 (NAVD 29) elevations. The Top of Active Storage (7617.5 ft) shown in the table above is a NAVD 29 elevation. The elevations shown on the Y line of the graph are in North American Vertical Datum 1988 (NAVD 88), which is the datum used by the Kinney No. 2 Mine. The NAVD 88 use is mandated by Utah State Law for new projects such as the Kinney No. 2 Mine.

**Figure 16 Mud Creek Flows**



# Figure 17. Field Data

FIGURE 17. FIELD DATA

Updated March 2019

## Coal Energy Group, LLC

Kinney II Baseline Water Sampling

Surface Water Field Measurements

**Miller Outlet ***

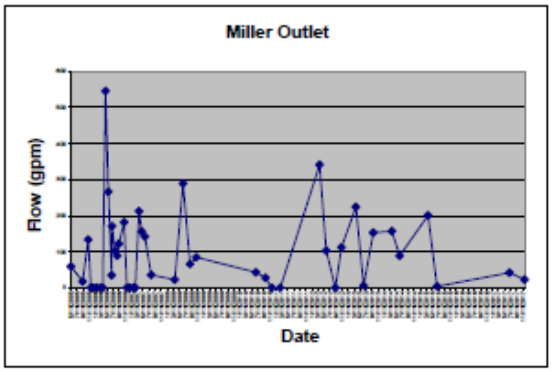
Elevation: ~7,632

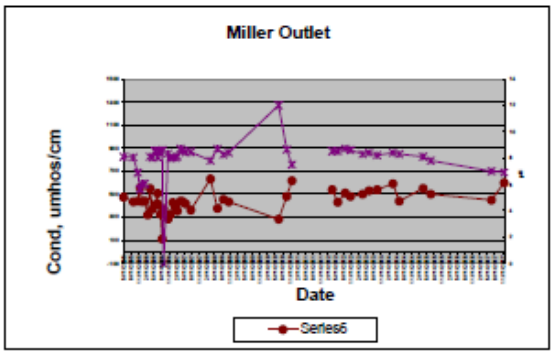
| Date | Estimated Flow (gpm) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|
| 5/11/2005 | 59 | 8.09 | 6.9 | 474 | 10.4 |
| 9/6/2005 | 18 | 8.04 | 4.6 | 433 | 13.1 |
| 10/31/2005 | 134 | 6.89 | 7.2 | 440 | 4.8 |
| 11/28/2005 | frozen | 5.65 | 8.0 | 556 | 1.7 |
| 12/22/2005 | frozen | 6.06 | 6.8 | 435 | 4.2 |
| 1/22/2006 | frozen | 6.04 | 7.1 | 440 | 1.2 |
| 2/26/2006 | frozen | | 4.6 | 320 | 14.0 |
| 3/27/2006 | frozen | **8.1** | | **550** | ~1 |
| 4/26/2006 | 545 | 8.01 | 3.6 | 369 | 19.2 |
| 5/25/2006 | 266 | 8.53 | 4.0 | 408 | 30.2 |
| 6/29/2006 | 171 | 8.57 | 4.2 | 415 | 28.6 |
| 7/31/2006 | 103 | 8.41 | 4.4 | 326 | 27.6 |
| 8/20/2006 | 89 | 8.6 | 4.6 | 110 | 27.7 |
| 9/7/2006 | 122 | lab | 7.4 | 375 | 13.0 |
| 10/30/2006 | 182 | 8.33 | 8.5 | 285 | 13.0 |
| 11/27/2006 | frozen | 8 | 5.1 | 327 | 10.0 |
| 12/26/2006 | frozen | 8.06 | 7.2 | 428 | 8.4 |
| 1/31/2007 | frozen | 8.01 | 5.3 | 387 | 8.6 |
| 2/19/2007 | frozen | 8.12 | 7.0 | 354 | 8.0 |
| 3/29/2007 | 212 | 8.7 | 9.9 | 440 | 13.3 |
| 4/25/2007 | 156 | 8.54 | 6.7 | 436 | 23.4 |
| 5/29/2007 | 142 | 8.42 | 7.9 | 417 | 22.9 |
| 6/25/2006 | 35 | 8.06 | 4.7 | 508 | 31.0 |
| 7/30/2007 | 36 | 8.45 | 4.9 | 362 | 27.7 |
| 3/25/2008 | 23 | 7.8 | 5.0 | 633 | 17.5 |
| 6/16/2008 | 289 | 8.7 | | 377 | 30.4 |
| 8/26/2008 | 66 | 8.26 | 3.9 | 456 | 29.6 |
| 10/29/2008 | 85 | 8.41 | 9.6 | 434 | 12.3 |
| 6/23/2010 | 43 | 12 | 22.9 | 283 | 16.5 |
| 9/28/2010 | 28 | 8.65 | | 480 | 12.5 |
| 12/1/2010 | frozen | 7.5 | | 617 | 0.1 |
| 2/24/2011 | frozen | | | | |
| 3/28/2012 | 341 | 8.5 | | 540 | 6.6 |
| 6/4/2012 | 103 | 8.5 | | 430 | 19.6 |
| 9/3/2012 | N/A | 8.7 | | 510 | 12.5 |
| 11/4/2012 | 112 | 8.6 | | 480 | 5.0 |
| 3/31/2013 | 224 | 8.3 | | 500 | 0.8 |
| 6/16/2013 | 6 | 8.4 | | 530 | 19.3 |
| 9/22/2013 | 153 | 8.2 | | 540 | 6.7 |
| 3/30/2014 | 157 | 8.4 | | 590 | 0.2 |
| 6/15/2014 | 89 | 8.3 | | 440 | 14.0 |
| 3/30/2015 | 201 | 8.1 | | 550 | 5.3 |
| 6/29/2015 | 4 | 7.8 | | 500 | 16.8 |
| 6/29/2017 | 42 | 7 | | 450 | 17.8 |
| 11/30/2017 | 23 | 6.9 | | 600 | 0.4 |
| 6/9/2018 | | 6.9 | | | 11.9 |

**NOTE:** Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity.

*Miller Outlet was initially misnamed "Eagle Outlet" and was once misnamed "Eagle Outlook". Samples collected from may 2005 to may 2006 were mislabled "Eagle Outlet" or "Eagle Outlook" and analytic data are labled accordingly. From June 2006 to present the data are labled as Miller Outlet. Data labled Miller Outlet, Eagle Outlet, & Eagle Outlook represent samples collected at the same location.

Red Values are SUSPECT



## Coal Energy Group, LLC

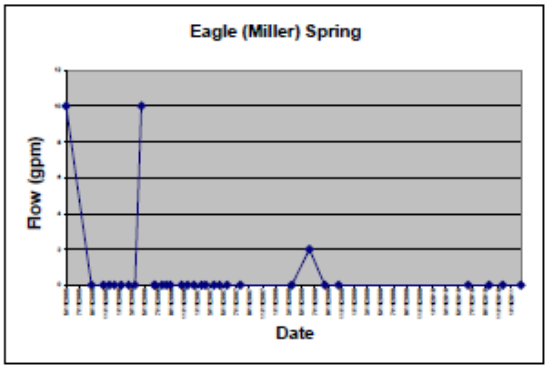
Kinney II Baseline Water Sampling
Surface Water Field Measurements

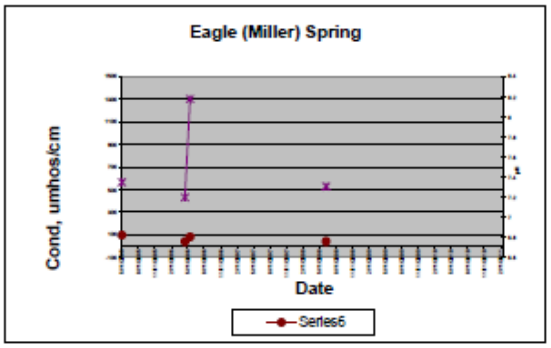
### Eagle Spring * (Miller Spring)

Elevation: ~7,700

| Date | | Estimated Flow (gpm) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| 5/11/2005 | < | 10 | 7.35 | 6 | 98.9 | 18.0 |
| 9/6/2005 | | dried up | | | | |
| 10/31/2005 | | dried up | | | | |
| 11/28/2005 | | dried up | | | | |
| 12/22/2005 | | dried up | | | | |
| 1/22/2006 | | dried up | | | | |
| 2/26/2006 | | dried up | | | | |
| 3/27/2006 | | dried up | | | | |
| 4/26/2006 | < | 10 | 7.2 | 4.7 | 41.8 | 21.0 |
| 5/25/2006 | | | 8.18 | 5.9 | 83.7 | 28.9 |
| 6/29/2006 | | dried up | | | | |
| 7/31/2006 | | dried up | | | | |
| 8/20/2006 | | dried up | | | | |
| 9/7/2006 | | dried up | | | | |
| 10/30/2006 | | dried up | | | | |
| 11/27/2006 | | dried up | | | | |
| 12/26/2006 | | dried up | | | | |
| 1/31/2007 | | dried up | | | | |
| 2/19/2007 | | dried up | | | | |
| 3/29/2007 | | dried up | | | | |
| 4/25/2007 | | dried up | | | | |
| 5/29/2007 | | dried up | | | | |
| 6/25/2006 | | dried up | | | | |
| 7/30/2007 | | dried up | | | | |
| 3/25/2008 | | snow | | | | |
| 6/16/2008 | | 2 | 7.31 | 5 | 44.1 | 23.5 |
| 8/26/2008 | | dried up | | | | |
| 10/29/2008 | | dried up | | | | |
| 6/23/2010 | | dried up | | | | |
| 9/28/2010 | | dried up | | | | |
| 12/1/2010 | | dried up | | | | |
| 2/24/2011 | | dried up | | | | |

*The sample collected at Eagle Spring in May 2005 was mislabled "Eagle Springs" and analytic data are labled accordingly. Data labled Eagle Spring & Eagle Springs represent samples collected at the same location. This same spring was later mislabled Miller Spring



## Carbon Resources LLC

Kinney II Baseline Water Sampling
Surface Water Field Measurements

**FIGURE 17. FIELD DATA**

Elevation:

Updated: February 2011

| Date | Water Level (feet) | |
|---|---|---|
| **Eagles Canyon**<br>**Monay Draw**<br>**Blue Seal Draw**<br>**Kinney Draw**<br>**Columbine Draw**<br>**Jones Draw**<br>**UP Canyon** | | **Ben Grimes visited Scofield on each of the days listed and observed an absence of rain and an absence of running water in the seven ephemeral drainages within and adjacent to the Kinney # 2 Permit Boundary.** |
| 5/26/2006 | DRY | |
| 10/16/2006 | DRY | |
| 10/27/2006 | DRY | |
| 5/8/2007 | DRY | |
| 9/20/2007 | DRY | |
| 9/21/2007 | DRY | |
| 10/27/2007 | DRY | |
| 9/22/2009 | DRY | |
| 9/23/2009 | DRY | |
| 9/29/2009 | DRY | |
| 9/30/2009 | DRY | |
| 10/1/2009 | DRY | |
| 4/26/2010 | DRY | |
| 4/27/2010 | DRY | |
| 7/3/2010 | DRY | |
| 8/19/2010 | DRY | |
| 9/7/2010 | DRY | |
| 9/14/2010 | DRY | |
| 9/16/2010 | DRY | |
| 9/30/2010 | DRY | |
| 10/20/2010 | DRY | |

## Coal Energy Group, LLC

Kinney II Baseline Water Sampling
Surface Water Field Measurements

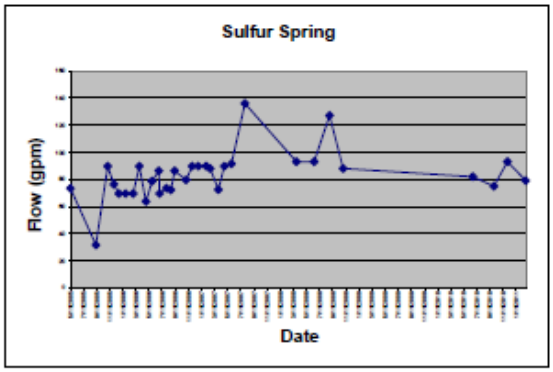
**Sulfur Spring ***

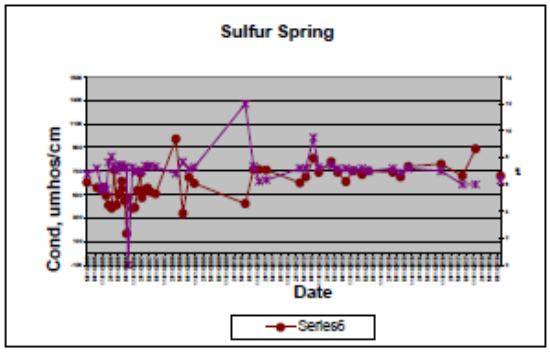
Elevation: ~7,670

| Date | Estimated Flow (gpm) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|
| 5/11/2005 | 73 | 6.76 | 0.7 | 603 | 13.6 |
| 9/6/2005 | 32 | 7.2 | 2.4 | 559 | 15.9 |
| 10/31/2005 | 90 | 5.69 | 2.6 | 541 | 13.2 |
| 11/28/2005 | 76 | 5.85 | 3.9 | 561 | 11.9 |
| 12/22/2005 | 69 | 5.64 | 3.5 | 490 | 17.4 |
| 1/22/2006 | 69 | 7.64 | 1.3 | 410 | 14.7 |
| 2/26/2006 | 69 | 8.08 | 4.3 | 383 | 23.9 |
| 3/27/2006 | 90 | **7.38** | | **710** | ~14 |
| 4/26/2006 | 64 | 7.03 | 1.2 | 413 | 23.4 |
| 5/25/2006 | 79 | 7.46 | 2.4 | 503 | 28.2 |
| 6/29/2006 | 69 | 7.45 | 2.9 | 550 | 25.1 |
| 7/31/2006 | 74 | 7.27 | 2.0 | 446 | 24.1 |
| 8/20/2006 | 72 | 7.29 | 2.3 | 169 | 24.1 |
| 9/7/2006 | 86 | lab | 2.2 | 473 | 22.0 |
| 10/30/2006 | 80 | 7.27 | 4.0 | 384 | 22.2 |
| 11/27/2006 | 90 | 7.02 | 1.8 | 389 | 20.0 |
| 12/26/2006 | 90 | 7.00 | 3.0 | 538 | 20.0 |
| 1/31/2007 | 90 | 7.01 | 5.1 | 682 | 17.4 |
| 2/19/2007 | 88 | 7.03 | 4.1 | 473 | 21.5 |
| 3/29/2007 | 72 | 7.39 | 4.4 | 544 | 21.7 |
| 4/25/2007 | 90 | 7.33 | 7.0 | 557 | 23.4 |
| 5/29/2007 | 91 | 7.41 | 5.5 | 523 | 22.8 |
| 6/25/2006 | 86 | 7.25 | 2.4 | 615 | 27.5 |
| 7/30/2007 | 136 | 7.33 | 4.0 | 507 | 22.7 |
| 3/25/2008 | 93 | 6.81 | 2.2 | 973 | 21.9 |
| 6/16/2008 | 93 | 7.68 | 1.9 | 341 | 31.4 |
| 8/26/2008 | 127 | 7.14 | 2.5 | 646 | 27.5 |
| 10/29/2008 | 88 | 7.28 | 4.4 | 595 | 17.1 |
| 6/23/2010 | 82 | 12.00 | 14.6 | 423 | 17.4 |
| 9/28/2010 | 75 | 7.38 | | 715 | 14.8 |
| 12/1/2010 | 93 | 6.25 | | 714 | 13.8 |
| 2/24/2011 | 79 | 6.34 | | 710 | 13.7 |
| 3/28/2012 | | 7.2 | | 600 | 14.0 |
| 6/4/2012 | | 7.2 | | 650 | 14.1 |
| 9/3/2012 | | 9.5 | | 810 | 14.5 |
| 11/4/2012 | | 7.3 | | 690 | 7.6 |
| 3/31/2013 | | 7.4 | | 780 | 13.3 |
| 6/16/2013 | | 7.2 | | 690 | 13.5 |
| 9/22/2013 | | 7.2 | | 610 | 13.9 |
| 12/13/2013 | | 7.1 | | 700 | 13.7 |
| 3/30/2014 | | 7.2 | | 670 | 13.9 |
| 6/15/2014 | | 7.0 | | 700 | 14.0 |
| 3/30/2015 | | 7.2 | | 690 | 14.0 |
| 6/29/2015 | | 6.9 | | 650 | 14.1 |
| 9/28/2015 | | 7.2 | | 740 | 14.3 |
| 10/20/2016 | | 7.0 | | 760 | 13.9 |
| 6/29/2017 | | 6.0 | | 660 | 14.2 |
| 11/30/2017 | | 6.0 | | 890 | |
| 6/9/2018 | | | | | 14.7 |
| 9/22/2018 | | 6.3 | | 660 | 14.0 |

**NOTE:** Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity.
*Samples collected at Sulfur Spring have occasionaly been mislabled "Sulfur Springs", "Sulfer Spring", & "Sulfer Springs". From May 2005 to Nov 2006 sample names varied. From Dec 06 to present, samples have been labled Sulfur Spring. Analytic data are Labled accordingly. Data labled Sulfur Spring, Sulfur Springs, Sulfer Spring, & Sulfer Springs represent samples collected at the same location.

Red Values are SUSPECT



## Coal Energy Group, LLC

Kinney II Baseline Water Sampling

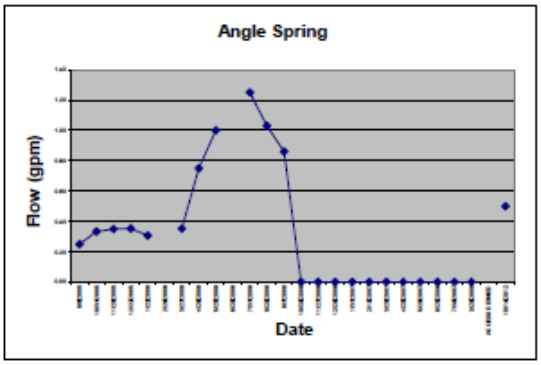
Surface Water Field Measurements

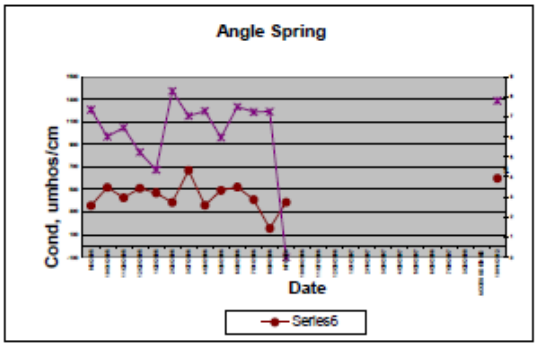
### Angle Spring

Elevation: ~7,940

| Date | Estimated Flow (gpm) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|
| 9/6/2005 | 0.25 | 7.35 | 3.7 | 358 | 22.0 |
| 10/31/2005 | 0.33 | 6.01 | 4.7 | 519 | 10.6 |
| 11/28/2005 | 0.35 | 6.46 | 4.7 | 428 | 22.2 |
| 12/22/2005 | 0.35 | 5.23 | 3.9 | 512 | 11.6 |
| 1/22/2006 | 0.31 | 4.36 | 8.4 | 469 | 8.9 |
| 2/26/2006 | | 8.28 | 4.7 | 385 | 14.7 |
| 3/27/2006 | 0.35 | **7.04** | | **670** | ~10 |
| 4/26/2006 | 0.75 | 7.28 | 5.1 | 361 | 18.0 |
| 5/25/2006 | 1.00 | 5.96 | 3.8 | 492 | 20.5 |
| 6/29/2006 | | 7.5 | 6.3 | 522 | 20.9 |
| 7/31/2006 | 1.25 | 7.24 | 3.7 | 410 | 29.9 |
| 8/20/2006 | 1.03 | 7.26 | 3.5 | 156 | 22.3 |
| 9/7/2006 | 0.86 | lab | 4 | 387 | 18.5 |
| 10/30/2006 | not meas. | | | | |
| 11/27/2006 | not meas. | | | | |
| 12/26/2006 | not meas. | | | | |
| 1/31/2007 | not meas. | | | | |
| 2/19/2007 | not meas. | | | | |
| 3/29/2007 | not meas. | | | | |
| 4/25/2007 | not meas. | | | | |
| 5/29/2007 | not meas. | | | | |
| 6/25/2006 | not meas. | | | | |
| 7/30/2007 | not meas. | | | | |
| 3/25/2008 | not meas. | | | | |
| ACCESS DEINIED | | | | | |
| 10/14/2012 | 0.5 | 7.8 | | 600 | 7.1 |

**NOTE:** Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity.



## Coal Energy Group, LLC

Kinney II Baseline Water Sampling

Surface Water Field Measurements

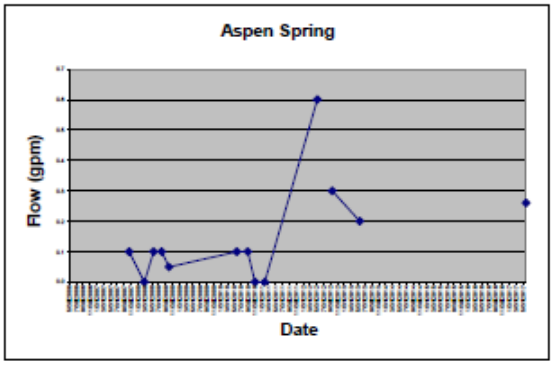
### Aspen Spring

Elevation:

| Date | Estimated Flow (gpm) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|
| 5/30/2006 | | | | | |
| 6/29/2006 | | | | | |
| 7/31/2006 | | | | | |
| 8/20/2006 | | | | | |
| 9/7/2006 | | | | | |
| 10/30/2006 | | | | | |
| 11/27/2006 | | | | | |
| 12/26/2006 | | | | | |
| 1/31/2007 | | | | | |
| 2/19/2007 | | | | | |
| 3/29/2007 | | | | | |
| 4/25/2007 | | | | | |
| 5/29/2007 | | | | | |
| 6/25/2007 | | | | | |
| 7/30/2007 | | | | | |
| 11/12/2007 | 0.10 | 6.89 | 6.3 | 406 | 14.6 |
| 3/25/2008 | snow covered | | | | |
| 6/16/2008 | 0.10 | 8.69 | 2.2 | 190 | 29.8 |
| 8/26/2008 | 0.10 | 7.91 | 4 | 496 | 32.8 |
| 10/29/2008 | 0.05 | 7.14 | 3.7 | 541 | 5.7 |
| 6/23/2010 | 0.10 | 12 | 20.4 | 295 | 24.6 |
| 9/28/2010 | 0.10 | 9.33 | | 419 | 14.6 |
| 12/1/2010 | frozen | | | | |
| 2/24/2011 | frozen | | | | |
| 6/4/2012 | 0.60 | 7.6 | | 660 | 10.4 |
| 9/3/2012 | | | | 640 | 8.6 |
| 10/14/2012 | 0.30 | 8 | | 630 | 7.2 |
| 6/16/2013 | 0.20 | 7.3 | | 600 | 9.1 |
| 6/15/2014 | | 7.5 | | 660 | 9 |
| 6/29/2017 | 0.26 | 5.7 | | 500 | 10 |

NOTE: Flows Unmeaured for 11/12/07,6/16/08, 8/26/09, 6/23/08, 9/28/10 and shown as trickle on 10/29/08. Numerical values added to Estimated Flow so plots would show data.

Red Values are SUSPECT



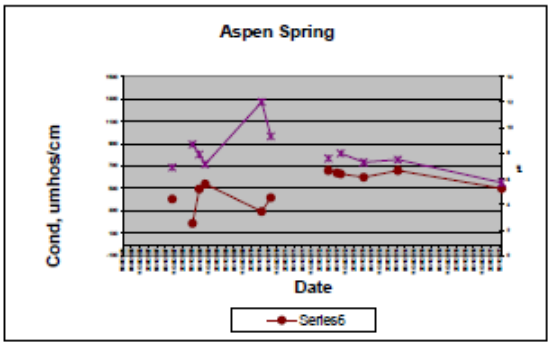



FIGURE 17. FIELD DATA h 2019

## Coal Energy Group, LLC

Kinney II Baseline Water Sampling

Surface Water Field Measurements

### Mud Creek *

Elevation: ~7,685

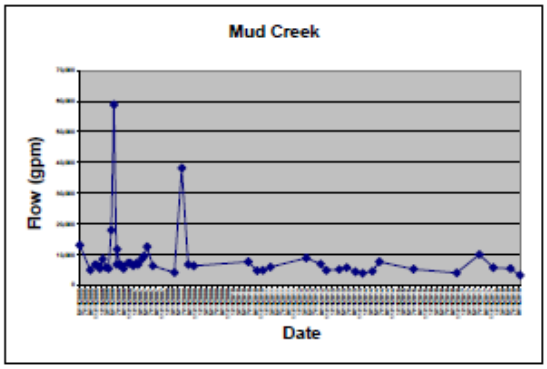
| Date | Estimated ** Flow (gpm) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|
| 5/11/2005 | 13,015 | 8.31 | 7.4 | 694 | 10.0 |
| 9/6/2005 | 4,937 | 8.51 | 5.4 | 655 | 17.7 |
| 10/31/2005 | 6,732 | 6.68 | 6.4 | 759 | 10.7 |
| 11/29/2005 | 6,283 | 6.94 | 7.2 | 758 | 5.6 |
| 12/22/2005 | 5,386 | 6.67 | 6.2 | 520 | 13.6 |
| 1/22/2006 | 8,527 | 8.63 | 4.1 | 568 | 7.6 |
| 2/26/2006 | 5,834 | 9.0 | 3.6 | 501 | 19.3 |
| 3/27/2006 | 5,386 | **8.18** | | **1000** | ~2 |
| 4/26/2006 | 17,952 | 8.3 | 5 | 394 | 18.5 |
| 5/25/2006 | 58,797 | 8.45 | 4.4 | 324 | 26.5 |
| 6/29/2006 | 11,670 | | 6.2 | 581 | 28.5 |
| 7/31/2006 | 6,732 | 8.4 | 4.8 | 471 | 26.9 |
| 8/20/2006 | 6,284 | 8.38 | 5.1 | 188 | 27.7 |
| 9/7/2006 | 5,386 | lab | 6.1 | 564 | 14.3 |
| 10/30/2006 | 7,181 | 7.94 | 6.9 | 424 | 17.3 |
| 11/27/2006 | 7,181 | 7.76 | 6 | 463 | 12.0 |
| 12/26/2006 | 6,284 | 8.08 | 7.3 | 571 | 13.1 |
| 1/31/2007 | 7,181 | 7.4 | 5.5 | 834 | 12.4 |
| 2/19/2007 | 6,732 | 8.3 | 6.8 | 476 | 12.4 |
| 3/29/2007 | 8,528 | 8.33 | 7.9 | 555 | 13.4 |
| 4/25/2007 | 9,425 | 8.29 | 7.8 | 546 | 25.0 |
| 5/29/2007 | 12,567 | 8.51 | 7.9 | 481 | 20.7 |
| 6/25/2006 | 6,733 | 8.65 | 5.7 | 742 | 27.7 |
| 7/30/2007 | 6,284 | 8.58 | 5.3 | 532 | 25.5 |
| 3/25/2008 | 4,129 | 7.8 | 5.0 | 633 | 17.5 |
| 6/16/2008 | 38,151 | 8.93 | 4.7 | 355 | 23.8 |
| 8/26/2008 | 6,732 | 8.31 | 3.9 | 651 | 28.6 |
| 10/29/2008 | 6,284 | 8.93 | 11.4 | 667 | 15.9 |
| 6/23/2010 | 7,630 | 9.29 | 3.4 | 289 | 24.6 |
| 9/28/2010 | 4,668 | 8.9 | | 732 | 11.4 |
| 12/1/2010 | 4,892 | 7.62 | | 741 | 6.8 |
| 2/24/2011 | 5,880 | 7.84 | | 744 | 7.8 |
| 3/28/2012 | 8,842 | 8.6 | | 650 | 8.3 |
| 9/3/2012 | 6,867 | 8.6 | | 700 | 12.1 |
| 11/4/2012 | 4,892 | 8.9 | | 560 | 7.6 |
| 3/28/2013 | 5,117 | 8.1 | | 960 | 3.5 |
| 6/16/2013 | 5,745 | 8.4 | | 530 | 17.2 |
| 9/22/2013 | 4,408 | 8.4 | | 650 | 7.5 |
| 12/13/2013 | 3,905 | 8.3 | | 760 | 0.1 |
| 3/30/2014 | 4,533 | 8.1 | | 690 | 1.2 |
| 6/15/2014 | 7,630 | 8.5 | | 460 | 15.7 |
| 6/29/2015 | 5,207 | 8 | | 590 | 16.3 |
| 10/20/2016 | 4,017 | 8.8 | | 650 | 3.5 |
| 6/29/2017 | 10,009 | 7.9 | | 880 | 17.3 |
| 11/30/2017 | 5,745 | 7.1 | | 890 | 2.3 |
| 6/9/2018 | 5,386 | 6.6 | | 0.68 | 13.9 |
| 9/22/2018 | 3,223 | 6.7 | | 720 | 9.5 |

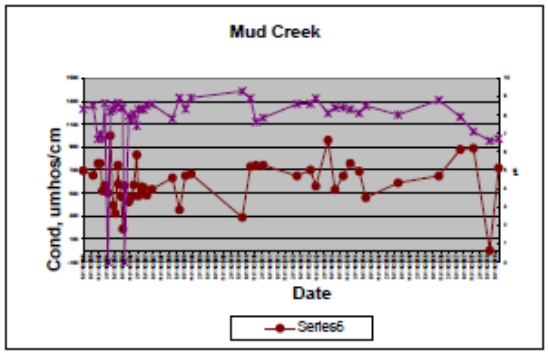
**NOTE:** Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity.

*The sample collected at Mud Creek in May 2005 was mislabled "Muddy Creek" and analytic data are labled accordingly. Data labled Mud Creek & Muddy Creek represent samples collected at the same location.

** Flow Data From USGS 09310700 MUD CRK BL WINTER QUARTERS CYN @ SCOFIELD, UT From Web Site; http://waterdata.usgs.gov/nwis/dv/?site_no=09310700&agency_cd=USGS&referred_module=sw

Red Values are SUSPECT



## Coal Energy Group, LLC

Kinney II Baseline Water Sampling
Surface Water Field Measurements

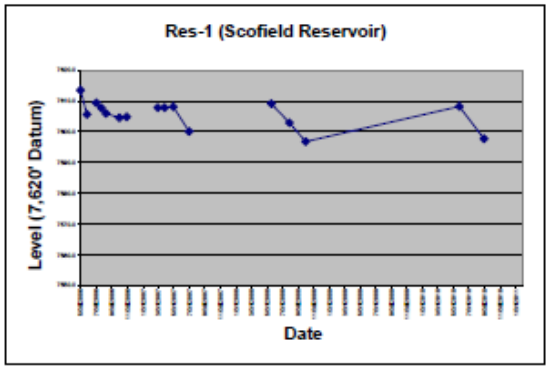
**Res-1 (Scofield Reservoir) ***

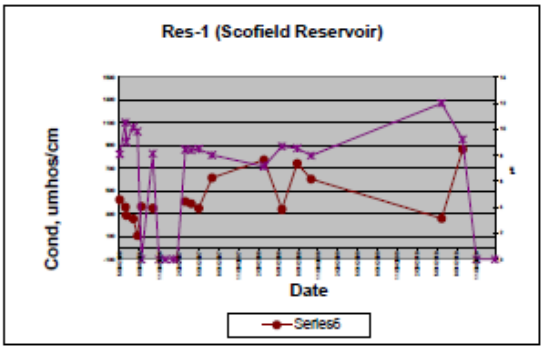
Elevation: ~7620

| Date | Water Level (feet) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|
| 5/30/2006 | 7613.5 | 8.09 | 5.6 | 424 | 20.6 |
| 6/29/2006 | | 9.03 | 10 | 287 | 31.9 |
| 7/31/2006 | 7609.4 | 10.16 | 9.1 | 257 | 29.8 |
| 8/20/2006 | 7607.7 | 9.82 | 9 | 108 | 35.7 |
| 9/7/2006 | 7606.0 | lab | 5.2 | 365 | 15.5 |
| 10/30/2006 | 7604.5 | 8.13 | 6.7 | 351 | 18.2 |
| 11/27/2006 | 7604.8 | frozen | | | |
| 12/26/2006 | | frozen | | | |
| 1/31/2007 | | frozen | | | |
| 2/19/2007 | | frozen | | | |
| 3/29/2007 | 7607.8 | 8.43 | 9.7 | 408 | 14.9 |
| 4/25/2007 | 7607.8 | 8.39 | 7.8 | 390 | 23.4 |
| 5/29/2007 | 7608.1 | 8.48 | 8 | 350 | 24.9 |
| 6/25/2006 | 7605.6 | 10.52 | 7.3 | 360 | 36.1 |
| 7/30/2007 | 7600.1 | 8.02 | 5.9 | 616 | 28 |
| 3/25/2008 | | 7.14 | 5.3 | 775 | 12.7 |
| 6/16/2008 | 7609.1 | 8.69 | 4.6 | 341 | 31.4 |
| 8/26/2008 | 7602.9 | 8.54 | 7.5 | 743 | 32.1 |
| 10/29/2008 | 7596.8 | 7.98 | 7.6 | 605 | 17 |
| 6/23/2010 | 7608.2 | 12 | 38.2 | 261 | 18.7 |
| 9/28/2010 | 7597.7 | 9.22 | | 867 | 23.1 |
| 12/1/2010 | | frozen | | | |
| 2/24/2011 | | frozen | | | |
| 3/28/2012 | | 6.8 | | 550 | 6.8 |
| 6/4/2012 | | 8.5 | | 410 | 17.6 |
| 9/3/2012 | | 8.7 | | 400 | 17.7 |
| 11/4/2012 | | 8.2 | | 340 | 7.5 |
| 6/16/2013 | | 8.6 | | 370 | 19.2 |
| 9/22/2013 | | 8.4 | | 540 | 10.5 |
| 6/15/2014 | | 8.2 | | 410 | 16.3 |
| 6/29/2015 | | 8.4 | | 420 | 22.2 |
| 9/28/2015 | | 8 | | 400 | 16.8 |
| 10/20/2016 | | 8.1 | | 590 | 7.2 |
| 6/29/2017 | | 8 | | 420 | 18.7 |
| 11/30/2017 | | 7.9 | | 420 | 4.2 |
| 6/9/2018 | | 7.3 | | | 17.5 |
| 9/22/2018 | | | | | |

*The samples collected at Res-1 in June, July, & Aug 2006 were mislabled "Scofield Res. 1" and analytic data are labled accordingly. Data labled Res-1 & Scofield Res. 1 represent samples collected at the same location.

Red Values are SUSPECT



The available data indicate the surface hydrology is typical of high-mountain headwater watersheds with a pronounced seasonal variation in the flow regime. Stream flow in Mud Creek, Miller Canyon, and Long Canyon typically peaks with snowmelt in late spring/early summer. Unnamed drainages also have a potential for snowmelt runoff, especially during the spring period when rapid increases in air temperatures are experienced. Low flows in perennial streams occur during late fall and winter months. Field data collected from Miller Canyon (named Miller Outlet in the data) are shown along with other surface and spring data in Figure 17 Field Data. During the "non frozen" period of record, high and low flows of 545 GPM (1.21 CFS) and ~~18~~ 4 GPM (0.~~04~~ 009 CFS) were recorded at the Miller Outlet station.

The Mud Creek data shows, and the Miller Outlet data suggest that flows within local drainages also respond to local precipitation events. Rapid runoff resulting from short-duration high-intensity precipitation events will cause relatively brief, high velocity flows. Most of the local ephemeral drainage channels contain flowing water only during rapid snowmelt or precipitation events. The steep slopes and numerous deep, narrow, drainages contribute to a storm-event driven flow regime. Many of the ephemeral drainages have thick vegetative covered bottoms which cause water to seep into the soil and prevent water from open flow altogether.

**Surface Water Quality**

The water monitoring program initiated in 2005 under the Utah coal program and CEG3's ongoing monitoring activities provide relevant water quality information for the permit area. Generally, the objectives of surface water quality monitoring have included; 1) Definition of baseline water quality conditions; 2) Identification of any seasonal variations in water quality and correlation to flow levels; and 3) Identification of any mining related changes in surface water quality. Water monitoring activities for surface drainages have typically included measurement of flow and field parameters (temperature, pH, electrical conductivity, and dissolved oxygen) and collection of water samples for laboratory analyses.

Both field activities and laboratory analyses have been conducted according to standard protocol as defined by applicable regulations, guidelines, and technical standards. Water samples have been analyzed for specific parameters as defined by the regulatory authority. Water quality analysis and testing requirements are reflected in Table 20, Hydrologic Monitoring Schedule.

**General Water Quality Characteristics**

The chemical characteristics of surface water, based on major ion chemistry, are displayed on Map 10, Regional Water Quality. Surface waters are generally of a calcium-bicarbonate chemical type, although Mud creek shows higher portions of sodium, potassium, and sulfate than does Scofield Reservoir or Miller Outlet. Angle Spring, Sulfur spring, and well CR-06-03-ABV are also found to typically be of a calcium-bicarbonate type, and to have higher concentrations than surface water sources. However, Eagle Spring, is very different than other local sources having very low concentrations of basic anions-cations and being of a higher quality.

Surface water quality is summarized in Table 10, Surface and Ground Water Quality Summary, and in Exhibit 10, Surface and Ground Water Field Measurements. The following discussions

summarize important information relative to existing surface water conditions in the proposed permit area.

**pH –** As shown in Table 10, measured pH values range from ~~7.04~~2.0 to ~~8.5~~9.5 for samples collected. The low pH values noted ~~were~~ was collected from Sulfur ~~and Angle~~ Springs and is assumed to be incorrect, with the next lowest value of 6.0. Angle Spring had a low pH value of 7.04. With the exception of these two springs, pH levels generally indicate a neutral to moderately alkaline condition. High pH values are relatively common in the arid western United States and are reflective of the geochemistry of the dominant stratigraphic units. It is believed that mining will show no impact on local pH data due to hydrologic considerations discussed within this permit.

**Sulfate** – A natural sulfur spring is located near the north end of the permit area adjacent to Highway 96. However, average sulfate levels of ~~44~~ 45 in this spring are not significantly higher than those found within well CR-06-03- or Miller Outlet that average ~~38~~39, 26 respectively. Scofield Reservoir and Mud Creek with average values of ~~63~~ 48 and ~~169~~ 125 respectively are clearly distinct from other samples taken and are likely impacted by upstream sources. High Mud Creek sulfate values appear to be diluted by Scofield Reservoir.

**Total Dissolved Solids** – With one exception, observed high TDS values are relatively consistent within the samples taken, ranging between 96 mg/l in Scofield Reservoir to 720 mg/l in Mud Creek. Eagle spring appears to have a distinctly different water source with an average recorded TDS of ~~152~~ 153 mg/l than Angle, Aspen and Sulfur Springs which have respective averages of 304, ~~266~~327, and ~~366~~ 377 mg/l.

**Total Suspended Solids** - Given the topography and climate of the area, moderately high TSS values may normally be expected during spring runoff and following major thunderstorms. Steep natural slopes and channel gradients combined with short duration, high-intensity flows resulting from snowmelt and major thunderstorms can result in significant surface erosion and sediment transport. TSS variations at the sample points indicates site specific conditions which contribute to erosion and soil movement. Springs generally show very low TSS values as would be anticipated, whereas surface sources are shown to have significant variation. Low values for Miller Outlet, Mud Creek and Res-1 were found to be ~~18~~8, 4 and ~~11~~ 5 mg/l respectively, whereas high values for the three sources were 430, ~~320~~489, and ~~1,600~~1,674 mg/l respectively. These high values likely result from short duration, high-intensity rainfall events, or possibly wind/wave action in the case of Scofield Reservoir.

**Temporal and Spatial Water Quality Characteristics**

Figure 18, Basic Water Quality, plots pH, Conductivity, TDS and Sulfate data over time for each monitored station. The plots help identify the presence, or lack of, annual cycles or trends. Observations made from the data plots follows:

| | |
|---|---|
| Miller Outlet | Some slight drop in TDS appears to be present during the May-June time frame, with a corresponding increase in TSS as would be expected for a surface water source. It is also noted that there appears to be annual increases in Iron and Manganese during high TSS events. |
| Eagle Spring | Insufficient data available for analysis |
| Sulfur Spring | TDS appears to show a possible annual low during the February-March time frame with peak TSS values occurring during ~~May and~~ June. Trends are not readily apparent for Iron and Manganese. These trends are masked however by larger fluctuations which are believed to be |

| | |
|---|---|
| | climatically induced. |
| Angle Spring | No annual or seasonal cycle identified. |
| Aspen Spring | Insufficient data available for analysis. |
| Mud Creek | A slight decrease in TDS appears to exist in the May- June period of each year with highest values occurring during the winter months of November through January. TSS, Iron and Sulfate values appear to be the highest in the May-June time frame and lowest in the winter period. |
| Res-1 | Although a complete record of data is not available for this site during winter months, TDS appears to reach annual lows during the May-June time frame with similarly corresponding peaks in TSS. No consistent trend is noted for Iron and Manganese. |

Surface water quality variation plots versus flow for pH, Conductivity, TDS and Sulfate are shown for sampled locations on Figure 19, Water Quality vs. Flow. A unilateral clear and distinct pattern showing variation in quality versus flow in all stations is not apparent. A review of the figures does show what we believe to be improved water quality with increasing flow or storage volume for both Mud Creek and Scofield Reservoir for Conductivity, TDS and Sulfate. Decreased values for Conductivity and TDS may also be indicating some possible water quality improvement with increasing flow for Miller Outlet and Angle Spring although the trends are not as apparent. These water quality improvements with increased flow or volume are believed to result from high flow dilution of existing water quality bases.

As discussed earlier, water quality parameters are relatively consistent for the sites monitored with two basic exceptions, Eagle Spring which has very good water quality, and Mud Creek which has significantly higher values of TDS and Sulfate than other surface or spring sources. Surface waters associated with Miller Outlet for example have TDS and Sulfate values that are on the order of 200 - ~~620~~ 720 mg/l and ~~19~~ 11 - 48 mg/l respectively. Mud Creek TDS and Sulfate values generally range between 230 – 720 mg/l and 38 – 290 mg/l respectively, as approximate ~~15~~13% increase over Miller Outlet for TDS, and a ~~250~~ 340 to 600% increase for Sulfate.

**Surface Water Rights and Use**

Surface water rights within a 2-mile radius of the central mine area are included in Exhibit 13, Water Rights Information. The water rights are shown on Map 31, Surface Water Right Locations, and listed in Table 12, Surface Water Rights. Water right 91-3588 is a stream right on Finn Creek from approximately six miles south of the Kinney No. 2 Mine to a location as shown on Map 31 in Section 33. This water right is obviously located incorrectly in the Utah division of Water Rights records since Finn Creek ends approximately six miles south of the Kinney No. 2 Mine. This right may exist on Clear Creek (Mud Creek), which lies one half mile west of the Kinney No. 2 Mine site. Water right 91-4026, located in the eastern half of Section 33 is a stock watering right on an unnamed spring for a water amount of 10.76 Acre Feet. No ELU's (Equivalent Livestock Units) are listed in the water rights information. The period of use is listed as 05/01 to 11/30 of each year. Since no subsidence is anticipated as addressed in Chapter 5, there will be no impact to this spring. There are no other surface water sources or water rights directly above, or within any projected subsidence zone above the mine workings. Since the mine is projected to be dry, and is not anticipated to have a mine discharge, there are no anticipated additive effects upon the local surface waters. In a similar manner, no impacts are believed possible to surface waters located within or west of Pleasant Valley and Mud Creek since surface drainages are discontinuous east and west of the valley.

# Table 12. Surface Water Rights

| WRNUM | TYPE | STATUS | PRIORITY | CFS | ACFT | LOCATION | OWNER | SOURCE |
|---|---|---|---|---|---|---|---|---|
| 91-1396 | Point to Point | DIL | 19020000 | 0.000 | 0.000 | N660 W660 S4 34 12S 7E SL | CLARENCE ANDERSON | Hopkins Creek |
| 91-1475 | Point to Point | DIL | 19020000 | 0.000 | 0.000 | N660 W660 E4 27 12S 7E SL | CLARENCE ANDERSON | Hopkins Creek |
| 91-3011 | Point to Point | DIL | 18690000 | 0.000 | 0.000 | N660 W660 E4 05 13S 7E SL | FRED AND SHELIA JENSEN | Winter Quarters Creek |
| 91-3514 | Surface | DIL | 18690000 | 0.011 | 0.000 | S660 W660 E4 21 12S 7E SL | MILTON E. JACOB | Unnamed Spring |
| 91-352 | Point to Point | DIL | 18600000 | 0.000 | 0.000 | N660 E1980 W4 03 13S 7E SL | CLARENCE ANDERSON | Hopkins Creek |
| 91-3644 | Point to Point | DIL | 18690000 | 0.000 | 0.000 | N660 E660 S4 05 13S 7E SL | CARBON CO. REC. TRANS. SPECIAL SERVICE DIST | Clear Creek |
| 91-3645 | Point to Point | DIL | 18690000 | 0.000 | 0.000 | S660 W1980 E4 05 13S 7E SL | FRED AND SHELIA JENSEN | Clear Creek |
| 91-3648 | Point to Point | DILWUC | 1869 | 0.000 | 0.000 | S660 W1980 E4 32 12S 7E SL | BILL B. AND UTAHNA PACE JONES | Clear Creek |
| 91-4026 | Surface | PAC | 1869 | 0.000 | 0.000 | S660 W1980 E4 33 12S 7E SL | GEORGE TELONIS | Unnamed Spring |
| 91-4107 | Surface | PAC | 1869 | 0.011 | 0.000 | S660 E660 N4 27 12S 7E SL | MILTON E. JACOB | Unnamed Spring |
| 91-3011 | Point to Point | DIL | 18690000 | 0.000 | 0.000 | S1980 E660 E4 05 13S 7E SL | FRED AND SHELIA JENSEN | Winter Quarters Creek |
| 91-3513 | Point to Point | DIL | 18690000 | 0.000 | 0.000 | S660 E660 N4 26 12S 7E SL | MILTON E. JACOB | Unnamed Stream |
| 91-3588 | Point to Point | DIL | 18690000 | 0.000 | 0.000 | S660 E660 E4 32 13S 7E SL | CLEAR CREEK HOME ASSOCIATION | Finn Canyon Creek |
| 91-3655 | Point to Point | DILWUC | 1869 | 0.000 | 4.200 | S1980 E660 W4 32 12S 7E SL | BILL & UTAHNA JONES FAMILY TRUS1 | Woods Canyon Creek |
| 91-5069 | Point to Point | DIL | 18690000 | 0.000 | 1.400 | S1980 E660 W4 32 12S 7E SL | RUDMAN LAND & LIVESTOCK L.L.C. | Woods Canyon Creek |
| 91-640 | Point to Point | DIL | 18600000 | 0.000 | 0.000 | N660 E660 E4 35 12S 7E SL | CLARENCE ANDERSON | Left hand Fork of Hopkins Creek |
| 91-2978 | Surface | DEC | 18740000 | 0.683 | 0.000 | N310 E510 S4 05 13S 7E SL | CARBON CO. REC. TRANS. SPECIAL SERVICE DIST | Clear Creek |
| 91-2979 | Surface | DEC | 18740000 | 0.453 | 0.000 | N310 E510 S4 05 13S 7E SL | FRED AND SHELIA JENSEN | Clear Creek |
| 91-2980 | Surface | DEC | 18740000 | 0.100 | 0.000 | N310 E510 S4 05 13S 7E SL | FRANK T. JR. & PAMELA G. HELSTEN | Clear Creek |
| 91-2981 | Surface | DEC | 18740000 | 0.100 | 0.000 | N310 E510 S4 05 13S 7E SL | ORSON MARSING | Clear Creek |
| 91-2982 | Surface | DEC | 18740000 | 0.100 | 0.000 | N310 E510 S4 05 13S 7E SL | LILLIE PEARSON | Clear Creek |
| 91-2983 | Surface | DECWUC | 1874 | 0.100 | 0.000 | N310 E510 S4 05 13S 7E SL | THOMAS BIGGS | Clear Creek |
| 91-2984 | Surface | DEC | 18740000 | 0.100 | 0.000 | N310 E510 S4 05 13S 7E SL | WAINO E. BURTON | Clear Creek |
| 91-2985 | Surface | DEC | 18740000 | 0.100 | 0.000 | N310 E510 S4 05 13S 7E SL | PHYLLIS M. CONOVER | Clear Creek |
| 91-2986 | Surface | DEC | 18740000 | 0.015 | 0.000 | N310 E510 S4 05 13S 7E SL | JAMES F. LEVANGER | Clear Creek |
| 91-2987 | Surface | DEC | 18740000 | 0.100 | 0.000 | N310 E510 S4 05 13S 7E SL | LEAH B. JOHNSON | Clear Creek |
| 91-2988 | Surface | DEC | 18740000 | 0.000 | 0.000 | N310 E510 S4 05 13S 7E SL | NOLAN G. AND LARUE H. DAVIS | Clear Creek |
| 91-2989 | Surface | DEC | 18740000 | 0.100 | 0.000 | N310 E510 S4 05 13S 7E SL | TOWN OF SCOFIELD | Clear Creek |
| 91-2990 | Surface | DEC | 18740000 | 1.166 | 0.000 | N310 E510 S4 05 13S 7E SL | DELLA L. MADSEN | Clear Creek |
| 91-2991 | Surface | DECWUC | 1874 | 0.000 | 0.000 | N310 E510 S4 05 13S 7E SL | JOHN B. JONES | Clear Creek |
| 91-2992 | Surface | DECWUC | 1874 | 4.580 | 0.000 | S120 W2230 E4 32 12S 7E SL | BILL B. AND UTAHNA PACE JONES | Clear Creek |
| 91-2993 | Surface | DECWUC | 1874 | 4.580 | 0.000 | S1200 E800 N4 32 12S 7E SL | BILL B. AND UTAHNA PACE JONES | Clear Creek |
| 91-3008 | Surface | DEC | 18740000 | 0.693 | 0.000 | N700 W1400 E4 05 13S 7E SL | FRED AND SHELIA JENSEN | Winter Quarters Creek |
| 91-3622 | Surface | DECWUC | 1874 | 0.016 | 0.000 | N310 E510 S4 05 13S 7E SL | MAE NICOLODEMAS | Clear Creek |
| 91-4195 | Surface | DEC | 18740000 | 0.100 | 0.000 | N310 E510 S4 05 13S 7E SL | SCOFIELD TOWN | Mud Creek & Green Canyon Springs |
| 91-2495 | Point to Point | DIL | 1869 | 0.000 | 72.000 | S1980 E660 N4 S31 12S 7E SL | MATTIE B. CORNABY FAMILY TRUST | Woods Canyon Creek |
| 91-3516 | Point to Point | DIL | 1869 | 0.000 | 0.000 | S660 W660 NE S27 12S 7E SL | MILTON E. JACOB FAMILY TRUST | Hopkins Creek |
| 91-3910 | Surface | DIL | 1869 | 0.000 | 0.000 | S660 E660 N4 S29 12S 7E SL | REED & LEON GUNDERSON | Scofield Reservoir |
| 91-3911 | Surface | DIL | 1869 | 0.000 | 0.000 | S660 E1980 N4 S29 12S 7E SL | DELLA L. AND MADSEN | Scofield Reservoir |
| 91-3642 | Surface | DIL | 1902 | 0.011 | 0.000 | S660 W660 E4 S30 12 7E SL | BILL & UTAHNA JONES FAMILY TRUS1 | Unnamed Spring |
| 91-3658 | Surface | DIL | 1902 | 0.000 | 0.000 | S660 W660 NE S31 12S 7E SL | BILL & UTAHNA JONES FAMILY TRUS1 | Unnamed Stream |
| a15120 | Surface | DEC | 1989 | 0.500 | 0.000 | S1160 W580 N4 S32 12S 7E SL | GLADYS P. BUTLER | Woods Canyon Creek |
| 91-2994 | Surface | DEC | 1874 | 0.012 | 0.000 | S1410 W350 N4 S32 12S 7E SL | BILL & UTAHNA JONES FAMILY TRUS1 | Woods Canyon Creek |
| 91-3004 | Surface | DIL | 1874 | 0.433 | 0.000 | N660 E660 N4 S32 12S 7E | LOUISE M. & HELEN L. WATTS | Woods Canyon Creek |
| 91-2496 | Surface | DIL | 1902 | 0.000 | 0.000 | N1160 E460 SW S32 12S 7E SL | MATTIE B. CORNABY FAMILY TRUST | Unnamed Stream |
| 91-1403 | Surface | DIL | 1860 | 0.150 | 0.000 | S1980 E660 N4 S3 13S 7E SL | CLARENCE ANDERSON | Unnamed Spring |
| 91-354 | Surface | DEC | 1903 | 0.019 | 0.000 | N388 E437 W4 S5 13S 7E SL | PIONEER DITCH CO #1 | Two Springs Tributary |
| 91-2975 | Surface | DEC | 1874 | 0.011 | 0.000 | N420 W80 S4 S5 13S 7E SL | CARBON CO. REC. TRANS. SPECIAL SERVICE DIST | Unnamed Spring |
| 91-2976 | Surface | DEC | 1874 | 0.011 | 0.000 | N100 W10 S4 S5 13S 7E SL | CARBON CO. REC. TRANS. SPECIAL SERVICE DIST | Unnamed Spring |
| 91-462 | Point to Point | DIL | 1860 | 0.000 | 0.000 | N660 E660 W4 S6 13S 7E SL | EUREKA ENERGY | Winter Quarters Creek |
| 91-201 | Surface | AP | 1953 | 0.068 | 0.000 | S660 E660 NW S9 13S 7E SL | ALBERT B. & APRIL S. CORNABY | Unnamed Spring |
| 91-4027 | Surface | PAC | 1869 | 0.011 | 0.000 | N660 E660 W4 S4 13S 7E SL | GEORGE TELONIS | Unnamed Spring |
| 91-3601 | Surface | DIL | 1869 | 0.000 | 0.000 | N660 E660 W4 S9 13S 7E SL | DELLA L. MADSEN | Unnamed Spring |
| 91-1412 | Surface | DIL | 1860 | 0.000 | 0.000 | N660 E660 SW S11 13S 7E SL | HELPER STATE BANK | Right Fork Jump Creek |
| 91-4143 | Surface | PAC | 1869 | 0.011 | 0.000 | S660 W1980 E4 S9 13S 7E SL | GEORGE TELONIS | Unnamed Spring |
| 91-2048 | Point to Point | DIL | 1869 | 0.000 | 0.000 | S1980 E669 W4 S8 13S 7E SL | CARBON CO. REC. TRANS. SPECIAL SERVICE DIST | Pleasant Creek |
| 91-3640 | Point to Point | DIL | 1869 | 0.000 | 0.000 | N660 W660 S4 S10 13S 7E SL | GEORGE TELONIS | Hopkins Creek |
| 91-2288 | Surface | DIL | 1869 | 0.011 | 0.000 | S660 W1980 E4 S 31 T12S R7I | MATTIE B. CORNABY FAMILY TRUST | Unnamed Spring |
| 91-2146 | Point to Point | DIL | 1869 | 0.000 | 0.000 | N660 E660 W4 S5 T13S R7E | MATTIE B. CORNABY FAMILY TRUST | Winter Quarters Creek |
| 91-483 | Surface | DEC | 1874 | 0.443 | 0.000 | N700 W1400 E4 S6 T13S R7E | MATTIE B. CORNABY FAMILY TRUST | Winter Quarters Creek |
| 91-3405 | Surface | Dec | 1874 | 0.500 | 0.000 | N540 W1610 E4 S31 T12S R7E | MATTIE B. CORNABY FAMILY TRUST | Woods Canyon Creek |

**Surface Water/Ground Water Interactions**

With the exception of the lowermost portions of Mud Creek, which is a gaining system due to sub-flow from the associated alluvial/colluvial deposits and contributions from tributary drainages, most of the drainages in the permit areas are believed to be losing systems.

Due to the geologic complexity of the area and significant local variations in topography, geology, and associated recharge conditions, any given drainage may exhibit gaining or losing characteristics over various portions of its drainage length. Recent monitoring indicates that most, if not all, of the surface water discharge from springs and seeps in the upper portions of the smaller drainages is lost to localized ground water storage, ground water recharge, and/or evapo-transpiration resulting in a net surface flow loss over the drainage length.

Discharge to the area stream systems occurs from the alluvial/colluvial aquifer system and from springs and seeps in the upper reaches of the drainages. Alluvial/colluvial deposits are recharged during periods of high stream runoff and later discharge stored water to the stream systems, extending the period of active stream flow. Springs and seeps contribute flow to local tributaries on a seasonal basis or intermittently in delayed response to local recharge.

## Figure 18. Basic Water Quality

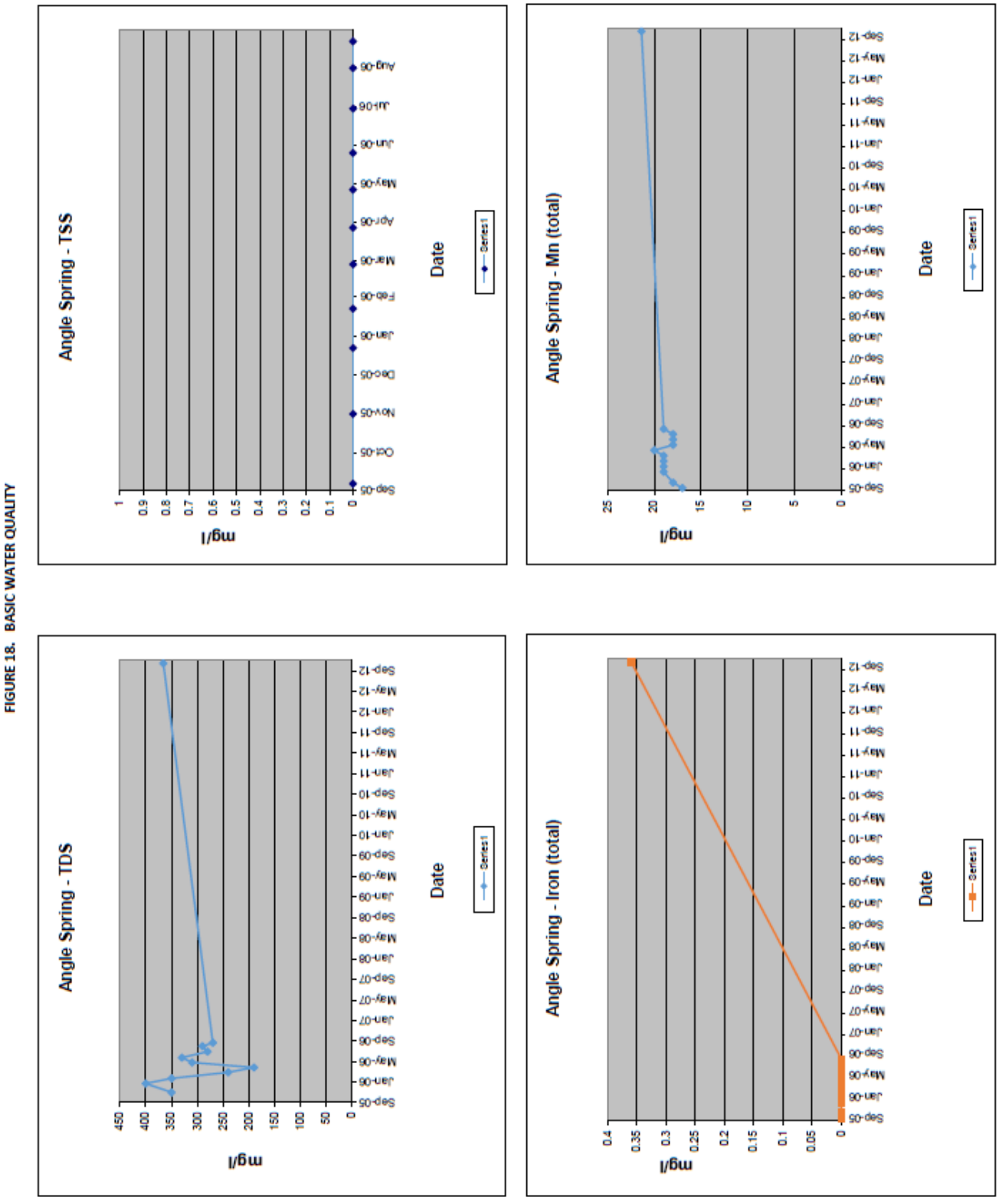
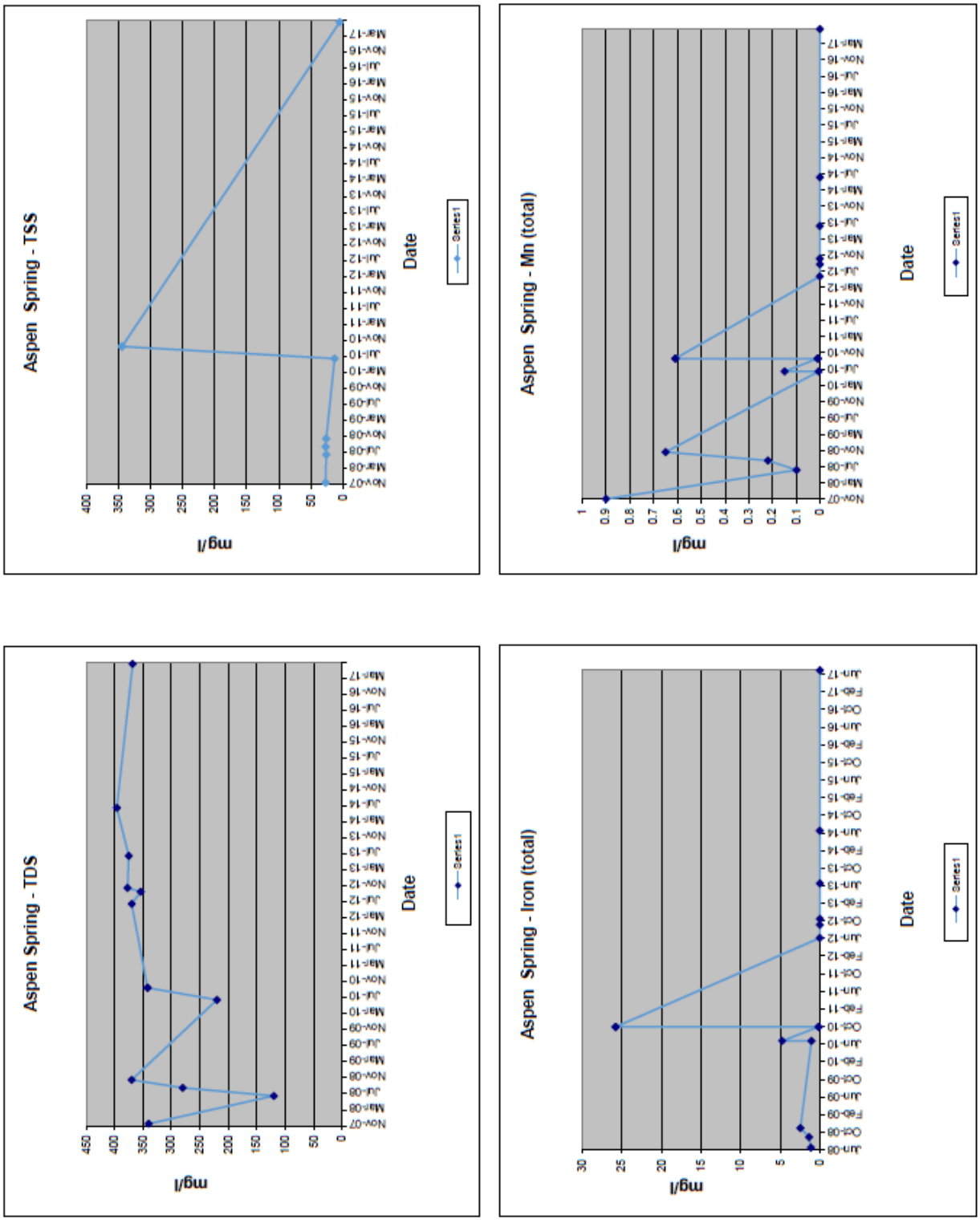



FIGURE 18. BASIC WATER QUALITY

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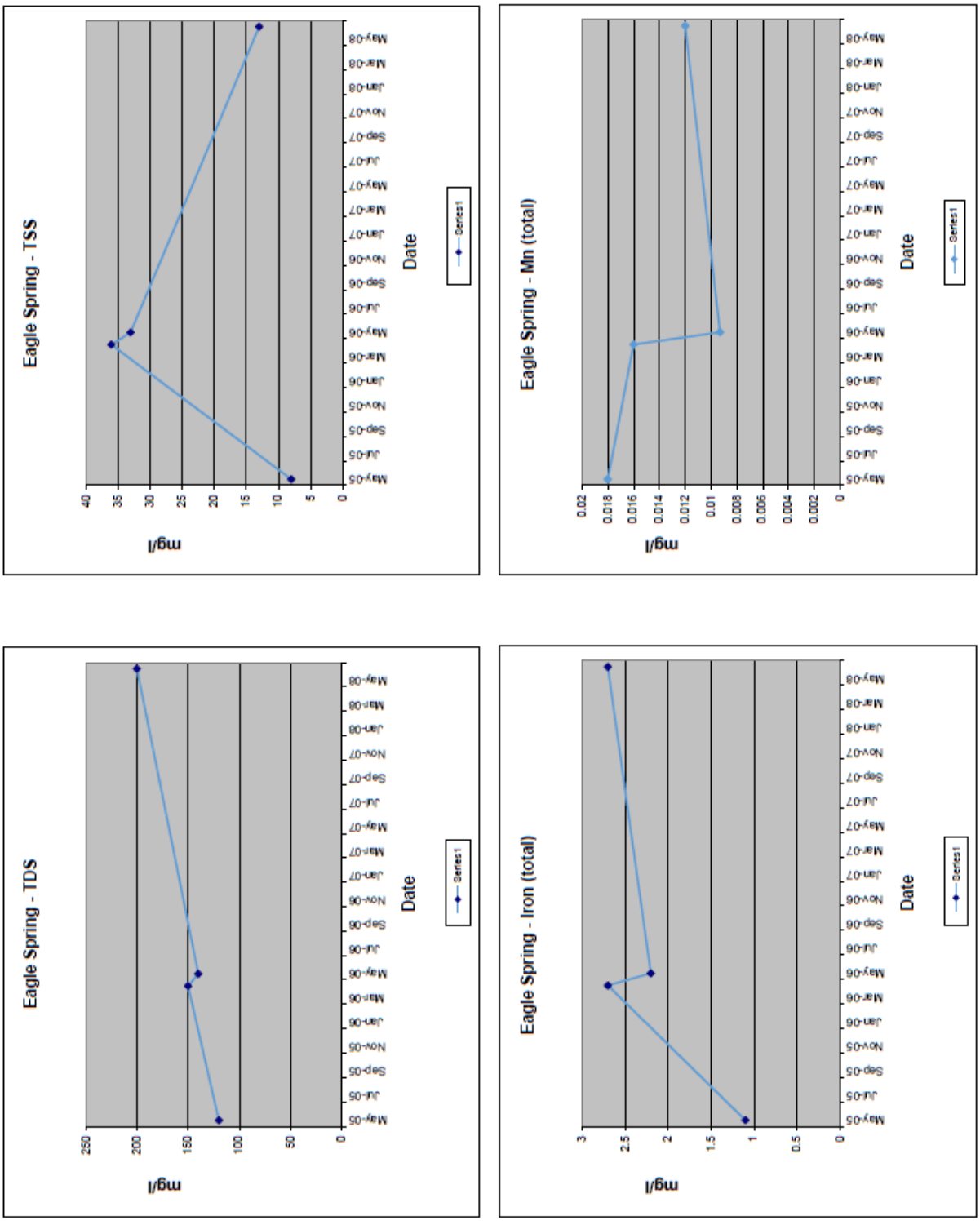

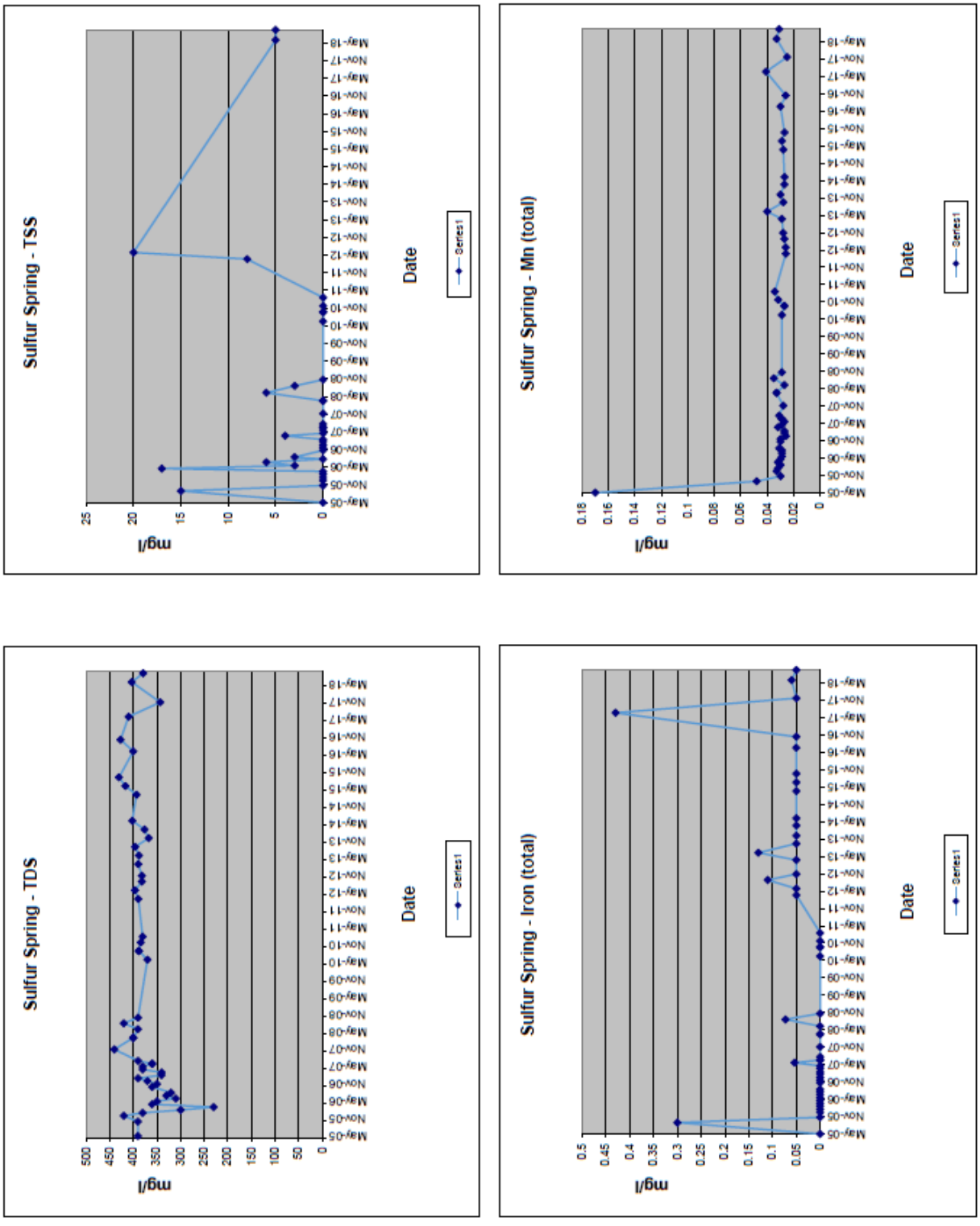


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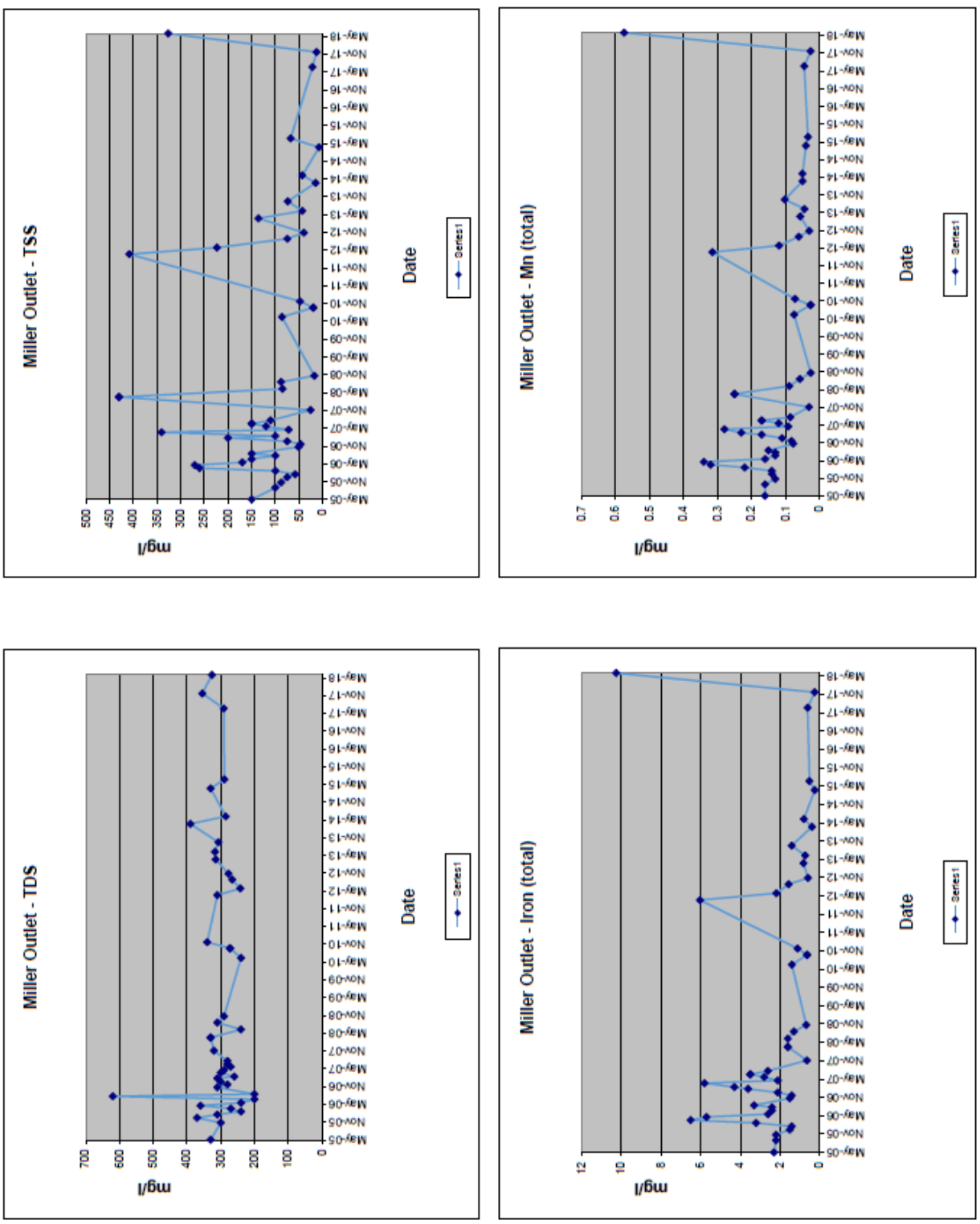


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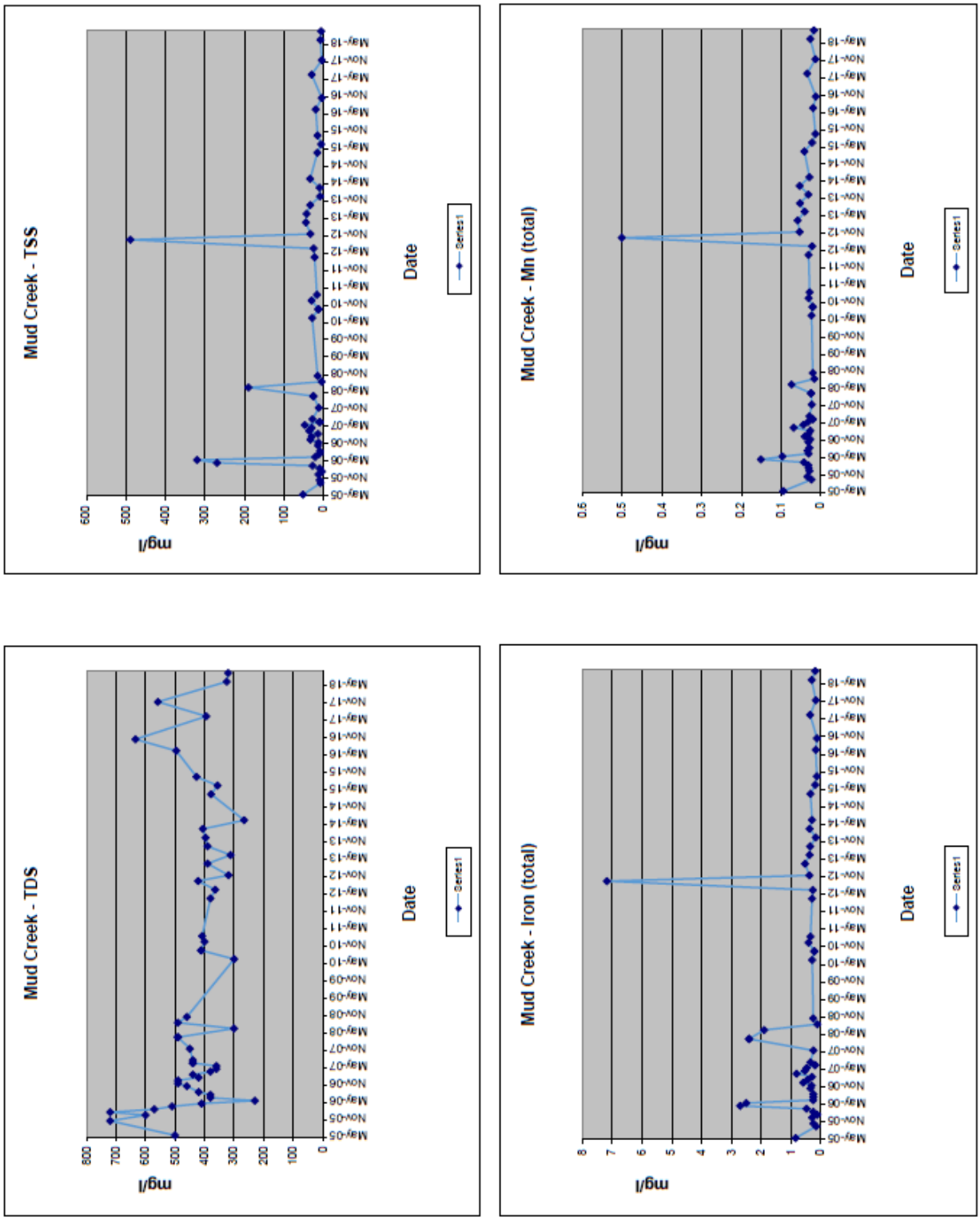


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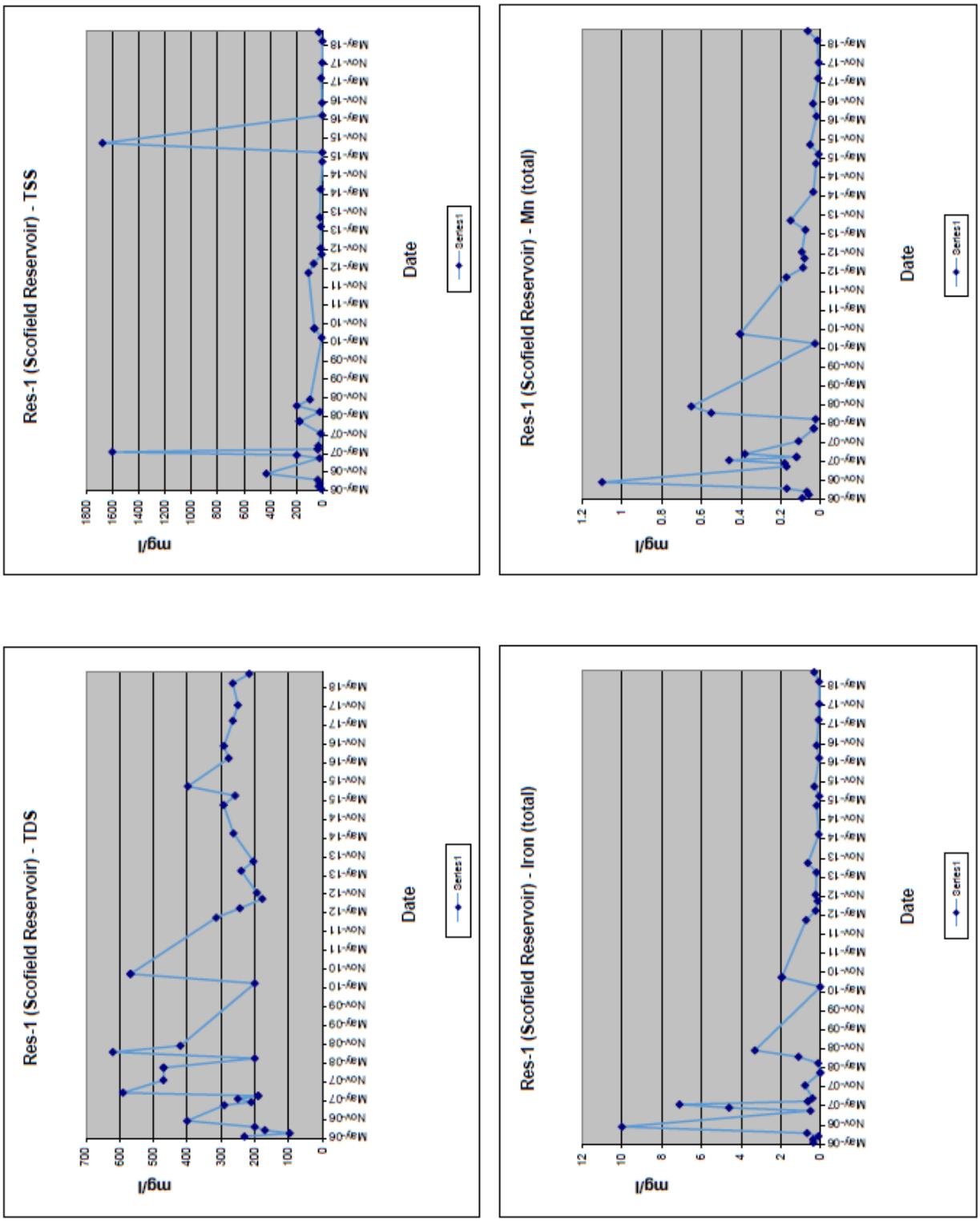


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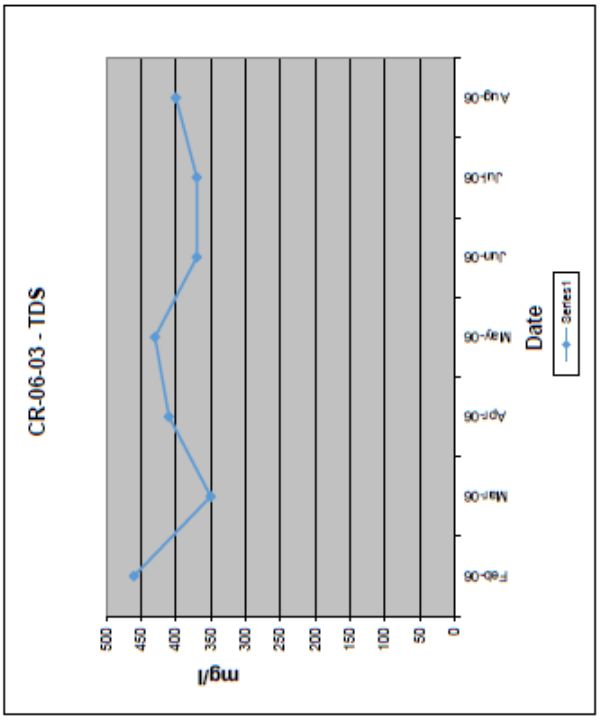


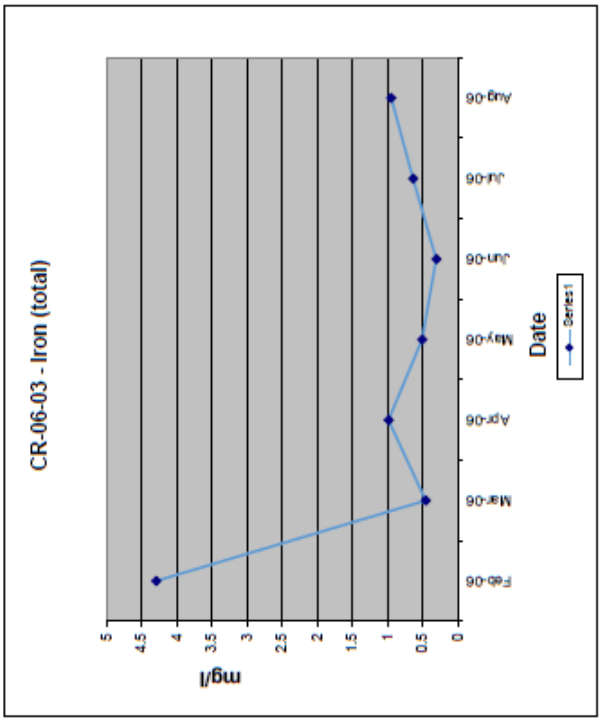


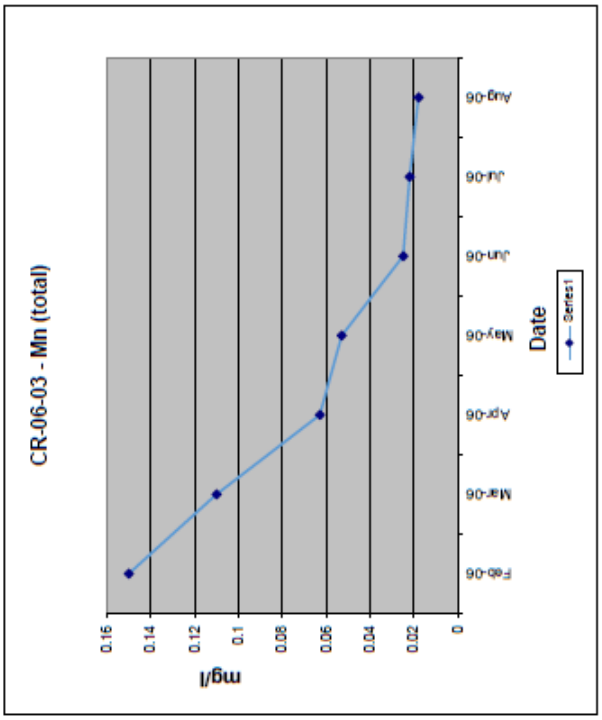

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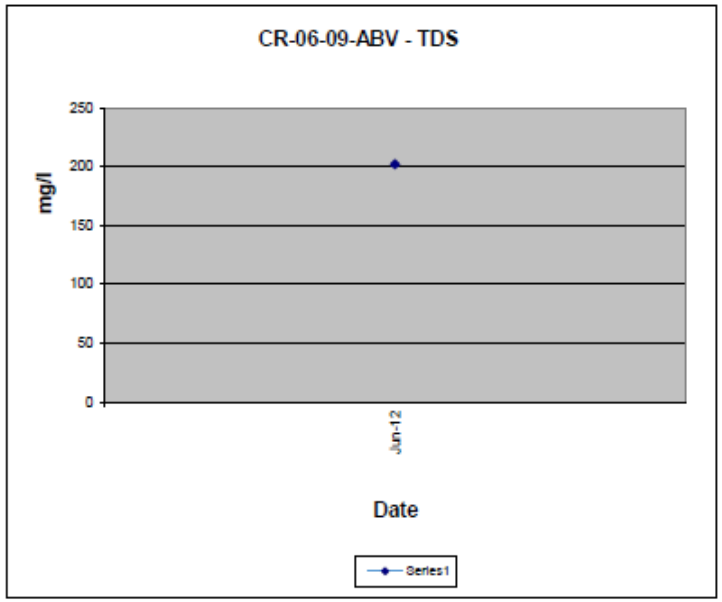


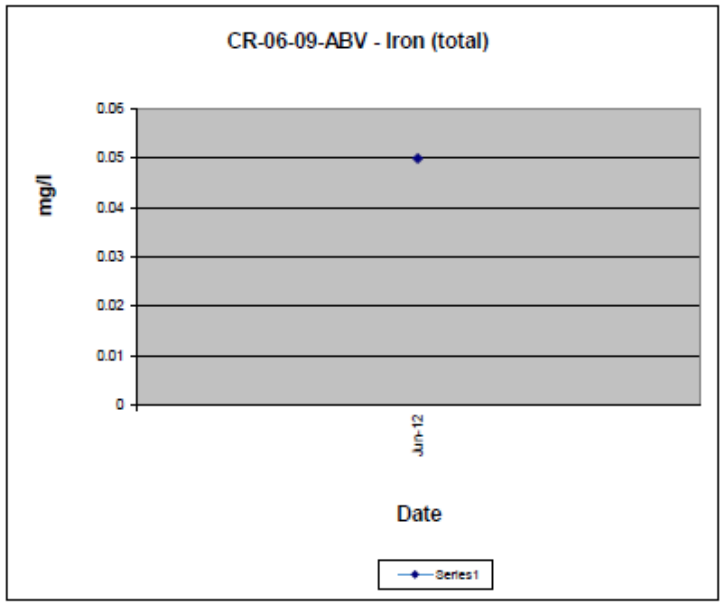


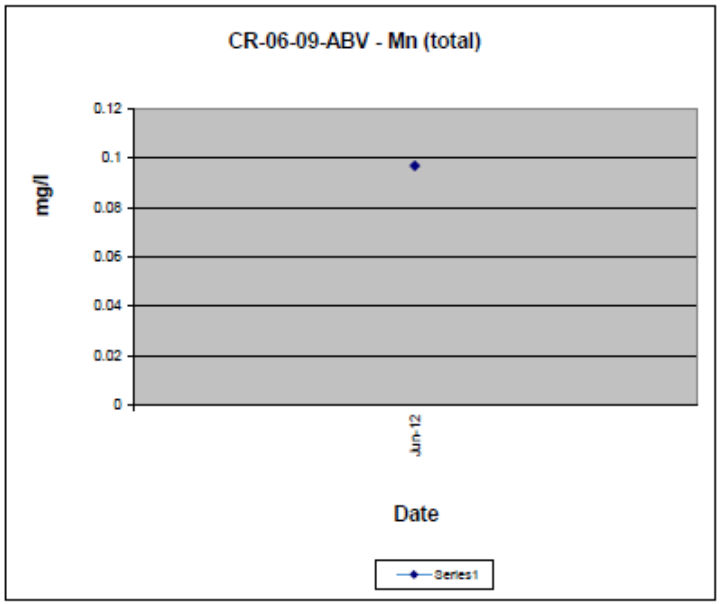

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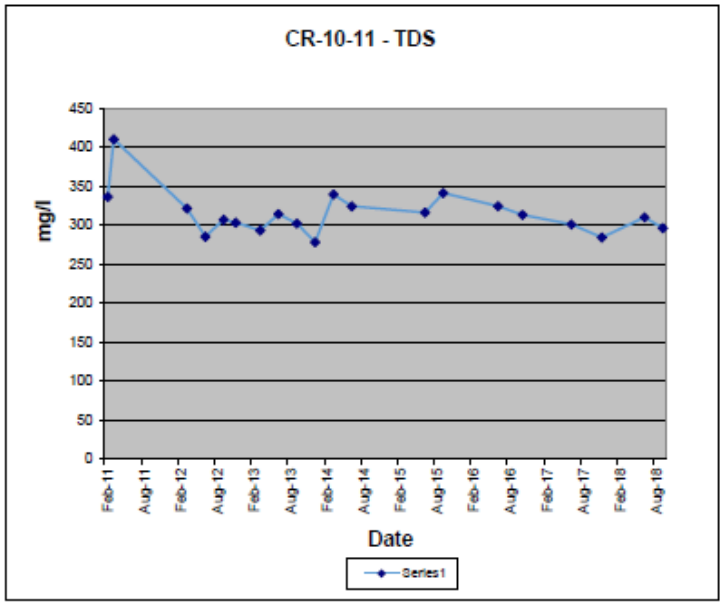


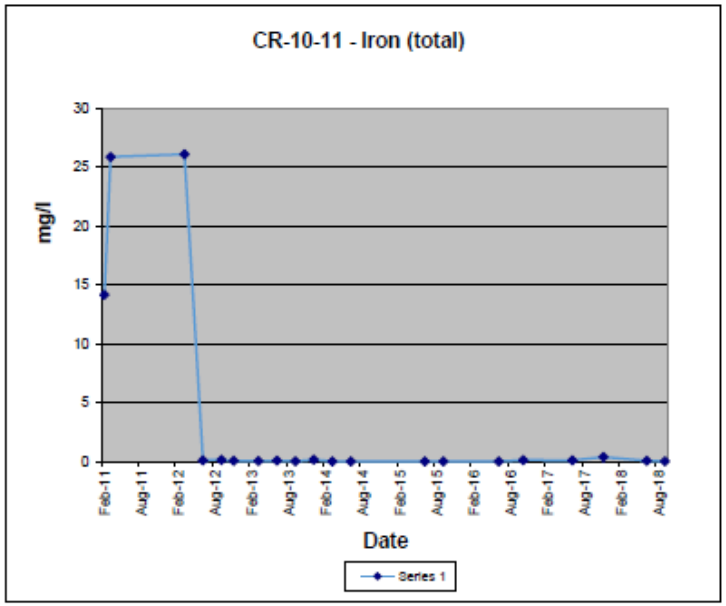


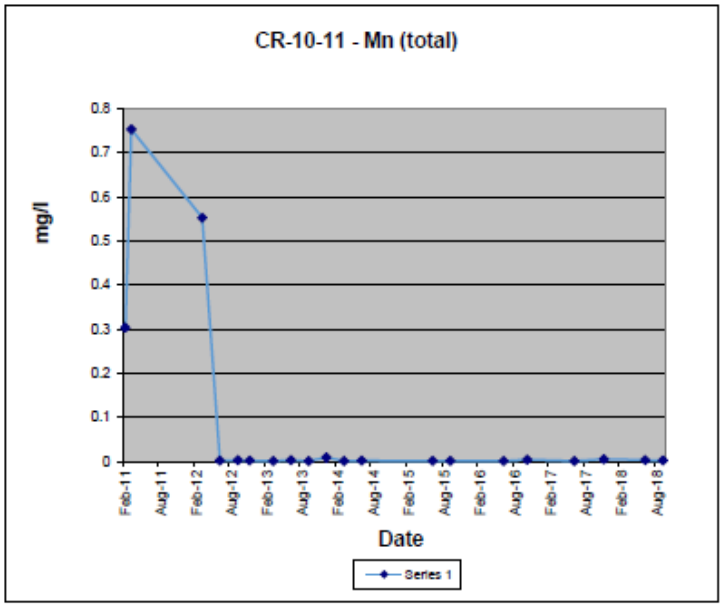

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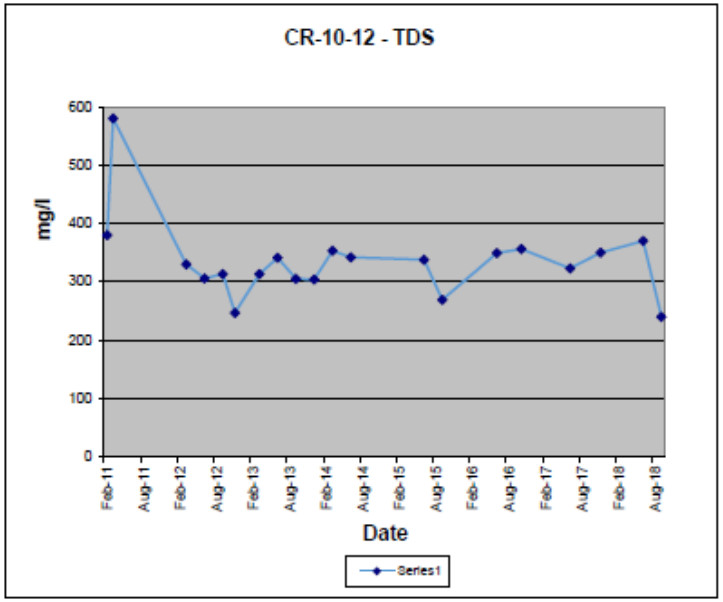


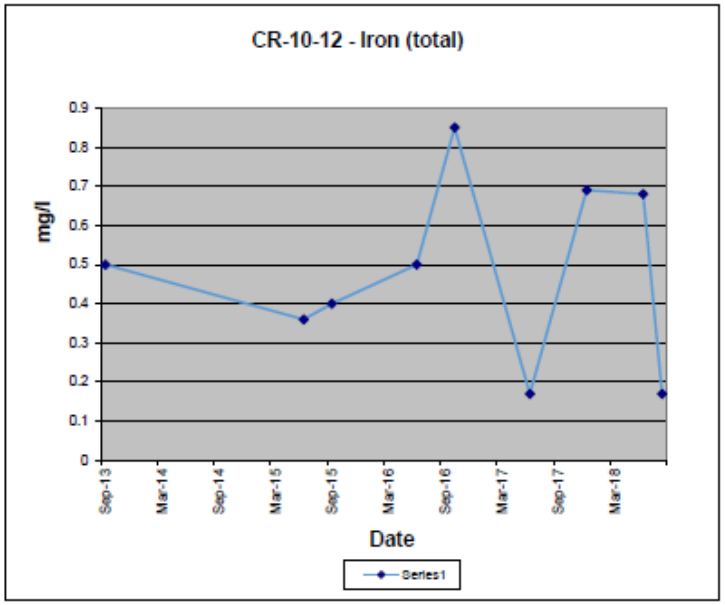


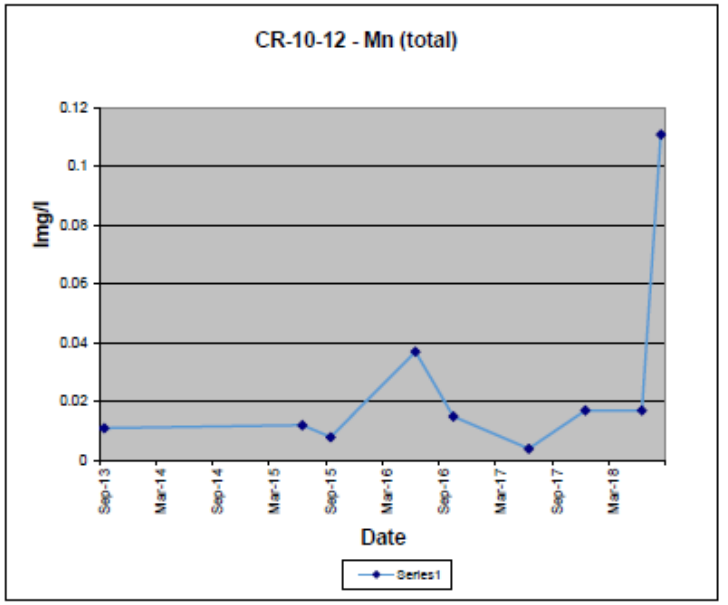

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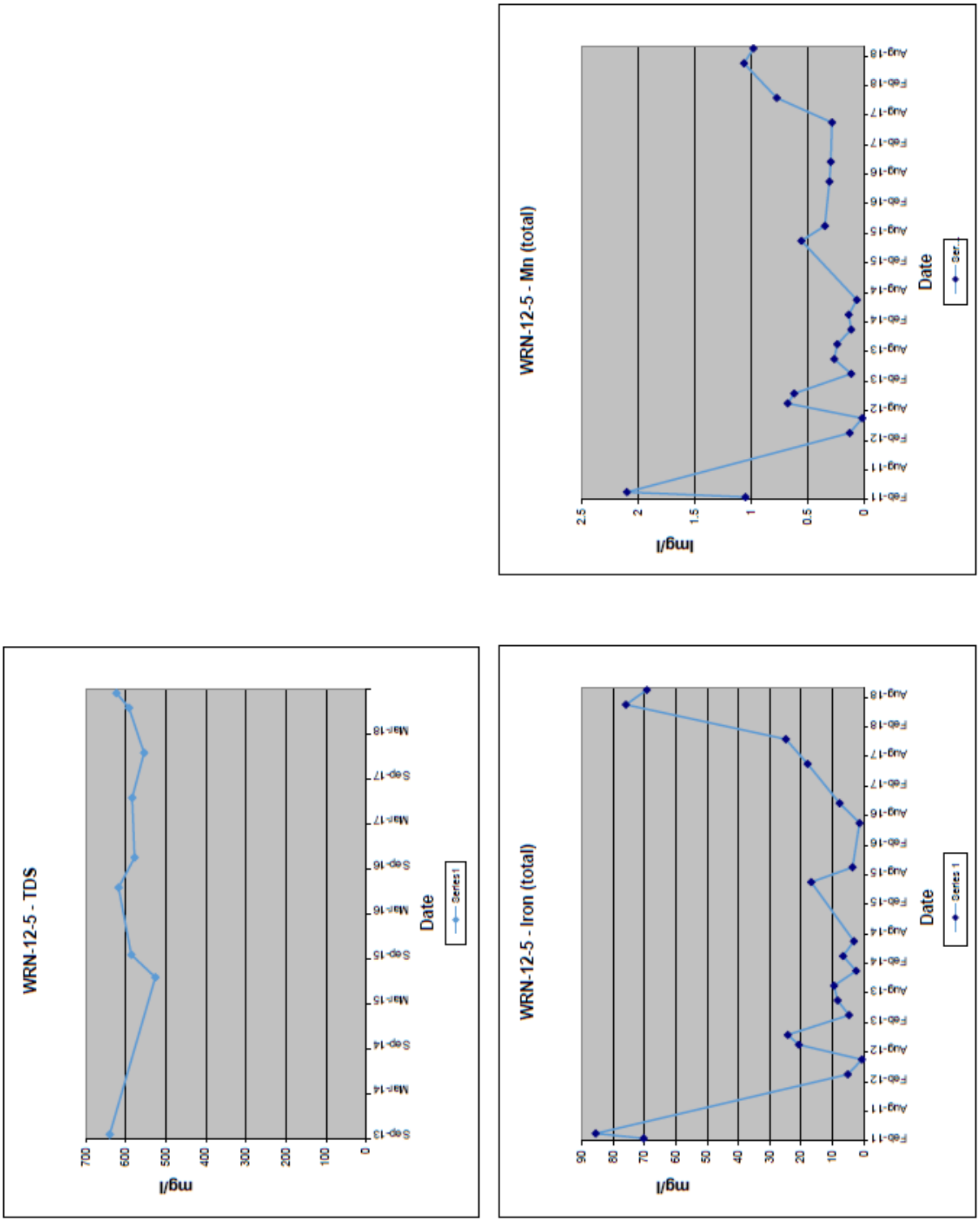

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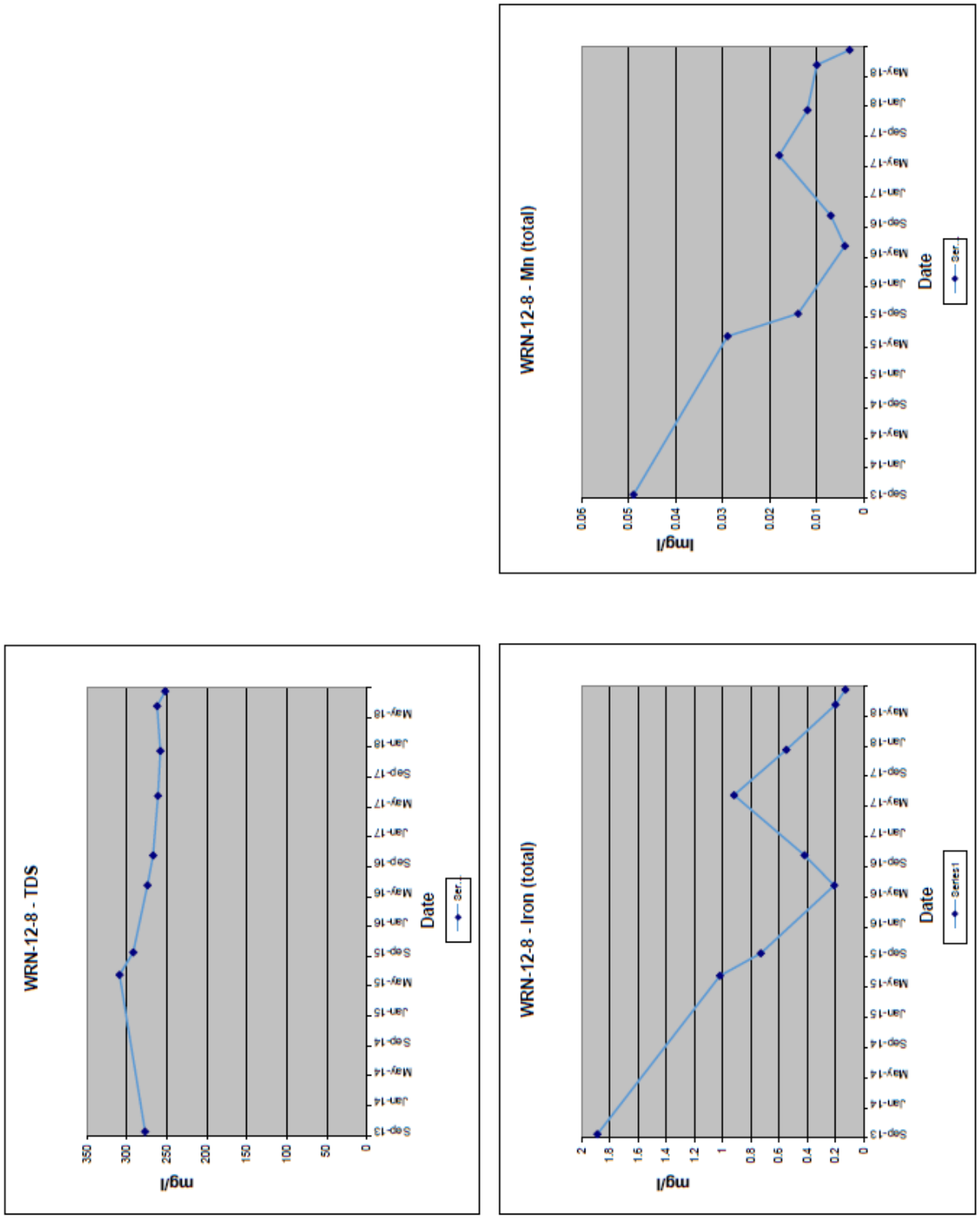
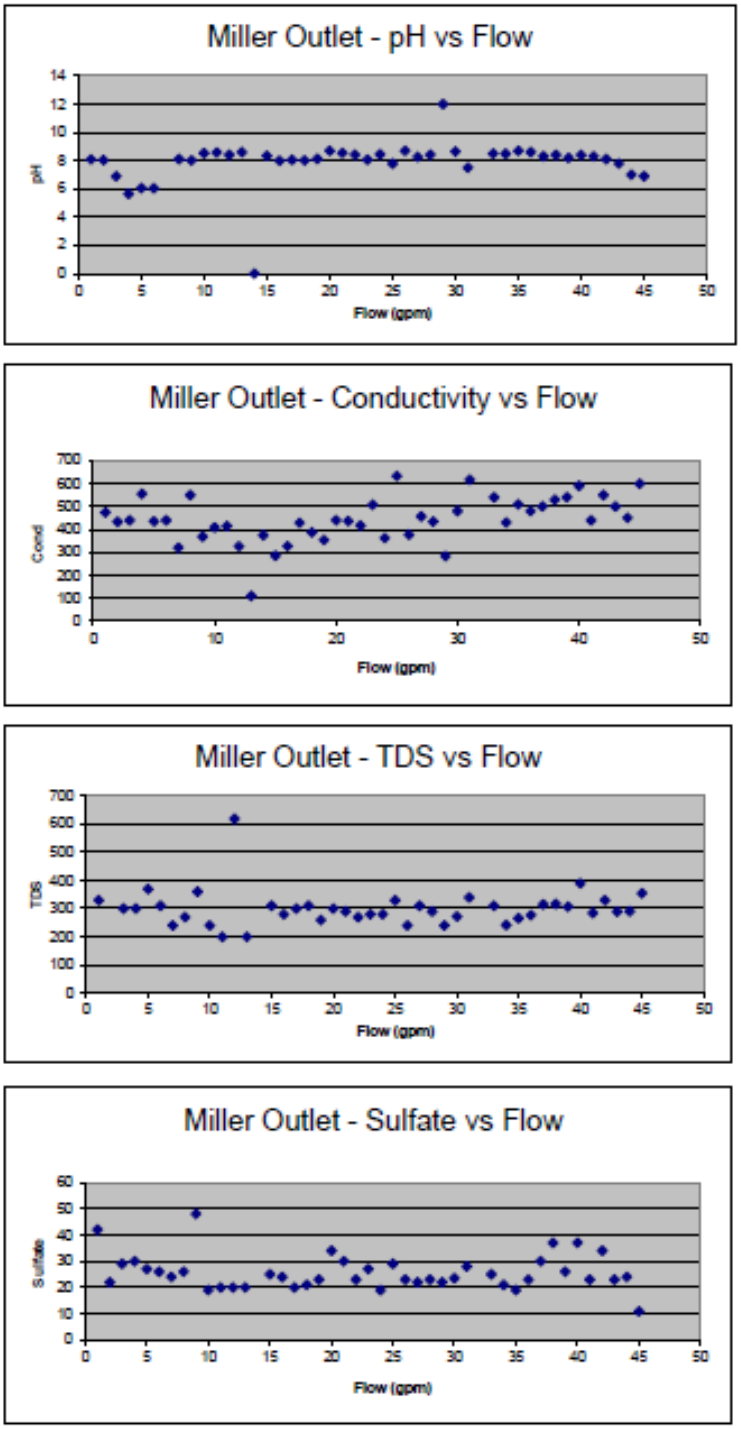


**Figure 19 Water Quality vs Flow**



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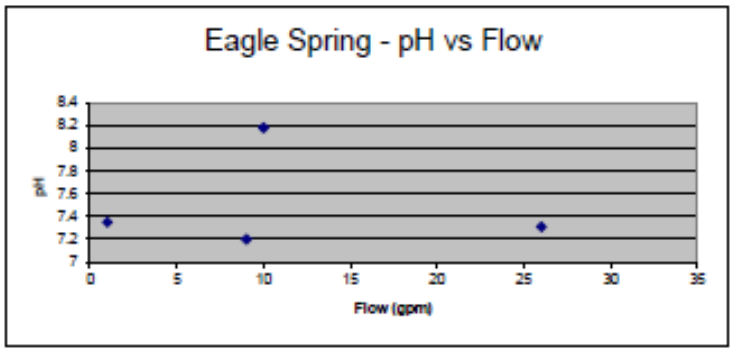


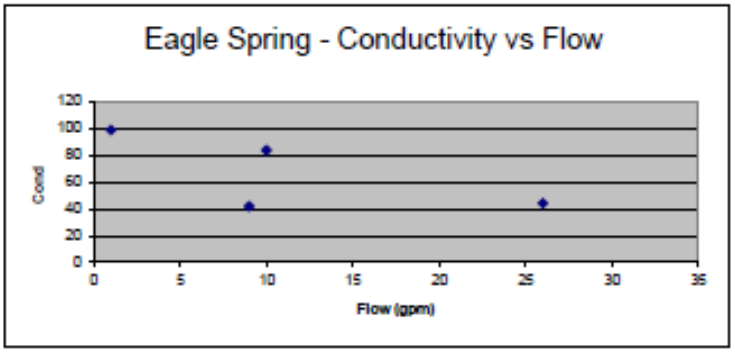


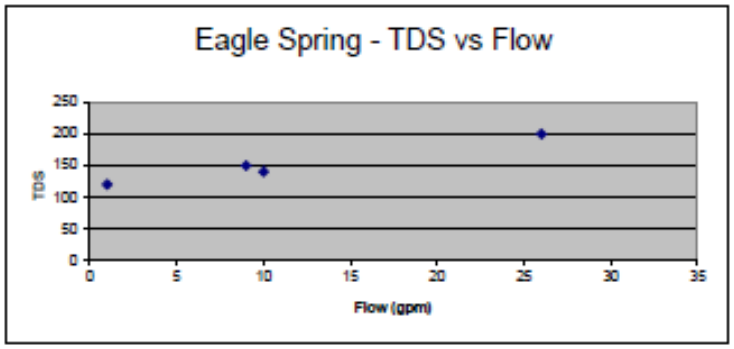


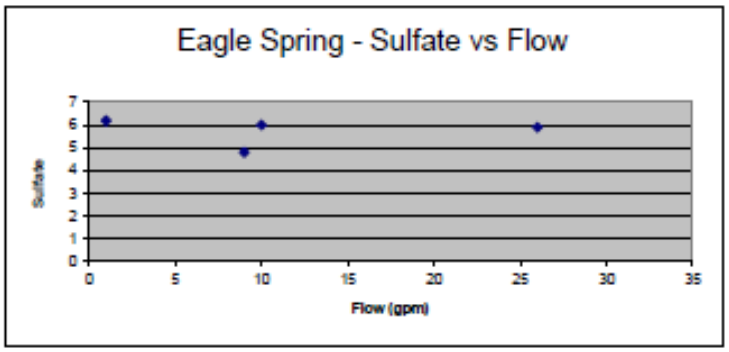

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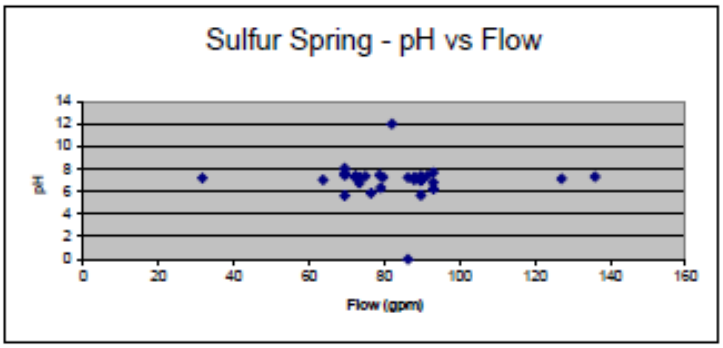


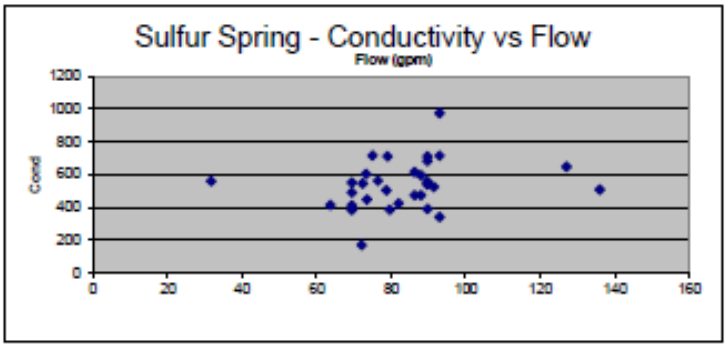


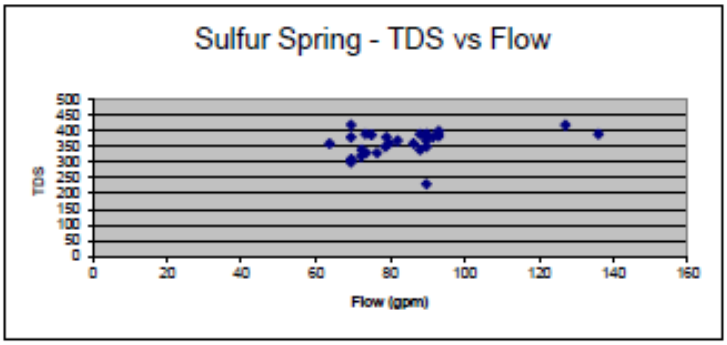


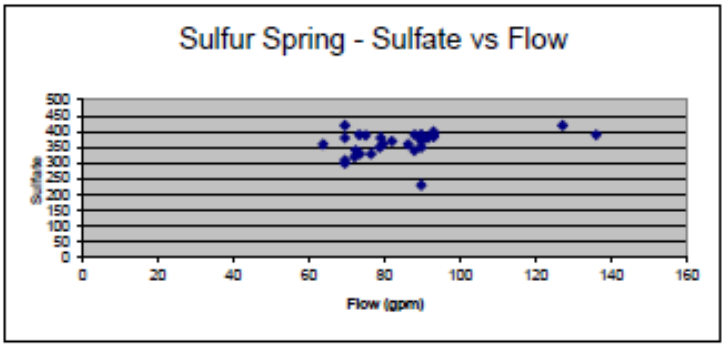

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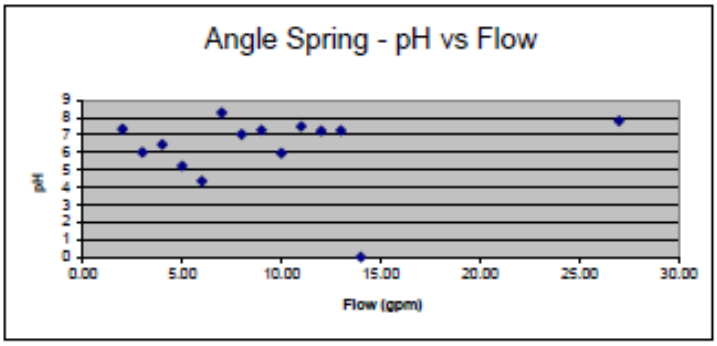


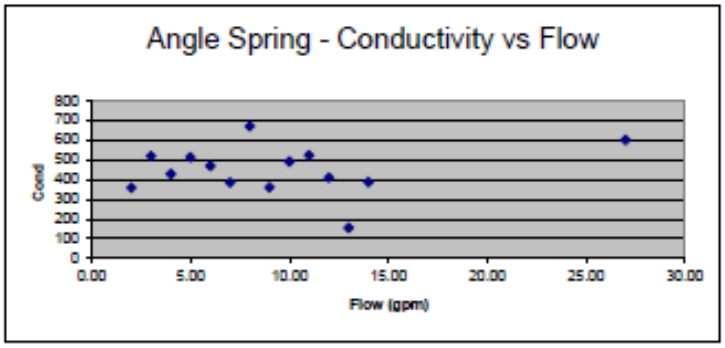


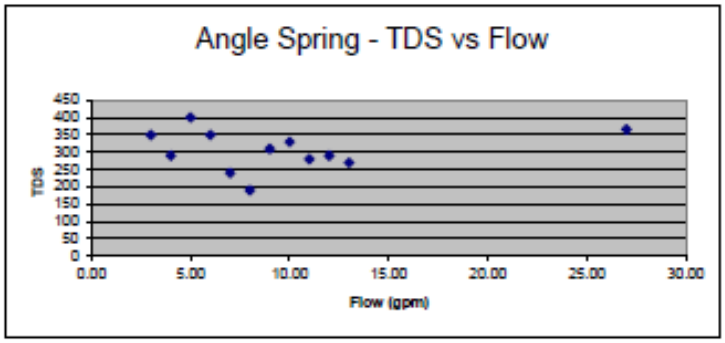


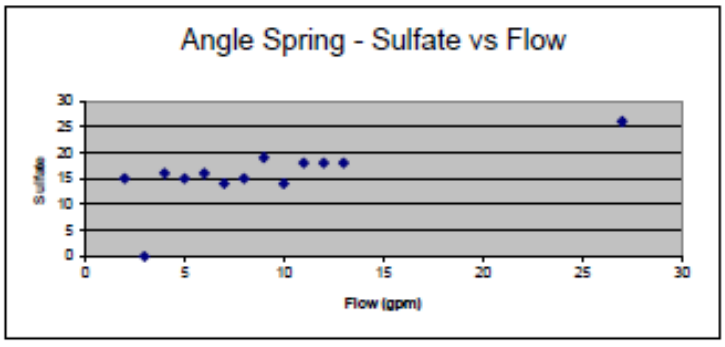

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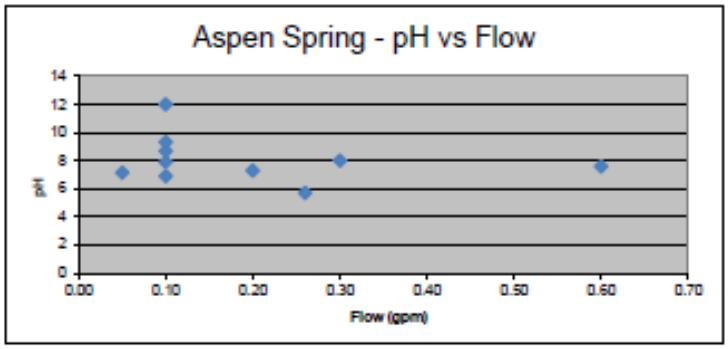


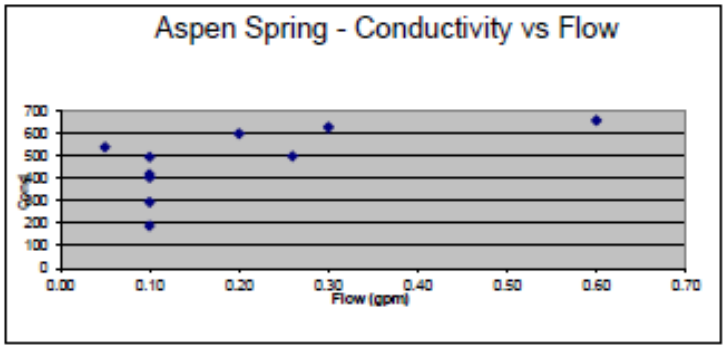


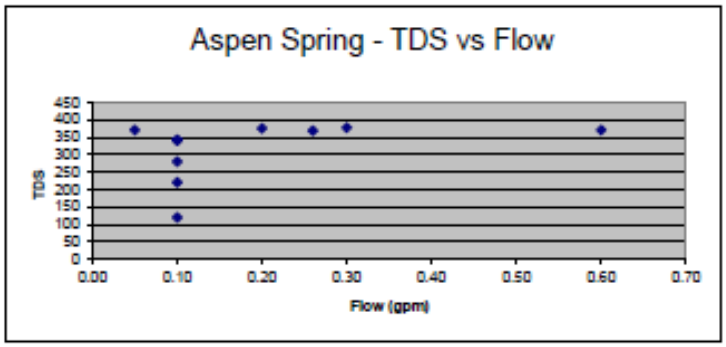


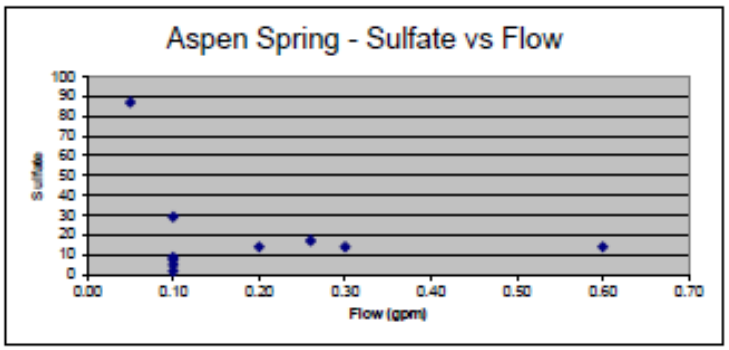

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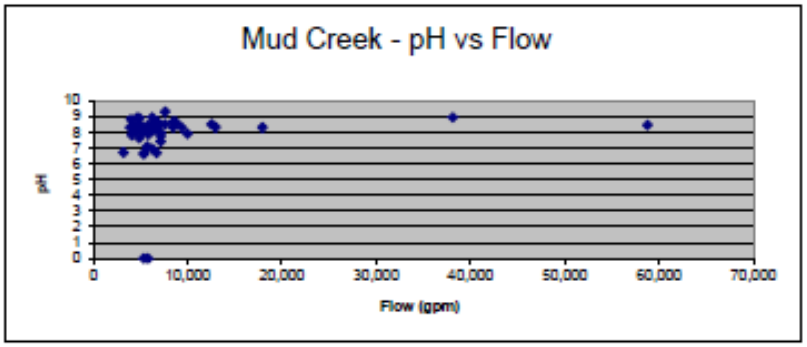


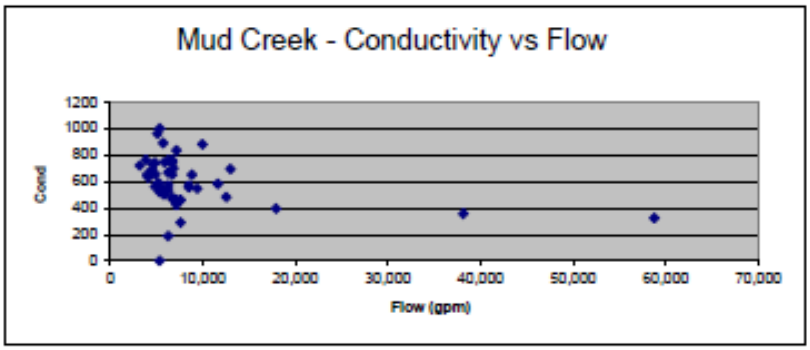


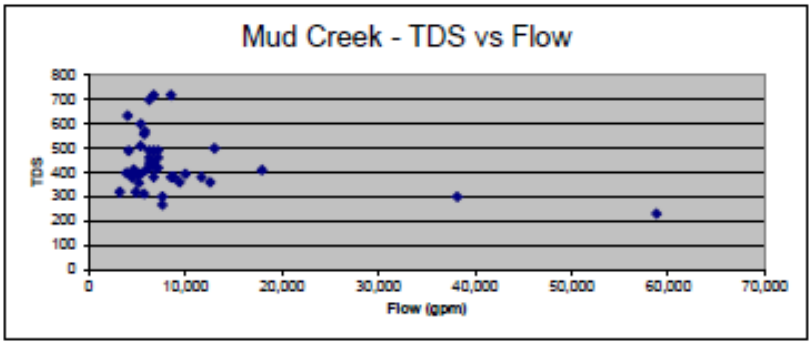


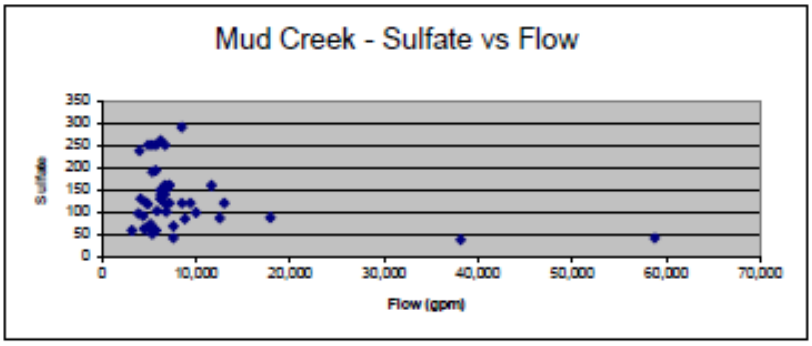

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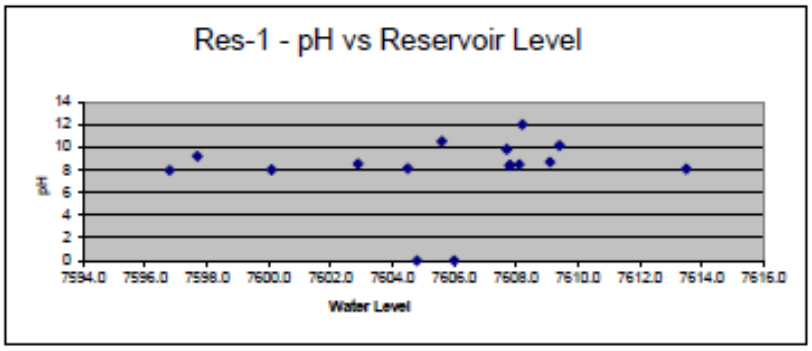
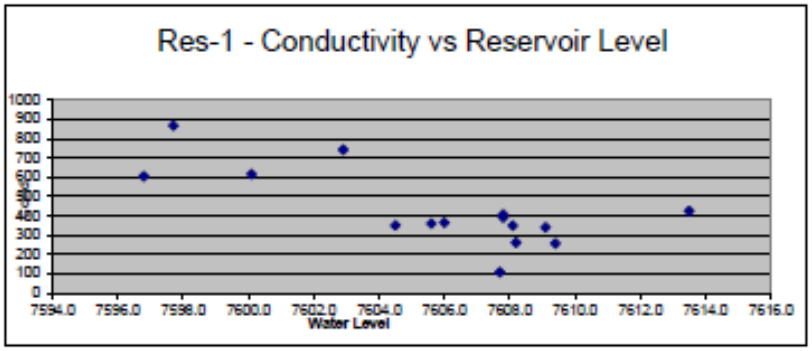
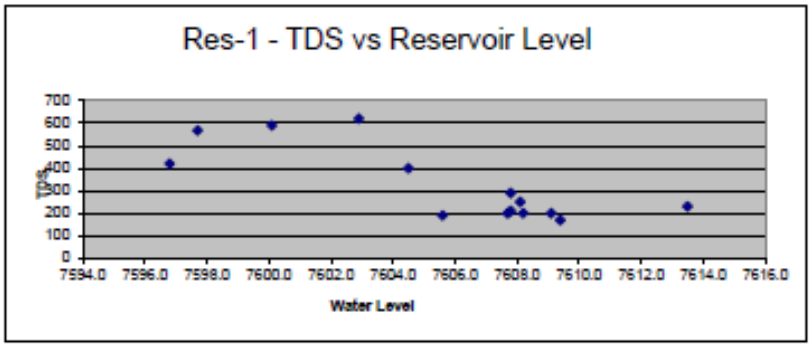
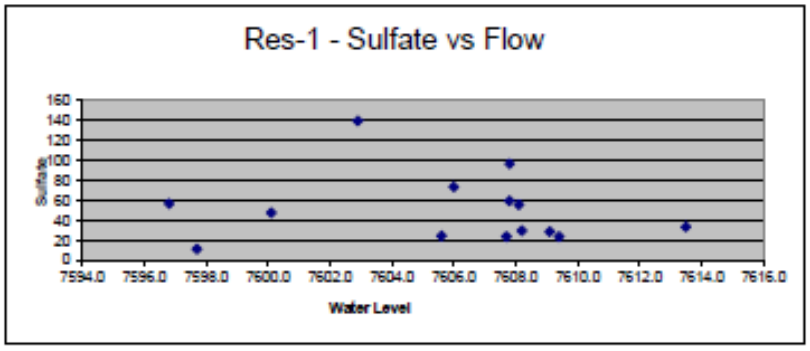


**Surface Water Summary**

Other than Mud Creek and Scofield Reservoir, surface water resources in the area adjacent to the proposed permit are limited. The principle perennial streams located within or adjacent to the permit area boundary include: 1) Mud Creek, the dominant drainage, and 2) Miller Canyon, both of which drain directly into Scofield Reservoir. Mud Creek drains areas not tributary to lands included within the permit area. Miller Canyon drains tributaries overlying future mining zones within Long Canyon. Limited ephemeral channels also drain the area, many of which normally exhibit short term continuous flow in response to spring snowmelt and/or high intensity thunderstorms.

**The Major Perennial Streams**

Major perennial streams within 5 miles radius of the permit area include the Price River and Fish Creek, Mud Creek, Miller Canyon. Smaller drainages in the area exhibit an ephemeral flow regime with sustained flows occurring only in response to spring snowmelt and high intensity thunderstorms. These drainages do not contribute significant quantities, or yields of stream flow to the Price River, except during high-intensity short-duration storm-generated events, and possibly during snowmelt runoff.

Presently, beneficial surface water use in the area includes domestic water supply, secondary recreations uses, cold water game fish and aquatic life, and agriculture. As discussed in R645-301-724.200, Drainages and Surface Water Bodies, streams are classified as either 1C, "protected for domestic purposes with prior treatment by complete treatment processes", 3A, "protected for cold water species of fish and other cold water aquatic life", or 3C, "protected for non-game fish, and other aquatic life". 1C, Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water, 2B, Protected for secondary contact recreation such as boating, wading, or similar uses, 3A, Protected for cold water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain, and 4, Protected for agricultural uses including irrigation of crops and stock watering.

Although water quality is relatively consistent for monitored sources, some variation is noted to exist as a result of the composition of contributing water, and the flow regime, especially within Mud Creek where the source includes disturbed upstream areas. Overall, surface water conditions are typical of arid regions of the western United States and seasonal or storm-event peak flows tend to dilute geochemical constituent concentrations. However, during low-flow periods, constituent concentrations of surface waters tend to increase. For those constituents that appear to show elevated levels, it is reasonable to assume the elevated levels are a result of natural sources and the processes of weathering, oxidation, erosion, evaporative concentration and sediment transport.

**R645-301-724.320 Reclamation & Prevention Material Damage**

Reclamation as required by the R645 rules can be accomplished and the mining operation has been designed to prevent material damage to the hydrologic balance outside of the permit area.

Coal Energy Group 3' planned mining and related activities have the potential to generate temporary impacts to surface water resources. These impacts will typically be localized, being confined to those segments of area drainages directly impacted by mining activities

In general, hydrologic consequences to surface water resources resulting from CEG3's mining operations will be limited by the relatively small surface disturbance area, and will be effectively mitigated by operation of the drainage and sediment control system and ultimate reclamation of mine disturbance areas.

Proposed new mining related surface disturbance will be limited to the mine facilities areas and will involve removal of vegetation and soil materials and grading of disturbance areas for specific mining related uses. These disturbance activities will reduce infiltration potential and evapotranspiration due to elimination of vegetation and will increase surface runoff and erosion potential. In order to effectively control erosion and increased runoff from disturbance areas, CEG3 will divert runoff from undisturbed upgradient areas around the area of mining disturbance, grade disturbance areas to minimize runoff and erosion, and collect runoff as close as possible to its source and route it to the sedimentation pond for retention and settlement of suspended solids prior to discharge to natural drainages. CEG3 will control and mitigate potential increased runoff from surface disturbance areas using a number of commonly accepted surface management and drainage control practices. Specifically, disturbed areas will be graded to minimize runoff and to the extent operationally feasible surface flow velocities will be controlled through the use of appropriate surfacing materials and runoff will be collected as close to disturbance source areas as possible to minimize erosion and increased sediment loading.

In addition to specific drainage control practices, CEG3 will effectively minimize the area of surface disturbance by keeping all surface facilities within a relatively limited area. Provisions for minimizing mine related surface disturbance are detailed in Chapters 5 and 7. Increases in runoff from disturbance areas may result in a very minor increase in stream flow for the receiving drainage, however, any increase will not be significant given the very limited area of surface disturbance relative to total drainage basin areas for the potentially effected drainage. Potential flow increases will also be mitigated by operation of the sedimentation pond which will retain disturbed area runoff providing a buffering effect.

On completion of mining operations, disturbed areas will be reclaimed. Reclamation will involve backfilling and grading, reestablishment of natural drainage patterns, soil replacement, and revegetation. It is anticipated that reclamation will effectively restore infiltration and runoff patterns to approximate the baseline conditions currently existing for the surface disturbance areas.

The sediment pond has been designed such that discharge structures are above the design sediment level and any runoff accumulations in the pond below this discharge elevation will be retained in the pond as dead storage (note that dead storage will not affect pond capacity since the design sediment storage capacity is being utilized for dead storage). The design sediment storage volume available for temporary runoff storage represents a negligible amount relative to area stream discharge volumes and so does not constitute a significant potential flow reduction.

Changes in Surface Water Chemistry –
Exposure of surficial materials by mining related surface disturbance and contact of disturbed area runoff with these materials, infiltration and drainage from coal and operations areas may result in very minor changes in runoff water chemistry. CEG3's proposed surface drainage and sediment control measures, specifically limitations on total surface disturbance and collection of disturbed areas runoff as close as reasonably feasible to the disturbance source area, will be effective in limiting runoff exposure to surficial materials and consequent leaching. While minor changes in runoff water chemistry may occur as a result of mining and related operations, limited surface disturbance areas and corresponding limited disturbed area runoff volumes will

minimize any potential for significant changes in water chemistry for the receiving drainage since disturbed area runoff flows will be buffered by significantly greater volumes of normal runoff from other drainage basin areas.

Potential temporary reduction of Mud Creek Flows during mine operations –
Since the mine operations area is relatively small, there will be very little impact to Mud Creek. Runoff flows from the mine site will be effectively contained in the sediment pond and released in a slow fashion to allow for deposition of suspended solids resulting from storm runoff. There will be only a minor delay in runoff due to the slow release of runoff water reaching Mud Creek. This delay will result in very minor impacts.

Reclamation impacts
Reclamation of the mine site will be accomplished as soon after mining as possible. The sediment pond will be left in place after the first phase of reclamation to contain the majority of runoff from the reclaimed area. Only the area south of the main access road will not flow to the sediment pond after the first phase of reclamation. Runoff from this area will be controlled with alternative sediment controls. The sediment pond and alternative sediment controls will remain in place until vegetation has been established and the area stabilized. When the area has been stabilized and is worthy of Phase II bond release, the sediment pond will be reclaimed. At that point the area will be reclaimed to the pre-mining condition. Reclamation can be accomplished and the operation has been designed to minimize impacts to the surrounding area, and to the hydrologic balance outside of the permit area. Refer to Chapter 5 and Chapter 7 for details of the operational designs that accomplish these goals.

**R645-301-724.400 Climatological Information**

The climate of the permit area is semi-arid with natural variations in climatic conditions due to the size of the area, rugged terrain, and significant elevation differences. Temperatures in the area reflect a typical seasonal pattern with gradual warming beginning in late March, high seasonal temperatures in July and August, a gradual cooling beginning in late August to early September, and seasonal lows in late December through mid-February. Due to fast moving storm fronts, wide temperature variances can occur over relatively short periods of time. More specific data relating to precipitation, temperature and wind speed and direction is provided in R645-301-724.410 – 420.

The general mine permit and surrounding area is characteristic of rugged terrain with significant elevation differences result in some natural variation in climatic conditions. Generally, temperatures are lower on the exposed high plateaus and upper slopes when compared with lower slope and valley areas. Temperature differences are usually pronounced between upper slopes with southern exposures, and deep valleys which can trap and hold cold air masses due to inversions during the winter. Local variations in precipitation amounts may be pronounced dependent on topography, exposure, and the direction of prevailing winds. Exposure may result in higher wind velocities on plateau and ridgeline areas when compared with more sheltered slope, basin, and valley areas, although natural down-valley airflow patterns can result in localized high winds in certain valley areas.

The closest SNOTEL meteorological reporting stations were identified as Clear Creek #1, Clear Creek #2, Scofield Dam, and Price, Utah. The Clear Creek and Scofield Dam sites provided temperature, precipitation and snowfall data, and the Price, Utah site provided wind direction

data. Climatic characterization of the permit area is based on historical climate data from these stations and general regional climatic information. Generally, the climate of the Project area is temperate with summer high temperatures in the range from 75° to 80°F (24° to 27°C) and winter lows from 0° to -5°F (-17° to -21°C). Annual average precipitation in the area is on the order of 14.6 inches.

The summer high temperature recorded at the Clear Creek #1 SNOTEL site between 1989 and ~~2006~~ 2018 was 90°F (32°C). The winter low during the same time period was -22°F (-30°C). Monthly mean, maximum and minimum data are shown in Table 13, Summary of Temperature Data.

**Temperature**

Temperatures in the area normally reflect a typical seasonal pattern with gradual warming beginning in mid to late-March, high seasonal temperatures in July and early August, a gradual cooling beginning in late August to early September, and seasonal lows in late-December through mid-February. Although recorded high and low temperatures of 90°F (32°C) and -22°F (-30°C) were recorded at the Clear Creek #1 station, the average high and low temperatures for the area are believed to be on the order of 77.7°F (25.4°C) and -1.4°F (-18.6°C) respectively as shown for the Scofield Dam station (WRCC 07-01-1948 to 06-10-2016). The average frost-free period in this area ranges from approximately 60 to 120 days dependent primarily on elevation and exposure. Due to fast-moving storm fronts, wide temperature variances can occur over a relative short period of time. A summary of SNOTEL climatic data is provided in Table 13, Summary of Temperature Data.

**Table 13. Summary of Temperature Data**

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Station - Clear Creek #1** | | | | | | | | | | | | | |
| Avg Max (F): | 31.2 | 34.0 | 38.2 | 47.8 | 57.9 | 69.2 | 76.8 | 74.2 | 67.0 | 56.7 | 41.7 | 34.3 | 52.4 |
| Avg Min. (F): | 6.5 | 8.2 | 12.7 | 21.7 | 28.4 | 35.0 | 41.8 | 40.7 | 33.7 | 26.7 | 16.8 | 9.3 | 23.5 |
| **Station - Scofield Dam** | | | | | | | | | | | | | |
| Avg Max (F): | 27.4 | 31.9 | 38.1 | 48.2 | 59.4 | 70.2 | 77.7 | 75.4 | 67.3 | 56.1 | 39.9 | 30.4 | 51.8 |
| Avg Min. (F): | -1.4 | 1.6 | 11.9 | 21.9 | 31.0 | 38.0 | 44.4 | 42.9 | 34.9 | 26.1 | 15.8 | 3.4 | 22.5 |

**Precipitation**

Given a low average annual precipitation of only 14.56 inches, the permit area is classified as semi-arid. The majority of the precipitation received in the area occurs as snowfall during the months of December, January, February, and March. Rainfall typically occurs in the form of brief, high-intensity thunderstorms with most thunderstorm activity occurring during late summer and early fall, peaking in August. Monthly average precipitation ranges from 0.90 inches (June) to 1.65 inches (January) and the high average monthly snowfall is 26.2 inches (December). Average monthly precipitation and snowfall for the SNOTEL site located at Scofield Dam are summarized by Table 14, Summary of Precipitation Data. While a significant portion of the annual precipitation is captured in Scofield Reservoir (located immediately downstream and to the north of the permit area), some water is lost to evapotranspiration, sublimation, and local ground water recharge.

## Table 14. Summary of Precipitation Data – Scofield Dam

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Avg Precipitation (in) | 1.65 | 1.47 | 1.29 | 0.95 | 1.04 | 0.90 | 1.09 | 1.41 | 1.18 | 1.18 | 1.12 | 1.27 | 14.56 |
| Avg Snowfall (in) | 26.2 | 21.8 | 20.1 | 8.4 | 2.0 | 0.1 | 0.0 | 0.0 | 0.3 | 3.5 | 13.5 | 19.8 | 115.8 |
| Avg Snow Depth (in) | ~~18~~17 | 20 | 14 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 9 | 6 |

**Wind**

Data is provided in Table 15, Summary of Wind Data - Price, Utah, for the closest wind SNOTEL monitoring site located near Price, Utah. As can be seen in the data, wind speeds average 6.8 mph with average highs and lows of 8.5 and 5.1 mph occurring in April and January respectively. For this station winds are generally out of the north.

## Table 15. Summary of Wind Data - Price, Utah

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Avg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Avg Wind Speed (mph) | 5.1 | 5.8 | 7.9 | 8.5 | 8.4 | 8.2 | 7.0 | 6.6 | 6.9 | 6.7 | 5.8 | 5.2 | 6.8 |
| Avg Wind Direction | N | N | N | N | N | N | N | N | N | N | N | N | N |

General regional information taken from the Willow Creek permit indicates that prevailing winds are from the west and northwest with average wind velocities generally not exceeding 20 miles per hour. During the winter the prevailing wind direction can shift for extended periods, blowing predominantly from the northeast.

Locally, surface air movements are strongly affected by natural drainage patterns and daily temperature variations. As local air masses cool at night, the denser, cool air flows down valleys and other natural drainage channels. Generally, the winds associated with this downslope movement are low to moderate, however, if the drainage alignment is the same as the prevailing wind direction or if the natural topography tends to concentrate natural air movement, moderate to strong downslope winds and high-intensity gusts may result. As natural warming occurs during the morning and early afternoon, warm air masses begin to move up-valley. Differential heating and upper level winds tend to have a greater impact on the upward air movements resulting in greater mixing and instability with resultant variable winds and greater potential for gusty conditions.

**R645-301-724.700 Including R645-302-320 Alluvial Valley Floors**

**R645-302-320 & 321 Alluvial Valley Floors Determination**

Refer to Chapter 9, Special Categories for a discussion on AVF's.

**R645-301-725 Baseline Cumulative Impact Area Information**

In order to evaluate the potential cumulative hydrologic impacts which could result from the proposed mining activities in combination with other unrelated activities, it is necessary to define a cumulative impact area and identify other activities which may contribute to any cumulative impacts within that area.

Generally, the surface disturbance associated with the mining operations will involve such a small area (Portal Block Permit Boundary) that the overall impact on surface water resources will be negligible. Any potential surface water impacts which may result from mining and related activities will also be effectively mitigated by a comprehensive drainage and sediment control plan and controlled discharge under specific effluent limitations and permit requirements of the mine UPDES Permit. Similarly, potential mining related ground water impacts will inherently be minimized by limited ground water occurrence and low overall permeabilities. While both mining related surface and ground water impacts are expected to be minimal, a complete evaluation of potential hydrologic impacts must consider the larger area over which any mine related impacts could combine with other unrelated environmental impacts to produce a cumulative adverse impact.

For potential ground water impacts, the cumulative impact area includes the permit area along with any upgradient areas which could be impacted by mining related drawdown and downgradient areas which could be impacted by any mining related changes in ground water flow volumes or ground water quality. Given the characteristic low permeability of the geologic sequence, the limited volume and flow of ground water, and the consistently flat dip of the geologic units to the northeast, the ground water cumulative impact area can reasonably be defined by Mud Creek on the west, Miller Canyon to the north, Long Canyon to the east, and the headwaters of UP Canyon on the south. Other activities which could result in possible contributing ground water impacts within this area are believed to be limited to contributions from existing abandoned underground mine workings.

Any drawdown of perched aquifers would occur either immediately above the underground mine workings or within the limits of subsidence, both of which are believed to be encompassed within the permit area boundary. Given the unconfined nature, overall low permeability, and limited storage and flow volume of the regional aquifer within mined zones, potential mining related drawdown is expected to be negligible. Interruption of groundwater flows should be minimal to non-existent based on the general lack of water encountered during exploratory activities associated with this mine permit. No known potential upgradient effects are projected for the direct permit area since 1) bedrock dips to the east-northeast with no upgradient source beyond the surface mine facilities themselves, and 2) potential mine impacted surface waters associated with Mud Creek flow west of the permit area and will bypass the mine without direct contact or impact.

Any potential downgradient mining related ground water impacts would be most pronounced

within and immediately adjacent to the actual area of underground mining disturbance with these impacts becoming less pronounced with increasing distance from the impact source due to the effects of ground water contributions from adjacent areas and consequent mixing, dispersion, and dilution. The area which would be affected by the mining activities is relatively small when compared with the overall regional ground water basin and low permeability combined with relatively flat gradients will effectively limit downgradient ground water movement. Water quality should not be affected as a result of mine development because the existing stored mine water as well as water which will accumulate in new mine workings is regional groundwater. Potential downgradient mining related ground water impacts would, therefore, be confined to a relatively limited downgradient area which is expected to fall within the cumulative impact area as defined above.

**R645-301-726 Modeling**

Modeling techniques used for this permit application were used based on ground and surface water sampling data.

Modeling of the probable regional groundwater table was accomplished utilizing the available groundwater data that include SWL's from CR-06-09, CR-06-03ABV, CR-10-11, CR-10-12 and the limiting data provided by the elevation of screened intervals in the dry monitor wells CR-06-01BLW, and CR-06-05A. Additional data was gleaned from the 3D position of the perennial reaches of Mud Creek and Miller Creek, together with the baseline water level provided by Scofield Reservoir. It was assumed that the perennial reaches must be receiving flow from the regional water table.

Piezometric surface modeling was accomplished with SURVCAD software using the triangulation interpellator and a 500 ft. grid size. This large grid size was required to span the large distances between data points which produced a very smooth surface (Following the rule of the larger the gaps the smoother the maps.) Using the perennial reaches of the two streams as primary data, the first pass surface from those data fit the SWL's from the monitor wells rather nicely. However, it did not account for the obvious warps in the surface created by the partitioning effect of the gouge in the major faults. In an attempt to construct a rough approximation of the complexity introduced by faulting, the model had to be made in two parts. One; east of the west boundary fault of the Eagles Canyon Graben, and Two; west of that same fault. This allowed accommodation of the upper elevation limits provide by CR-06-01 BLW and CR-06-05A west of this fault. Synthetic data had to be created in the form of 3D lines to force the model to butt against the fault in an appropriate manner rather than create a bulls eye at the two dry monitor wells. The approximation worked reasonably well but, accommodating all of the available data and modeling the partition formed by the western boundary fault of the Eagles Canyon Graben. Clearly this model is a crude approximation of the real piezometric surface may be an apparent coincidental fit when in fact the piezometric surface is actually more strongly partitioned than the model shows. Of course, there are other faults as large as the Western Boundary of the Eagles Canyon Graben that should have similar effect on the model. Data are simply insufficient to detect those nuances.

This model requires that only certain large faults have sufficient gouge to partition the peizometric surface and that others leak ground water allowing it to flow from high gradient, near Long Canyon recharge area to Scofield Reservoir. The model also requires

that there are no stratigraphic units in the local packet that are capable of acting as true aquacludes, but only aquitards.

The only other obvious competing model of groundwater flow would be a flow to the North North-East down the regional dip. This model would require that several stratigraphic units in the local packet must act as aquacludes, and the groundwater to flow beneath higher elevations that might be recharge area. This model would also require a complicate, thus far unknown, mechanism to account for the perennial reach of Miller Creek. It is difficult to visualize how a North East dipping confined water table could provide enough recharge to the perennial reach of Miller Creek to account for the flow. As additional monitor wells are completed, particularly south and east of monitor well CR-06-09, the model will become much better understood.

### R645-301-727 Alternative Water Source Information

The surface mining activities are not expected to cause proximate contamination, diminution or interruption of any underground or surface source of water. As discussed previously, mining operations are not expected to have any significant adverse impacts on the prevailing hydrologic balance, existing water resource or water rights. Furthermore, the potential impacts of mining on ground water systems (dewatering of accumulated water, solute leaching, and solute transport) will not result in any measurable effect on surface water or ground water rights nor will the potential impacts of mining on surface water systems (increased runoff, erosion and sediment load, salt loading and changes in ion balance) cause measurable injury to surface water rights. In the unlikely event that proximate contamination, diminution, or interruption does occur, CEG3 will acquire or purchase surface and or ground water rights or supplies from local sources including Scofield Reservoir to replace impacted water rights.

### R645-301-728 Probable Hydrologic Consequences Determination

In order to assess the probable hydrologic consequences of the planned mining and related activities CEG3 has reviewed and evaluated all available information on baseline hydrologic conditions as presented and described in R645-301-711 - 727, Hydrologic Information, in order to accurately characterize the existing surface and ground water environments. Within the context of the existing hydrologic conditions, CEG3 then considered potential hydrologic impacts, both positive and negative, which could occur as a result of the planned mining and related activities based on the operation and reclamation plans presented in R645-301-230 – 252, 330, - 358, Operating Plans and Design Criteria, and R645-301-323– 400, 327, 240 – 244, 341, 342, 352, 353, 356, 357, 358, 511, 512, 515, 541, 542, 553, 760 - 765, Reclamation Plans. Both direct and indirect mining related impacts were identified and evaluated and the effectiveness of operational protection and control measures and reclamation activities in mitigating potential impacts were considered in the assessment of probable hydrologic impacts. The following sections present summary descriptions of the probable hydrologic consequences of the planned Kinney mining and related activities.

Detailed discussion of surface and ground water occurrence, quality, use, and relationships is presented in R645-301-710, 721, 724 - 728, Hydrologic Information. The following briefly summarize general surface and ground water conditions as a reference for the discussions of probable hydrologic consequences which follow in the subsequent sections.

**Ground Water Baseline Conditions**

Ground water resources in the permit and adjacent areas are limited in both extent and quantity. Ground water occurrences are limited to; 1) Shallow alluvial/colluvial valley fill deposits in valley areas west of the mine and in area drainages overlying mining zones east of the surface disturbance area; 2) Potential perched ground water occurring in thin laterally discontinuous sedimentary units in the Blackhawk Formation, and adjacent to faults 3) Ground water which has accumulated over time in existing underground mine workings; and 4) a regional water table aquifer occurring in the deeper portions of the Blackhawk Formation and extending into the underlying Star Point and Mancos Formations.

Ground water movement is limited by generally low transmissivities, the lack of significant secondary permeability, and limited recharge due to arid conditions, limited outcrop exposures, and relatively mountainous terrain. While volumes of water may have accumulated over time in abandoned underground mine workings, mine inflow rates are expected to be relatively low.

Only limited ground water quality data is available due to the general dry nature of the explored geologic units. Three of the four groundwater monitor wells completed in the Hiawatha Seam, the seam to be mined, are dry and ~~one~~ three of the ~~two~~ four groundwater monitor wells completed below the seam to be mined (CR-06-01BLW, WNR-2012-7 and WNR-2012-7BLW) is dry demonstrating that the Hiawatha Seam is over 150 feet above the regional groundwater table in the permit area Table 6, Kinney #2 Mine Baseline Monitoring Stations. Data from Sulfur Spring, Angle Spring and Well CR-06-03-ABV show similar calcium bicarbonate water qualities (see Map 10, Regional Water Quality), a moderately alkaline pH, and moderate to low TDS concentrations. Ground water use is limited to isolated use of perched ground water issuing from springs or seeps for stock watering. Water quality data from WNR-2012-5 and WNR-2012-8, which are outside of the permit area, indicate a higher presence of sodium and potassium bicarbonate and appear to be unrelated to water within the permit area.

**Surface Water Baseline Conditions**

Other than Mud Creek and Scofield Reservoir, surface water resources in the permit and adjacent areas are limited. The principal perennial drainages located adjacent to the permit area include; 1) Mud Creek, the principal drainage in this area and Miller Canyon, both tributary to Scofield Reservoir. Some ephemeral drainages occur within the permit area, most if not all of which normally exhibit flow only in response to spring snowmelt and high intensity thunderstorms.

Surface water quality is typical of mountainous regions of the western United States exhibiting chemical characteristics including calcium bicarbonate types with neutral to moderately alkaline pH, and moderate to moderately high TDS and TSS values. Quality of Mud Creek does not fit this profile well and It is believed that water quality within Mud Creek is influenced by surface mine operations and mine discharges within Eccles Canyon (Map-10). Seasonal flow increases or peak flow resulting from storm events tend to dilute geochemical constituents concentrations while during low flow periods these concentrations tend to increase. Surface water uses in the general area are mostly used for agricultural and recreational use, however surface waters are also used downstream for culinary and industrial purposes. All surface water use is outside the permit area boundaries except for water right 91-4026 located at the extreme eastern edge of the permit area. This right is a pond with associated spring source and is used for domestic stock watering during the limited summer and fall seasons. More information on surface water resources is presented in R645-301-724 - 728, Surface Water Information.

Given the general absence of both aquifers within the permit or adjacent areas which can be

characterized as significant water supplies and significant recharge areas, the potential for adverse water supply impacts due to mining related subsidence is negligible. Mining may result in drainage of small perched ground water occurrences and localized increases in mine water storage, however, the depth of mining, limited coal seam thickness and specific mine design which calls for first mining only provides effective protection for area drainages and associated alluvial/colluvial aquifer systems.

The hydrogeologic characteristics of the coal-bearing Blackhawk and overlying formations will effectively limit the extent of impacts to the hydrologic system as a result of new mining. Therefore, impacts from the mines will be of local, as opposed to regional, significance. Potential impacts to the hydrologic resources are discussed further below.

Mining activities may result in the following potential localized, temporary effects on the surface and ground water environments:

**Stream Flows and Surface Water Quality**

Mine related surface development will result in removal of vegetation and soils, grading, paving and other surface alterations which may increase surface runoff and sediment transport from the disturbed areas. During construction, development, and active operations, runoff and sediment will be controlled through the use of temporary diversion and collection ditches, berms, sedimentation ponds, and appropriate alternative sediment control measures. Increased runoff amounts will be buffered to some extent by temporary containment in sedimentation ponds but some minor temporary increases in discharge to stream reaches downgradient of surface disturbance areas is anticipated. Following completion of active operations, surface disturbance areas will be reclaimed with the objective of reestablishing baseline drainage conditions. Runoff and sediment control structures will remain in place until this objective is achieved.

The only site available for construction of the required mine facilities is a very limited area adjacent to and east of Highway 96. As a component of the overall mine development plan, CEG3 proposes to convey one short segment of "Jones Draw "an ephemeral drainage near the south end of the mine site beneath the mine surface facilities via the construction of a bypass culvert. The diversion will protect natural drainage flows upstream of the disturbed area, thus preventing or minimizing potential runoff degradation. Upon mine abandonment, the culvert will be removed, the area regraded, and the stream channel restored as closely as possible to current conditions within the constraints of site conditions and practical construction capabilities.

With the exception of the temporary conveyance of the "Jones Draw" channel discussed above, underground mining activities are not expected to result in any impact on the alluvial/colluvial aquifer system. Recharge areas for the alluvial/colluvial system will not be affected, and CEG3 plans to avoid full extraction under any of the local drainages. Underground mine development and mining operations may intercept perched aquifers, but are not expected to intersect the regional ground water system. Resulting impacts on stream flow are not anticipated since flow contributions from the perched ground water systems represent only very small flow potentials.

Surface runoff from mining related disturbance areas has the potential to impact surface water quality. As noted in the preceding section, surface runoff and associated sediment loading will be effectively addressed through operation of engineered drainage and sedimentation control

structures and site reclamation. During active mining operations, the limited underground mine drainage encountered will be controlled using sumps at the face, transfer pumps and pipelines wherein the water will be pumped to a section sump where the water will be allowed to settle and it will either percolate back into the groundwater system or be reused for dust suppression. The surface discharge of mine water is not anticipated.

Given that the proposed mine workings will be down-dip from the mine portals, any upgradient workings will drain to the lower workings. History has also shown that there has been no direct surface discharge from inactive mine workings locally. Given the anticipated mining depth and configuration of the proposed mine workings, it is anticipated that the ultimate equilibrium water level in the mine workings (if any) will be below any potential mine discharge point.

There have been some indications in other local and regional mines that the interception and accumulation of ground water in underground mine workings limits percolation of the water through the underlying sediments, preventing further contact with underlying shales and resultant increases in TDS. Given this consideration, mine water accumulations and any associated lateral ground water movements through the geologic sequence to a surface discharge point may actually result in an overall enhancement of downgradient water quality. Since the coal seams dip to the northeast and become increasingly deep with no outcrops on the east side of the mining area, there is little or no potential for mine water to impact water users.

**Ground Water Occurrence, Movement, Discharge, and Quality**

Underground mine development and operations, and related surface disturbances are not expected to significantly impact ground water recharge areas given the limited extent of anticipated surface disturbance. There is also little to no potential for minor, localized, mining-related impacts on the alluvial/colluvial ground water system (as discussed previously), localized impacts on the perched ground water system, increases in the amount and areal extent of stored ground water, and limited short-term impacts on the regional ground water system.

Mine development entries may intercept limited water-bearing members of the perched ground water system. These activities could increase vertical permeability and result in localized drainage of perched ground water resources. However, given the limited thickness and areal extent, storage capacity, and transmissivity of most of the perched ground water occurrences, direct mining-related impacts resulting from interception by development or mine workings are anticipated to be very localized with relatively low flow rates and total flow volumes. Similarly, loss of ground water from the perched ground water system due to rock fracturing would be a localized phenomenon.

Development of mine workings and subsequent coal removal is not expected to directly impact the regional ground water system. If the regional system is encountered during mining, the void spaces and resultant mine inflows created would provide for the accumulation of storage of ground water. Impacts on the regional ground water system in this case would be expected to include a localized, temporary, depression of the potentiometric surface and localized reduction of ground water volumes and flow rates in effected portions of the regional aquifer zone as the mine workings are flooded to the level of the regional piezometric surface. As noted in the previous section, ground water accumulations are not expected to result in direct mine water discharges. Instead, under such conditions, gradual accumulations of ground water would reach an equilibrium point with the regional ground water system with no significant long-

term effects.

The primary potential mining-related impact relative to ground water quality would be an increased oxidation potential in the void spaces resulting from mine development and coal extraction.

## Potential for Adverse Impacts

### Ground Water Impacts

Unlike many local mines, ground exploration in and around the proposed Kinney No. 2 Mine has encountered only limited amounts of water, indicating the presence of very limited ground water resources. Although some limited water was reported during drilling, it appears that all but three of the wells drilled within the proposed Portal Block permit boundary are dry. This conclusion was reached based on the observation that the reported water levels within many of the wells remained below the top of the lowermost blank section following bailing. The lack of water level change since that time has shown that there have been no inflows into most of the wells, thus indicating that wells CR-06-01 CR-06-01-BLW, CR-06-02, CR-06-02-ABV, and CR-06-05A are dry. Table 8, Well Conditions as of December 2010 and February 2011 (CR-10-11 & 12) March 2011 (CR-06-02), updated for the WNR-2012 wells to August 2018, has been inserted to show the location of the water level in each well in reference to the bottom of the lowermost screen. The locations of these wells are shown on Map 7, Regional Hydrology.

Data within Table 8 also show that only minor water level variations have been noted for well CR-06-09-BLW for water that was encountered within zones below the coal seam. Mining is not anticipated to impact any water or aquifer zone below the coal seam.

Five wells (CR-06-03-ABV, CR-06-09, and CR-06-09ABV, CR-10-11, CR-10-12) show the presence of water above the Hiawatha Coal Seam. The first of these wells is located within the Eagle Canyon drainage, and was abandoned due to property and easement restrictions. The CR-06-09 wells are located along the ridgeline between Eagle and Long Canyons. It will be noted that CR-06-03-ABV encountered water above the Hiawatha Coal Seam only because this hole is located in the Eagle Canyon Graben which dropped the Hiawatha Seam below the regional water table. CR-06-09 lies nearly a half mile NE of the permit boundary and in an area where the elevation of the Hiawatha Seam is lower than the elevation of the peizometric surface Map 7, Regional Hydrology. Similar to CR-06-03AVB, monitor wells CR-10-11 and CR-10-12 are completed above the Hiawatha Seam because the Hiawatha Seam has been dropped down nearly 600 feet by faulting. Water encountered within the mine is expected to be limited to the draining of localized perched zones.

It is fully anticipated that mining operations will have little if any impacts on the ground water hydrologic balance. This conclusion is reached based on the fact that limited ground water was encountered during drilling and that a significant number of the wells are dry. The area appears to be strongly influenced by localized confining layers that have the ability to create perched aquifers which overly the regional ground water aquifer shown on Map 7.

It is unlikely that the limited water encountered within well drilling operations is sufficient to provide any significant source for the local seeps and springs identified in the survey completed

by Rock Logic, Consulting, LLC in 2006.

Noting that Monitor Wells CR-06-01, CR-06-01 BLW, and CR-06-02 are dry and that the base of the well screen in the lowermost of these holes, CR-06-01-BLW is 7,697.1 feet msl thus providing an upper bracket of maximum water elevation that, with the exception of Sulfur Spring, is greater than 200 feet below the lowermost spring elevation (Angle Spring ~7,940 ft msl) in near enough proximity to be affected. The fact that well levels are so much lower than the springs, that the wells are dry, and that the springs are located in the Eagle Canyon Graben where no mining is planned supports the "no impact" by mining conclusion.

The majority of water resources including seeps, springs and ponds noted within the seep and spring survey are located east of the permit area within Long Canyon and its tributaries. Three small seeps, one small spring, and two ponds are located within the eastern portion of the permit area are located within Eagle Canyon. A review of the mine portal elevation and the location of these springs indicates that there will be in excess of 500' of cover over mine workings, and hence there will be little potential for spring disturbance. As indicated earlier, mine workings dip to the east, increasing cover as the mine advances. As such, mine workings will have even less potential to impact surface water resources further east in Long or Miller Canyons.

It is further anticipated that no impact to the local surface or ground water systems west of the mine will occur due to 1) the general lack of water encountered during drilling and 2) the fact that the regional ground water aquifer is located beneath the majority of all proposed mine workings.

Surface and ground water hydrologic systems may potentially be impacted by mining, processing, and related operations. These impacts are not expected to be significant, will not affect either surface or groundwater users, and are expected to be localized and temporary in nature. Operational mitigation measures and reclamation of disturbance areas will result in effective restoration of surface and ground water conditions similar to those existing prior to initiation of the Kinney mining and related disturbance.

**Ground Water Consequences**

CEG3's planned mining, processing, and related activities have the potential to cause localized and temporary impacts to ground water. These potentials, although likely limited ground water hydrologic consequences include:

- Alterations of local ground water flow patterns
- Drainage of seeps/springs (If this occurs it is likely to be temporary)
- Alterations of recharge/storage/discharge relationships
- Localized increases in concentrations of TDS and certain individual chemical constituents

Mining related probable hydrologic consequences for ground water resources in the Kinney Mine permit area will be limited by the lack of significant ground water recharge in the area, the general lack of ground water identified during exploratory drilling, the presence of low permeability geologic strata between the coal seams to be mined and the ground surface, the general lack of significant regional ground water movement, and very limited beneficial ground water use in the permit and adjacent areas. Probable ground water consequences are discussed in the following sections.

Based on known and projected hydrogeology, there appears be to little potential for encountering significant volumes of in-mine water. Because in-mine waters are anticipated to be small, the mining operation anticipates using said water for dust suppression without mine discharge. However, to plan for a contingency of larger flows, the following potential alternatives will be reviewed and evaluated. The most appropriate method will then be proposed to the regulatory agencies for review and approval.

**Discharge to Abandoned Mine Workings**. Plans and permits would be filed to the regulatory agencies for approval to discharge encountered in-mine waters to remote or abandoned mine workings. This might involve the drilling of a conveyance system from new mine workings to remote or abandoned workings, or the connection of said workings through conventional mining methods.

**Shallow or Deep Well Injection.** Shallow or Deep Well Injection alternatives for the disposal of in-mine waters will be considered, but is not anticipated to be a selected alternative due to time required for investigations and regulatory constraints.

**Treatment and Discharge to Mud Creek**. The option to treat and discharge waters to Mud Creek will be considered. If chosen, plans and permits will be coordinated with the appropriate regulators before implementation.

**Discharge to Holding/Evaporation Ponds**. Discharge to surface holding and evaporation ponds will be considered, but is believed to be a non-viable alternative due to climatic conditions at the mine site, and the likely required size of said pond. If chosen, however, plans and permits will be coordinated with the appropriate regulators before implementation.

Alterations to Ground Water Flow Patterns - Although mining is not expected to enter a regional aquifer system, alterations of ground water flow patterns will occur as a result of underground mining excavation and consequent drainage of localized perched aquifer systems resulting from subsidence fracturing. Mining operations therefore have the potential to induce ground water flow into the underground workings as the hydrologic system adjusts to mining. A shift in ground water flows toward the mine workings will occur when perched aquifers are intercepted, thus altering existing ground water storage and flow patterns. This may result in partial or full drainage of the perched aquifers and may affect the discharge of springs and seeps. Impacts on perched aquifers and associated springs and seeps due to secondary subsidence effects are not expected to be significant since only very limited ground water was encountered during exploratory drilling, and the perched aquifers are believed to be very limited in aerial extent. Captured flows will thereafter flow down dip within the mine, and serve as a source of recharge within mined sections to the adjacent environment.

Upon completion of operations and final mine reclamation and closure, it is expected that the underground workings may partially fill with water encountered during mining, resulting in the re-establishment of a stable and ongoing hydrologic environment. No significant changes (if any) in the regional potentiometric surface are expected to occur since the regional ground water aquifer is believed to be below target mining zones. Reductions in the quantity and availability of ground water as a result of alterations to the ground water flow patterns are expected to represent only a minor percentage of total ground water flows within the region or basin and will be limited in areal extent.

In addition, reductions in groundwater flows are not expected to adversely impact ground

water users since, as is shown on Map 30, Ground Water Right Locations, there are no ground water rights shown in the vicinity of the mine permit area. Primary beneficial ground water uses in the vicinity of the permit area are all concentrated along the south eastern shoreline of Scofield Reservoir, and likely take water from the shallow ground water - surface water interface adjacent to the reservoir. With stratigraphic units dipping to the east, these locations are effectively hydraulically isolated from potential mining impacts. Potential impacts to springs and seeps discharging from the perched aquifer system are discussed below.

Drainage of Seeps and Springs - Kinney No. 2 Mine mining activities may result in some drainage and dewatering of overlying perched ground water aquifers as a result of vertical seepage through mining related fractures. Consequently, springs and seeps discharging from the stratigraphic units containing the perched ground water may be effected. CEG3 will attempt to minimize fracturing to the extent possible while maximizing recovery of available coal resources. Fracturing will be controlled through the maintenance of barrier pillars, limiting extraction to first or development mining, and proper mining and roof control design and operations practices. Effective control of fracturing will limit stress on the overlying strata and the consequent potential for drainage through fractures. Additional discussion of potential mining effects is presented in R645-301-522, 523, and 525, General Description of Mine Plans, Mining Methods, and Related Design Requirements, under the subheading of Subsidence Control.

If discharge from seeps or springs is documented to decrease below historic conditions as a result of mining related activities, CEG3 will mitigate these impacts through the purchase of and subsequent augmentation of effected water rights, monetary compensation, development of alternative watering facilities such as guzzlers, or other appropriate mitigation measures.

Alterations to Recharge/Storage/Discharge Relationships - CEG3's planned mining, processing, and related activities are not expected to have any significant long-term effect on recharge, storage, or discharge relationships. As described in R645-301-710, Hydrology Information, recharge within the ground water basin occurs primarily as a result of direct precipitation and infiltration. CEG3's operations are both limited in areal extent and are not located within any major recharge area, nor are mining operations expected to interfere with existing stored mine water in adjacent abandoned mines. Upon completion of operations and mine reclamation and closure, ground water will accumulate in the mine workings, thereby increasing localized ground water storage. Discharge relationships are also expected to be minimally effected with some temporary reduction in downgradient ground water flows during filling of the underground mine workings and re-establishment of a hydrologic balance, as well as localized alterations in ground water flow patterns. The quantity of ground water discharge which will be effected is a relatively small percentage of the total volume within the ground water basin.

Increases in Chemical Constituents - As ground water encounters freshly exposed subsurface materials in the mine, oxidation and weathering will cause changes in ground water chemistry including increases in TDS and the concentrations of individual chemical constituents. Over time these increases will stabilize and start to decrease as available soluble chemical constituents are depleted and chemical concentrations in the mine water and the exposed rock reach equilibrium. Any filling of the mine workings by perched ground water would also have a beneficial water quality effect, displacing oxygen and reducing the oxidation potential in any flooded abandoned workings.

As described in R645-301-710 - 724, Hydrology Information, ground water in both the Kinney Mine permit and adjacent areas is a calcium bicarbonate chemical type. Increases in both sodium and sulfate may occur within the mine, although they are not expected to change the ground

water type. While various chemical constituents of the ground water may increase as a result of mining, these increases will not affect ground water use. Due to the limited volume of ground water drainage relative to total flows within the ground water basin, minor changes in ground water chemistry and levels of certain constituents are not expected to significantly effect overall ground water quality.

**Surface Water Impacts**

The proposed Kinney No. 2 Mine and related surface facilities are confined to a very small area or footprint. The surface facilities plan has been developed to consolidate the disturbed surface area into as small a space as possible, utilizing a series of pads to contain needed infrastructure. Impacts are limited to:

- Control of runoff and erosion within the disturbed permit area. When it occurs, historical runoff is generally noted as either sheet flow or small concentrated flow within ephemeral channels. Because of decreased vegetation which results in higher runoffs, it is anticipated that total runoff volume will increase slightly from historic conditions. Operational runoff will be contained and controlled via a series of ditches, culverts, a sedimentation pond, and alternate sediment control methods. In general, it is anticipated that better runoff controls, resulting in less sediment leaving the site, will exist during mining than pre mining.

- Surface water from undisturbed areas historically ran downhill to the highway, then flowed parallel to the highway until culvert(s) were encountered wherein the water could cross the highway and continue its path toward Scofield Reservoir. Runoff during operational mining will work in very much the same way with only minor exceptions. First, runoff from areas immediately above the permit area will be diverted by a non-mine access road and two undisturbed area drainage ditches (UDD-1 and UDD-2) which will parallel the eastern permit boundary. Water collected by UDD-1 will flow to the north until it joins UDD-2 which directs water from the north. Water from both undisturbed drainage ditches are then combined and conveyed via culvert UDC-2 through the mine area and discharged to an inlet of an existing highway culvert. From there, undisturbed drainage water is combined with pond discharge water, and conveyed via an existing 36" culvert (CP2) beneath the highway before continuing toward Scofield Reservoir.

- The last minor change involves the construction of an undisturbed area bypass culvert UDC-1 which will convey potential runoff from upland areas, beneath surface mine facilities and the highway, into the Scofield Reservoir drainage system west of the highway.

- Water quality impacts are projected to be similar to other local mine working operations. Historical runoff, and hence quality impacts has been sporadic as evidenced by limited and weathered upland channels. In similar nature, it is anticipated that impacts to water quality will be minor, and limited to major runoff events wherein runoff is sufficient to result in a water discharge from the sedimentation pond. Discharges during these potential extreme events are expected to be in compliance with regulations thus resulting in minimal, if any, negative water quality impact due to mining.

**Surface Water Consequences**

CEG3's planned mining and related activities have the potential to generate temporary impacts to surface water resources. These impacts will typically be localized, being confined to those segments of area drainages directly impacted by mining activities, although in some cases impacts may have the potential to also effect downstream drainage areas. The primary mining related activities which may specifically impact surface water resources include:

- Temporary increases in runoff from surface disturbance areas
- Minor reductions in surface flows and alteration of surface flow patterns due to operation of the sedimentation structure
- Changes in surface water chemistry
- Increases in the levels of TDS, TSS, and certain individual chemical constituents

In general, probable hydrologic consequences for surface water resources resulting from CEG3's mining operations will be limited by the relatively small surface disturbance area near the town of Scofield, and will be effectively mitigated by operation of the drainage and sediment control system and ultimate reclamation of mine disturbance areas. R645-301-521, Affected Areas and Timing of Disturbance, describes the extent of proposed mining related surface disturbance. Probable surface water impacts and their significance relative to the hydrologic system are discussed in the following sections.

Temporary Increases in Runoff from Surface Disturbance Areas - Proposed new mining related surface disturbance will be limited to the mine facilities areas and will involve removal of vegetation and soil/substitute materials and grading of disturbance areas for specific mining related uses. These disturbance activities will reduce infiltration potential and evapotranspiration due to elimination of vegetation and will increase surface runoff and erosion potential. In order to effectively control erosion and increased runoff from disturbance areas, CEG3 will divert runoff from undisturbed upgradient areas around the area of mining disturbance, grade disturbance areas to minimize runoff and erosion, and collect runoff as close as possible to its source and route it to a sedimentation pond for retention and settlement of suspended solids prior to discharge to natural drainages. CEG3 will control and mitigate potential increased runoff from surface disturbance areas using a number of commonly accepted surface management and drainage control practices. Specifically, disturbed areas will be graded to minimize runoff and to the extent operationally feasible surface flow velocities will be controlled through the use of appropriate surfacing materials and runoff will be collected as close to disturbance source areas as possible to minimize erosion and increased sediment loading.

In addition to specific drainage control practices, CEG3 will effectively minimize the area of surface disturbance by keeping all surface facilities within a relatively limited area. Provisions for minimizing mine related surface disturbance are detailed in R645-301-521, Affected Areas and Timing of Disturbance. Increases in runoff from disturbance areas may result in minor increases in stream flows for the receiving drainages, however, any increases will not be significant given the very limited area of surface disturbance relative to total drainage basin areas for the potentially effected drainages. Potential flow increases will also be partially mitigated by operation of the sedimentation pond which will retain disturbed area runoff providing some buffering effect.

As documented in R645-301-731 and on Figure 35, Pond 1 Stage-Volume Curve, total runoff volume for the 10-year, 24-hour storm event for mine facilities disturbance areas is approximately 2.03 acre feet (3.15 acre-foot – 1.12 acre-feet sediment storage). Comparing this runoff volume with a calculated total average annual runoff volume of 6,500 acre feet for the receiving drainage of Mud Creek, it is evident that total runoff from the disturbed area, even under storm conditions, constitutes a relatively small portion of total watershed runoff.

On completion of mining operations, disturbed areas will be reclaimed. Reclamation will involve backfilling and grading, re-establishment of natural drainage patterns, soil/substitute replacement, and re-vegetation. It is anticipated that reclamation will effectively restore infiltration and runoff patterns to approximate the baseline conditions currently existing for the surface disturbance areas.

Minor Reductions in Surface Flows and Alteration of Surface Flow Patterns Due to Operation of the Sedimentation Structure - Although sedimentation ponds are integral to mitigating mining related impacts on the surface hydrologic system, operation of sedimentation ponds tends to reduce discharge flow volumes and extend the period of effective flow for runoff from both snowmelt and thunderstorm events. In effect, sedimentation ponds function as limited capacity flood control structures reducing the effective discharge rate for large volume flows through temporary storage and flow routing. The sedimentation pond is designed to gradually release impounded runoff following required retention for sediment control. Given provisions for retention and gradual discharge of retained storm flows, most of the runoff is returned to the surface drainage system with only a short lag time corresponding to the design retention time for the pond.

Operation of the drainage and sediment control network, and specifically the sedimentation pond that retain runoff from disturbance areas, has the potential to alter flow patterns in receiving drainages. Because the Kinney Mine operations are located in a relatively arid climate, runoff contributions to most of the drainages occur only as a result of snowmelt and large storm events. As previously noted, the retained runoff volume for the sedimentation pond represents a relatively small percentage of normal flow volumes for the receiving drainage, and should not adversely impact flow volumes even during low flow periods. Additionally, operation of the sedimentation structure will not result in significant discharge delays since the maximum design detention time is only 24 hours for the design storm runoff volume and discharge will be occurring continuously once the pond level reaches the discharge orifices.

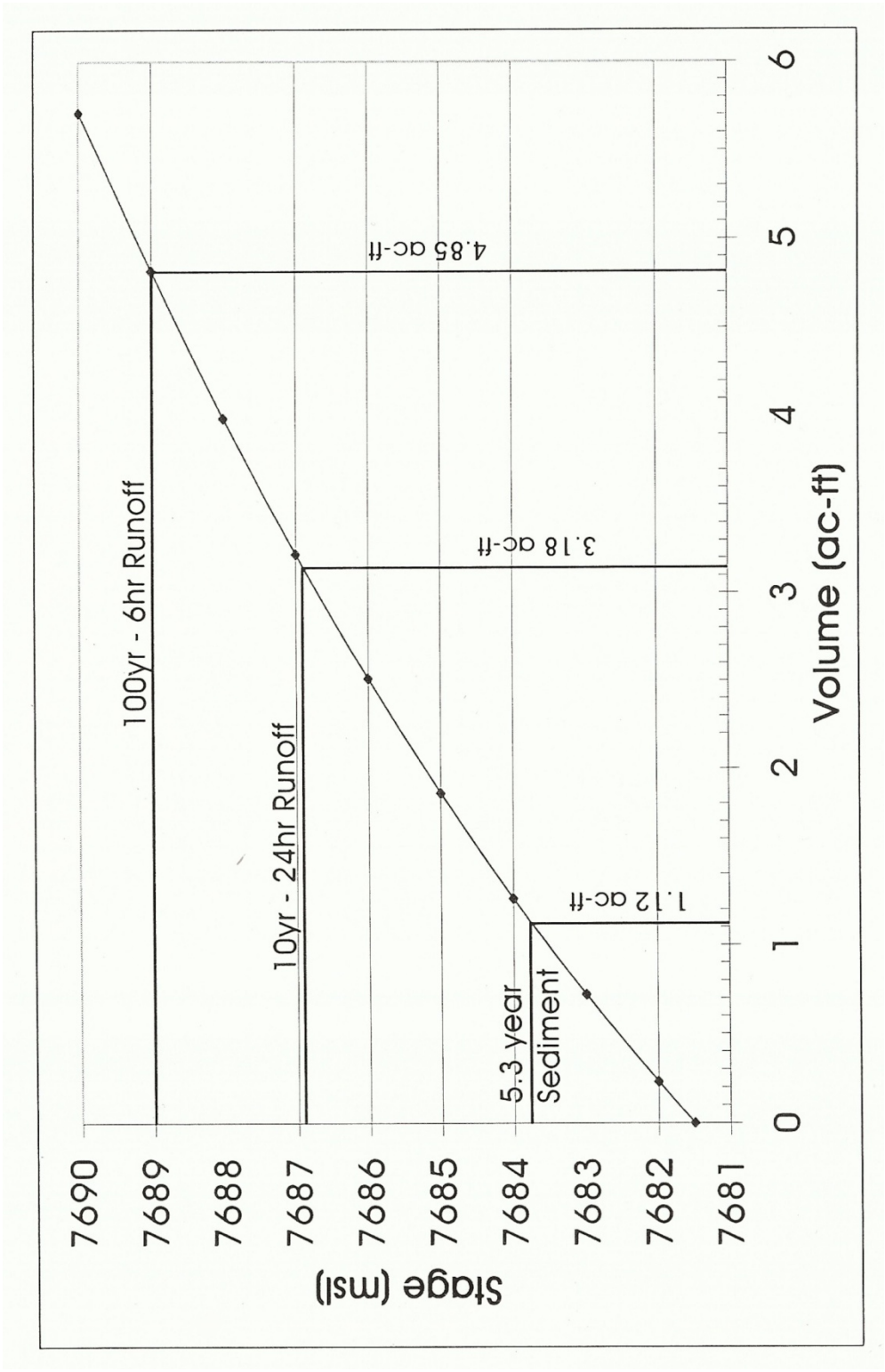
The pond has been designed such that discharge structure is above the design sediment level and any runoff accumulations in the pond below this discharge elevation will be retained in the pond as dead storage (note that dead storage will not effect pond capacity since the design sediment storage capacity is being utilized for dead storage). Similar to the pond capacity comparison discussed previously, the design sediment storage volume available for temporary runoff storage represents a negligible amount relative to area stream discharge volumes and so does not constitute a significant potential flow reduction.

Changes in Surface Water Chemistry - Exposure of surficial materials by mining related surface disturbance and contact of disturbed area runoff with these materials may result in changes in runoff water chemistry. Surface water in the mine area is almost exclusively a calcium bicarbonate type. The most probable potential change in runoff water chemistry would be a shift from a strong calcium bicarbonate type toward a sodium sulfate type due to the weathering and leaching of exposed surface coal materials.

CEG3's proposed surface drainage and sediment control measures, specific limitations on total surface disturbance, and the collection of disturbed areas runoff as close as reasonably feasible to the disturbance source area, will be effective in limiting runoff exposure to surficial materials and consequent leaching. The fact that none of the materials which will be exposed, including overburden, soils, coal refuse, and mine waste materials, have been conclusively documented to be potentially acid or toxic forming is an important factor which will also limit the potential for any significant changes in surface water chemistry. While minor changes in runoff water chemistry may occur as a result of mining and related operations, limited surface disturbance areas and corresponding limited disturbed area runoff volumes will minimize any potential for significant changes in water chemistry for the receiving drainages since disturbed area runoff flows will be buffered by significantly greater volumes of normal runoff from adjacent drainage basin areas.

Increases in the Levels of TDS, TSS, and Individual Chemical Constituents - Similar to the potential mining related impacts discussed above relative to surface water chemistry, contact between disturbed area runoff and surficial materials exposed to weathering and oxidation, may result in increases in TDS and individual chemical constituents in surface runoff flows. In addition, one of the natural consequences of surface disturbance and the minor erosion which results will be increases in sediment loading and TSS levels for the disturbed area runoff. Surface water in the mine area is generally neutral to moderately alkaline with low to moderate levels of TDS, TSS, sulfate, iron, and phenols. Mining and related activities will probably not result in any significant change in surface water pH although TDS, TSS, and sulfate levels may increase slightly in the disturbed area runoff. The same considerations and mitigation measures previously discussed for potential changes in surface water chemistry are also applicable for potential increases in TDS and individual chemical constituents. Potential increases in TSS levels will be effectively addressed on a short-term basis by establishment and operation of the drainage and sediment control system and compliance under the required UPDES permits with applicable monitoring requirements and discharge effluent limitations. Reclamation and restoration of effective surface drainage conditions will address all potential mining and related surface water impacts over the long-term.

**Figure 35. Kinney Mine Sedimentation Pond 1 Stage-Volume Curve**



## R645-301-729 Cumulative Hydrologic Impact Assessment

Ground water impacts resulting from the planned mining and related activities will be minimal due to limited ground water occurrence, low overall permeabilities and consequent limitations on the effective area of influence, and the lack of beneficial ground water use in the area. Similarly, surface disturbance associated with the Kinney mining and related operations will involve such a small area that potential mining related surface water impacts will be negligible. Any potential surface water impacts will be effectively mitigated through effective control of mine water supply withdrawals, operation of a comprehensive drainage and sediment control system, compliance with applicable monitoring requirements and discharge effluent standards under the required UPDES permits, and reclamation of surface disturbance areas and restoration of surface drainage characteristics. In order to fully evaluate potential hydrologic impacts, the cumulative impact of any mining related ground or surface water impacts when combined with potential impacts resulting from other development or land use activities must be considered. Utilizing the information presented in this mining and reclamation plan submittal along with other available information for the general mine area, UDOGM will complete a Cumulative Hydrologic Impact Assessment (CHIA), which on completion will be inserted in Exhibit 17, From UDOGM.

A cumulative impact area for evaluation of potential cumulative ground water impacts will include the permit area along with any upgradient areas which could be impacted by mining related drawdown and downgradient areas which could be impacted by any mining related changes in ground water flow or quality. Given the characteristic low permeability of the geologic sequence, the limited volume and flow of ground water, and the downward dip of the geologic units to the north-east, the ground water cumulative impact area can be defined by the surface disturbance area associated with the mine on the west, UP canyon on the south, Miller Canyon on the north, and Eagle Canyon on the east. Beyond that distance, we believe impacts would be undeterminable. Other activities which could result in possible contributing ground water impacts within this area are believed to be limited to possible contributions from existing abandoned underground mine working in the area.

A cumulative impact area for evaluation of potential cumulative surface water impacts will include the permit and adjacent areas and downstream waters which could be impacted by mining related changes in surface water flows or quality. Given these constraints and the nature of general surface drainage patterns in the area, the surface water cumulative impact area can be defined as a boundary extending on the west from Scofield Reservoir to Eagle Canyon on the east, and from UP canyon on the south to Miller Canyon on the north. There are a number of activities within the cumulative impact area which could result in potential contributing surface water impacts including public access to wildlife and fishing areas, community impacts from the Town of Scofield, private cattle operations and recreation within Eagle, Miller, and other tributary canyons, railroad operations that run along the western border of the permit area, surface runoff contributions from U.S. Highway 96, and mine discharge and surface runoff from historical mining operations in the area.

## R645-301-730 Operation Plan

This section describes plans for protection of hydrologic resources, including surface and ground water quantity and quality, and recharge, storage, and discharge relationships, for the permit and adjacent areas that could potentially be affected or impacted by the proposed mining and reclamation activities. Information in this section was developed in accordance with applicable regulatory requirements (R645-301-700) for coal mine permitting in the State of Utah.

Mining and related activities may result in temporary changes in runoff and infiltration characteristics for surface disturbance areas; additional contributions of sediment to surface runoff; ground water drainage to and storage in underground mine workings; some dewatering of perched aquifers and localized dewatering of the regional water table aquifer due to direct mining and indirect subsidence related effects; minor modification of infiltration and recharge characteristics in subsidence areas; and limited localized changes in surface and ground water chemistry and quality. Based on available information, the potential mining related impacts will be localized, temporary, and will not involve any significant long-term adverse impacts. The hydrologic control and mitigation measures proposed in conjunction with mining and related activities should effectively mitigate any potential adverse hydrologic impacts.

As described in R645-301-710 - 724, Hydrologic Information, Coal Energy Group 3 (CEG3) both researched the extensive existing information on the hydrologic environment of permit and adjacent areas and collected additional supplemental hydrologic information in order to accurately characterize existing conditions and develop an overall understanding of hydrologic systems and relationships. The hydrologic protection plans have been developed with consideration of the resource values and relationships described in R645-301-710 - 724 and CR plans for mining and related activities, as outlined in R645-301-201 - 203, 225, 231, 240 – 244, 312 – 358, 421 – 422, 515, 521 – 537, 632, 642, 700, 760 – 765. Operating Plans and Design Criteria. The plans, therefore, reflect site-specific conditions and the nature and extent of anticipated mining related impacts in order to assure effective compliance with the following applicable regulatory requirements and consistency with overall environmental objectives:

- Minimize disturbances to the hydrologic balance
- Prevent material damage outside of the permit area
- Support the approved post-mining land use(s)
- Comply with applicable provisions of the Clean Water Act
- Meet applicable Federal and State water quality regulations

Detailed discussions of specific potential impacts and proposed control and mitigation measures are presented in the following sections.

### R645-301-728.320 Presence of Acid or Toxic Forming Materials

This issue is dealt with in Chapter 6, R645-301-624.

### R645-301-731.400 Transfer of Wells

Before bond release, exploration holes or monitoring wells will be sealed in a safe and environmentally sound manner as discussed in response to R645-301-738, and 765 in the document. If any well is proposed to be transferred to any other person or entity, CEG3 will seek approval of the Division prior to any transfer. Any transfer will comply with all Utah and local laws, and CEG3 will be responsible for the wells until bond release in accordance with R645-301-529, 551, 631, 738, and 765.

**Contamination, Diminution, or Interruption of Ground or Surface Water Sources with Current Beneficial Use Within the Permit and Adjacent Areas**

Within the Kinney Mine area, only the off-site alluvial/colluvial aquifer system and the perched aquifer systems yield adequate quantities of ground water of suitable quality for beneficial use, and use within the permit area is limited to small scale seasonal stock watering. As discussed in R645-301-710 - 724, Hydrology Description, under the subheading Water Rights and Replacement, and in R645-301-728.310, Potential for Adverse Effects, CEG3's mining and related operations are not expected to adversely impact any surface or ground water rights. Consequently, there is no need to explicitly address provisions for replacement of impacted water rights at this time. In the unlikely event, however, that proximate contamination, diminution, or interruption does occur, CEG3 will mitigate these impacts through the purchase and augmentation of effected water rights, monetary compensation, development of alternative watering facilities such as guzzlers, or other appropriate mitigation measures. The amount of water owned by CEG3 (two shares of Scofield reservoir water rights) is believed adequate to mitigate any potential impacts to beneficial water use as a result of potential consequences to the hydrologic balance. The primary postmining land use in the mine, loadout, and adjacent areas will be wildlife habitat, requiring minimal supporting water requirements, consistent with existing demands. The discussions presented in R645-301-710 - 724, Hydrology Information, indicate that while surface and ground water resources are limited in areas affected by the Kinney Mine operations, they will be adequate in terms of both quantity and quality to support the proposed postmining use.

## R645-301-731 Hydrologic-Balance Protection

**Components of the Hydrologic Protection Plans**

The hydrologic protection plans outline specific measures for the Kinney Mine that will be taken to:

- Avoid acid or toxic drainage
- Prevent additional contributions of suspended solids to area drainages
- Control runoff and erosion
- Protect or replace affected water rights
- Restore approximate pre-mining recharge capabilities

Specific prevention, control, and mitigation measures will include limiting the area of surface disturbance; construction, operation, and maintenance of an effective drainage and sediment control system; controlled collection, storage, use, and recycling of mine drainage; and effective reclamation of surface disturbance areas and restoration of surface drainage patterns. In addition to descriptions of specific hydrologic control and mitigation measures, compliance with specific applicable design standards and requirements are addressed, and potential adverse hydrologic consequences specific to the site are identified in the Probable Hydrologic Consequences (PHC) determination prepared under R645-301-728.

In order to minimize potential mining related impacts to existing hydrologic systems in the permit and adjacent areas, CEG3 has incorporated specific monitoring, operational, and mitigation measures into the mining and reclamation plans for the Kinney Mine. These measures are based on historic and baseline monitoring information for the site, modeling of hydrologic systems, the experience of similar mining operations in controlling hydrologic impacts, applicable regulatory

requirements, and the results of ongoing monitoring programs. Historic and baseline monitoring data have been used to characterize current hydrologic conditions as described in R645-301-710 - 724, Hydrologic Information. During the operation of the mine, monitoring will be performed to determine if any mining-related impacts to the hydrologic balance have occurred and remedial actions taken, if necessary. Measures that may be taken to remediate any mining-related impacts to the hydrologic balance are addressed in the hydrologic restoration plans presented in R645-301-700 - 765, Hydrologic Resource Restoration.

Operational plans for the Kinney mine include standard hydrologic controls and mitigation measures that are designed to prevent significant changes in the quantity and quality of surface and ground water resources, preserve existing hydrologic functions, comply with regulatory requirements, and limit adverse impacts to surface water or ground water users. These measures include:

- Limiting surface disturbance areas
- Proper design, construction, and grading of facilities areas and roads
- Construction of drainage and sediment control structures to divert undisturbed runoff around disturbance areas, collect and route disturbed area runoff to sedimentation ponds to allow settlement of suspended solids, and provide any treatment which may be necessary to meet applicable discharge effluent limitations
- Interim re-vegetation of disturbed cut and fill slopes not used for operations and re-vegetation of topsoil stockpiles, pond outslopes, alternate sediment control areas, and other unused areas.
- Utilization of localized erosion control measures, as appropriate, in any areas having high erosion potential
- Initiation of reclamation operations as soon as practical following completion of mining
- Effective reclamation to minimize gradients, re-establish surface drainage patterns, restore pre-mining runoff and infiltration characteristics, and establish an effective and self-sustaining vegetative cover.
- Post-reclamation land use management

CEG3 has incorporated specific control and mitigation measures in mining, processing, and reclamation plans in order to prevent any significant impacts on surface or ground water quantity and quality. All mining related activities including soil/substitute removal, mine development, coal recovery, mine sealing, backfilling and grading, soil/substitute replacement, and re-vegetation are designed and sequenced to minimize disturbance and progress in a logical manner towards effective restoration of disturbed areas to a condition and configuration consistent with conditions which existed prior to development of the Kinney Mine and applicable regulatory provisions for remining of previously disturbed areas. The following sections discuss the details of the various components of the hydrologic protection plan.

**R645-301-731. 110 Ground Water Protection**

CEG3 has incorporated specific control and mitigation measures in the proposed mining, processing, and reclamation plans to effectively prevent or minimize significant mining related impacts on groundwater quantity, quality, and recharge, storage and discharge relationships. Ground water systems will be protected by limiting surface disturbance and mining related subsidence both of which can alter runoff and infiltration characteristics; controlling mine

drainage and recycling any significant mine inflow volumes in the operational mine water system; handling earth materials, mine drainage, and runoff in a manner that minimizes acidic, toxic, or other harmful infiltrations to groundwater; and managing excavations and other disturbances to prevent or control discharge of pollutants to the ground water system.

CEG3's mining operations and related activities have the potential to effect ground water quantity through limited inflows to the mine workings from the subsidence of local perched aquifer systems, and the alteration of surface infiltration characteristics. Mining within a regional aquifer is not anticipated. Although believed to be minor (due to the general lack of water identified within the planned mining area) mining and related operations may also effect ground water quality by modifying ground water chemistry, altering pH, and increasing concentrations of TDS and specific chemical constituents. Specific activities which may potentially impact ground water quantity and quality include the following:

- Underground coal removal
- Retention of drainage in sedimentation pond structures

Operational measures that will be implemented to mitigate these impacts are discussed below.

**Underground Coal Removal**

CEG3's planned underground mining operations may result in passive drainage requiring handling of mine inflows from proposed mine workings. Potential ground water inflow sources include the stratigraphic units directly disturbed by mining, and the overlying perched aquifer system due to downward leakage through fractures. According to information available, historic mining operations located within the general Kinney mine permit area did not encounter significant quantities of water, and it is anticipated that mine inflows may be limited. Any significant mine inflows encountered will be collected and routed to either abandoned (inactive) mining areas or temporary underground storage areas for recycling to the operational mine water system. As mining proceeds, any significant disturbance has the potential of fracturing the natural seals supporting local perched aquifers, resulting in the localized release of perched water. Following the cessation of mining, mine inflows and outflows will stabilize as water collects within down gradient abandoned mine sections.

Specific mine design and operation including layout and sizing of mine openings based on retention of barrier pillars and first mining only, with no pillar extraction, is projected to prevent subsidence. Mine design and operational control measures, when combined with mining depth should eliminate fracture propagation at or near the ground surface in areas overlying the underground workings, effectively prevent the drainage of perched aquifers and alteration of surface infiltration characteristics.

Underground mining operations will expose coal, floor, and roof materials to oxidation and increased leaching as mining is completed and working areas are abandoned. Natural caving will also expose substantial quantities of broken coal and roof material to oxidation, and although not anticipated, by the leaching of local groundwater. It is anticipated that pH may increase slightly and the local ground water chemistry may evolve toward a sodium sulfate water type with increases in TDS and certain mineral constituents including iron and manganese. A similar evolution appears to have occurred within Mud Creek as upstream mining and transport has advanced. In order to effectively prevent or mitigate these impacts, underground mining operations will be limited to development and disturbance of the minimum area

necessary to provide for effective coal extraction. CEG3 will also keep all development (except ramping and overcasts) in the minable coal seams to the extent operationally practical. While there will undoubtedly be some impacts on localized ground water quality, these impacts will generally be confined to the mine and immediately adjacent areas by the relatively low flows and volumes of water historically encountered as well as due to the low permeability of the geologic units and the limited hydrologic connection with other more permeable units.

Minor changes in ground water quality will not affect any ground water users since all existing ground water use in the immediate area is limited to units which are stratigraphically above the interval to be mined, and since no mine water discharge is anticipated following the closure and sealing of the mine. It should be noted that anticipated changes in ground water quality are anticipated to be relatively small and localized, and not so significant as to preclude beneficial use of affected ground water resources. This contention is supported by historic monitoring data for other Central Utah mines which receive some mine water drainage from old mine workings while showing no significant adverse long-term effects.

**Surface Placement of Coal, Mine Waste**

Surface placement of coal has the potential to affect ground water quantity and quality as a result of increased runoff from the associated disturbance areas and from the subsurface infiltration and leaching of the stockpiled materials. The great majority of leachate from the stockpile will be conveyed via the surface water runoff control system to the sediment pond located at the downstream end of the disturbed mine area.

Coal mine rock from fault crossings will be placed in developed entries and cross cuts specifically designated for that purpose. There is no mine rock anticipated to be placed on the surface other than that which comes out with the coal stream and will be shipped as part of the coal product. No wash plant is planned and therefore no coal refuse will be generated as part of the mining operation. However, per the Divisions Request a “Small Mine Development Rock Waste Pile” as shown on Map 13 (Surface Facilities) has been designed to accommodate the possibility that a small amount of rock waste may be generated during development and make it to the surface coal handling facilities. This “Small Mine Development Rock Waste Pile” will be drained to the sediment pond.

Analyses of both actual existing and potential future coal materials, including incidental roof and floor rock, are described in R645-301-623 - 627, Coal and Overburden/Interburden Characteristics. Based on analyses of coal, roof, and floor samples, in a washability study, overall sulfur content is moderate to low with organic sulfur as the dominant form. Buffering capacity is relatively high due to the presence of significant quantities of calcium carbonate. Consequently, the overall acid-producing potential from this mine is low. Similarly, chemical analyses indicate low concentrations of most potentially toxic components, including a low alkalinity potential.

Available analysis results for existing surficial mine waste and stockpiles, which have been in place a number of years and have had ample opportunity to weather and oxidize, offers an expanded and probably more accurate perspective of potential water quality impacts than chemical analysis results for fresh coal, roof, and floor samples. The weathered reclaimed coal samples show no significant acid, alkaline, or toxicity potentials. Leaching of mine waste and coal refuse materials has the potential to cause a shift in the ground water chemical type

towards a sodium sulfate water type and may also cause minor increases (quantify) in concentrations of iron, manganese, and TDS.

With reference to the potential impacts of surface coal placement on ground water quantity and quality, similar considerations apply to coal stockpiling in the mine, process, and loadout areas. Stockpile areas will be constructed to provide effective drainage of both runoff from stockpile surfaces and infiltration through coal stockpiles. Runoff from stockpile areas will be collected and routed to nearby sedimentation ponds. CEG3 will also limit stockpiled coal inventory for operational and environmental reasons.

Limited inventory results in rapid stockpile turnover, which minimizes the potential for weathering or leaching of coal materials.

**Retention of Drainage in Sedimentation Pond Structures**

CEG3 will utilize a single sedimentation pond and associated drainage structures to intercept and route runoff from disturbed areas, retain runoff for sediment control, and to control discharges to stream drainages. Map 23, Drainage and Sediment Control Plan – Undisturbed Drainage Areas, Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas, and Map 25, Sedimentation Pond 1 – Section and Details, provide information related to the identification and control of surface water runoff. The regional drainage basins identify those undisturbed areas not tributary to the mining operation and their discharge locations. The drainage and sediment control plan provide specific ditch, culvert, erosion control, and pond design information and locations used to control runoff within the active surface mining area. Operation of the sedimentation pond has some limited potential to affect both ground water quantity and quality by altering the timing and volume of discharge flows, providing additional recharge to alluvial/colluvial ground water systems, causing changes in water chemistry, increasing TDS levels, decreasing TSS levels and increasing the concentrations of specific mineral components.

Disturbed area runoff flowing into the sedimentation pond will be retained to allow suspended sediment to settle out prior to discharge to the downstream natural drainage. During the time that water is retained in the sedimentation structure, some evaporation will occur, resulting in reduction of overall water volume and inherently increasing concentrations of TDS and individual chemical constituents. Since the proposed sedimentation pond is located in lowland areas, any infiltration losses through the bottom of the ponds will have similar effects on surface discharge volumes and chemical characteristics. Any changes in surface water quality or chemistry have the potential to effect groundwater resources since surface flows are a component of the limited down-gradient groundwater recharge.

Effects of evaporation will be minimized by limiting detention time in the sedimentation structure to that interval required for effective reduction of suspended solids. Because runoff typically occurs only in response to snowmelt and major storm events, evaporation will be further limited by cold temperature during spring when the majority of snowmelt occurs. Pond design, as outlined in Exhibit 16, Runoff Control Design Details, provide for both minimal detention times and effective pond routing so any delay in discharge to the receiving drainages will be limited to the maximum detention time of 24 hours. With pond routing, discharge will occur continuously once the water reaches the discharge orifice and 25-Year overflow discharge elevation so effects on downstream flows will likewise be minimal.

Infiltration will similarly be limited by minimal detention times, by compaction of the pond base during construction, and accumulations of fine suspended solids which tend to further limit overall base permeability. In addition, the pond bottom will be covered by a reinforced concrete floor as shown on Map 25 to allow equipment to clean the pond without bogging down in the base materials. Both TSS, and TDS and various chemical constituents tend to accumulate in the sediment in the bottom of sedimentation ponds due to natural settling and chemical precipitation. Regular periodic removal of sediment accumulations from the sedimentation ponds will eliminate a significant source of concentrated TDS and other constituents, minimizing TDS and chemical buildup. CEG3 will monitor sedimentation pond discharge in order to detect any significant changes in surface water quality. If significant changes are noted, CEG3 may, with consultation from the UDOGM, develop and implement appropriate water treatment plans.

Upon completion of mining, all mine disturbance areas will be reclaimed. Reclamation and establishment of effective vegetative cover will minimize disturbed area runoff to the sedimentation pond, limiting potential effects of surface leaching and evaporation. Reclamation will also result in restoration of natural drainage and direct discharge to the receiving drainages once the sedimentation pond is removed at the end of the extended liability period. Given this consideration, any potential ground water impacts will be both limited in scope and of a temporary nature.

**R645-301-731.120 Surface Water Protection**

As a surface water reservoir located adjacent to the mine surface disturbance area, special protection measures will be required relative to Scofield Reservoir to prevent or mitigate potential adverse impacts on associated hydrologic, aquatic, fisheries, and riparian habitat and resource values. It is important to note that Mud Creek, the major perennial surface water drainage, does not come into direct contact with any portion of the mine permit area. Surface runoff from mined or disturbed areas are not directly tributary to Mud Creek, but are tributary to Scofield Reservoir. The existing Scofield Reservoir and the associated environmental conditions and values reflect the effects of the previous historic disturbance.

Specific protection measures to be implemented for Scofield Reservoir within and adjacent to the surface facilities area will include establishment and maintenance of runoff control ditches and culverts, grading of surface disturbed areas, the installation of erosion protection in appropriate ditches and hillslopes, and the construction of a runoff control sedimentation pond. Scofield Reservoir will be protected from direct or indirect mining construction, operation, and maintenance or impacts via an effective drainage and sediment control system.

**Mapping of Hydrologic Resource Protection Information**

Information presented on mapping included within this permit addresses hydrologic protection issues including:

- Receiving surface water drainages
- Diversion, collection, treatment, storage, and discharge facilities and structures
- Water monitoring locations and elevations

- The proposed sedimentation pond impoundment and coal processing waste embankments
- Cross-sections for sedimentation ponds, impoundments, and coal processing waste embankments

CEG3 has incorporated specific control and mitigation measures in the proposed mining, processing, and reclamation plans to effectively prevent or minimize significant mining related impacts on surface water quantity and quality. Surface water systems will be protected by limiting surface disturbance; controlling surface runoff and erosion; handling earth materials, any ground water discharges, and runoff in a manner that minimizes the formation of acidic or toxic drainage, prevents additional contributions of suspended solids to stream flow outside of the permit area, and otherwise prevents pollution of surface water. Surface water treatment facilities needed to protect surface water are not anticipated.

CEG3's mining operations and related activities have the potential to effect surface water quantity through modification of surface runoff characteristics and increased sediment contributions from surface disturbance areas; consumptive use of surface water for mining and processing operations; and discharge of sediment and other potential pollutants from mining related surface activities. Mining and related operations may also effect surface water quality by modifying surface water chemistry, altering pH, and increasing concentrations of TSS, TDS, and specific chemical constituents. Specific activities which may potentially impact surface water quantity and quality include the following:

- Removal of vegetation and soil materials from disturbance areas
- Surface placement of coal
- Mine water supply withdrawals
- Operation of drainage and sediment control structures

Operational measures that will be implemented to mitigate these impacts are discussed below.

**Removal of Vegetation and Soil Materials from Disturbance Areas**

In order to conserve available soil resources, vegetation and soil materials will be removed from all mine facilities areas prior to disturbance. While beneficial in terms of soil conservation and provision of a suitable growth medium to support final reclamation and revegetation efforts, this practice exposes underlying materials to potential erosion and loss, can increase suspended sediment levels in the runoff water, and may increase sediment contributions to area drainages. To maintain effective surface drainage, mitigate erosion, prevent loss of surficial materials, and minimize additional contributions of suspended solids to area drainages CEG3 will route undisturbed drainage around disturbance areas, grade and stabilize disturbed areas to provide for effective drainage control, establish a drainage and sediment control network to collect and retain runoff from disturbed areas, reclaim disturbance areas as soon as operationally practical, and utilize other specific localized drainage and erosion control methods as necessary. These activities are discussed further in the following sections.

In conjunction with mine development, facility installation, and ongoing coal refuse placement, CEG3 will grade, stabilize, and maintain all disturbed areas to provide for effective drainage and minimize potential erosion. Where appropriate, CEG3 will utilize localized grading and stabilization measures to effectively control and route drainage and minimize flow velocities. Examples would include graveled surfaces and the yard area drainage system in the mine

facilities area; temporary sumps and ditches in active coal refuse placement areas; and the placement of drainage control berms which will isolate disturbed area drainage in the Kinney Mine loadout area.

Localized drainage control and grading measures will be supplemented by CEG3's drainage and sediment control network. This network consists of diversion ditches which route undisturbed runoff around or through disturbance areas, collection ditches which intercept disturbed area runoff and route it to the sedimentation pond, the sedimentation pond, and associated discharge structures. Design information and calculations are provided in Map 23, Drainage and Sediment Control Plan Map – Undisturbed Drainage Areas, Map 24, Drainage and Sediment Control Plan Map – Disturbed Drainage Areas, Map 25, Sedimentation Pond 1 – Section and Details, and by Exhibit 16, Runoff Control Design Details. Design details regarding runoff hydrology, ditches, culverts, energy dissipation, and the sedimentation pond are included within Exhibit 16, Runoff Control Design Details. The drainage and sedimentation control network will collect and retain disturbed area runoff allowing settlement of suspended solids and any necessary treatment prior to release to natural drainages. The sedimentation pond will be operated under applicable provisions of CEG3's UPDES discharge permit. Compliance with the terms of these permits will assure that downstream water quality impacts are minimized.

Basic components of the drainage and sediment control plan follow:

- Undisturbed area runoff within the main drainage channel located toward the south end of the operation area will be conveyed beneath the mine surface facilities and across Highway 96 via culvert UDC-1.

- Undisturbed area runoff control ditches (UDD-1 and UDD-2) located along the eastern edge of the disturbed area is part of a property access road constructed for the property owner. A check of the road cross section shows that discharges from the up-gradient undisturbed area can be safely conveyed to a culvert (UDC-2) that conveys the undisturbed area runoff beneath the mine site to an existing 36" culvert located beneath Highway 96. Water conveyed beneath Highway 96 is then discharged onto an energy dissipation pad before continuing toward Scofield Reservoir.

- A series of operation pads and runoff control ditches and culverts. In general terms, storm water tributary to each operation pad is controlled and directed to the back of the pad, then conveyed toward a runoff ditch or culvert which in turn conveys the water to a downstream pad, ditch, or culvert. Specifics related to each runoff segment and any variances follow. A visual reference for the runoff system described is shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas.

- Portal Pad (Pad A) runoff flows to ditch DA-1, to the Coal Pile Pad (Pad B). Water enters culvert CB-1, goes beneath the coal stockpile, then enters a junction box connected to culvert CB-2. Culvert CB-2 discharges to ditch DC-2, to ditch DC-3, joins with ditch DC-4, is conveyed under the adjacent property owner access road via culvert CC-1, to ditch DC-5, then goes into Pond 1 via ditch DC-6.

- Storage Pad (Pad D) runoff combines with road ditch DD-1 and road ditch DD-2, goes through culvert CD-1, to ditch DD-3, joins with Pad D runoff, enters culvert CD-2 to Pad E and ditch DE-1, joins with road ditch DE-2, enters culvert CE-1, then enters Pond 1 via ditch DE-4.

- Office Pad (Pad F) drainage enters ditch DF-3 where it joins with road ditch DF-1 before entering culvert CF-1, joins with road ditches DF-2, goes to ditch DF-4, joins with road drainage and road ditch DF-5 via the cattle guard, goes to ditch DE-3, joins with culvert CE-1, then enters Pond 1 via ditch DE-4.

- Surface runoff flows from the small area between ditch DE-3 and the highway along the north side of the main access road P1, flows in ditch ALT C-1 into the sediment trap and then north, in the existing highway ditch. Runoff from the small area along the south side of the main access road below Pad F flows in ditch ALT B-1 into the sediment trap and then south in the existing highway ditch. This flow combines with additional flows from the topsoil stockpile area (conveyed in ditches ALT A-1 and ALT A-2 along the berm and passing through a silt fence) which are conveyed across the highway through an existing culvert.

- Topsoil stockpile areas (west of the Sediment Pond No. 1 on the west side of the highway) drainage is not enough to require ditches. Silt Fences will be installed around these stockpile areas.

- Irrigation bypass culvert IBC-1 will be installed under the topsoil stockpile area located between the highway and Pad F. The downstream culvert that historically conveyed the corresponding irrigation and runoff flows across the highway, is a 24-inch diameter pipe. The new irrigation culvert IBC-1 was conservatively designed to be a 30-inch diameter pipe. The capacity of the new 30-inch diameter culvert IBC-1 was verified for both inlet and barrel control conditions, to be greater than the capacity of the existing 24-inch diameter pipe downstream.

- Ditch and culvert design details including design criteria, flows and other appropriate information is provided in Table 18, Ditch Design Details and Table 19, Culvert Design Details. Figure 35, Pond 1 Stage-Volume Curve provides data regarding pond volume. Map 24, Drainage and Sediment Control Plan – Undisturbed Drainage Areas and Map 26, Drainage and Sediment Control Plan – Disturbed Drainage Sub Basins, have been prepared to show runoff drainage areas represented in Table 19, Culvert Design Details.

All areas disturbed by mining and related operations will be reclaimed as soon as operationally practical following completion of mining. Reclamation will involve removal of mine structures and facilities, backfilling and regrading disturbance areas, replacement of soil and substitute materials, and revegetation. These activities are designed to re-establish drainage patterns similar to those which existed prior to development of the Kinney Mine and develop a self-sustaining vegetative community. As a result of effective reclamation, infiltration and runoff relationships will be restored, limiting the time interval over which water quality impacts may occur. Where appropriate, CEG3 will utilize drainage control measures to prevent or mitigate potential impacts from ongoing operations. Such measures may include use of surface binders and dust suppressions agents on haulage roads, soil/substitute stockpiles, and in active working areas the placement of straw bales, sediment fence, erosion netting, mulch berms, stilling basins, sumps and other small structures to control and route drainage, limit surface erosion, minimize flow velocities, and reduce suspended sediment levels.

**Surface Placement of Coal, Mine Waste**

Surface placement of coal, mine waste, may effect surface water quantity and quality in several ways. Surface runoff from the related disturbance areas may increase resulting in increased erosion and sediment loss, and surface flows may infiltrate through stockpiled materials generating leachate with both sediment laden runoff and leachate potentially discharging to surface drainages. Although believed to be of minimal impact, Leachate not collected by an underdrain system may impact ground water, which may later discharge to the sedimentation pond or to the alluvial/colluvial aquifer.

Coal stockpile areas will be constructed to provide effective drainage of both runoff from stockpile surfaces and infiltration through coal stockpiles. Designed ditches will collect and route runoff from coal stockpile areas to the sedimentation pond. The locations of the designed ditches and sedimentation pond on disturbed mine areas are shown on Map 24, Drainage and Sediment Control Plan Map – Disturbed Drainage Areas, Map 25, Sedimentation Pond 1 – Section and Details, and detailed design calculations are presented in Exhibit 16, Runoff Control Design Details. CEG3 will also limit stockpiled coal inventory for operational and environmental reasons. Limited inventory results in rapid stockpile turnover, which minimizes the potential for weathering or leaching of coal materials.

Operation of the sedimentation pond for the coal stockpile area under CEG3's UPDES permits will assure compliance with applicable water quality regulations and effectively mitigate any potential surface water quality impacts.

Coal stockpile areas will be reclaimed as soon as operationally practical after they are no longer required to support ongoing mining and related operations. The initial step in reclamation of coal stockpile areas will involve removal of stockpiled coal materials and any associated structures. Subsequent reclamation of the coal stockpile area will involve removal, re-grading of the disturbance areas to the final design configuration, replacement of soil and substitute materials, and re-vegetation. These activities are designed to establish effective surface drainage, stabilize the affected areas, and develop a self-sustaining vegetative community.

**Discharge of Mine Water to Surface Drainages**

No surface discharge of mine water is anticipated. Direct and/or indirect drainage from any perched aquifers intercepted by fractures may serve as potential sources of ground water inflow to the Kinney Mine workings. In order to facilitate ongoing mining operations and assure safe operating conditions, CEG3 will collect any significant mine inflows and transfer the resulting mine drainage to either abandoned mining areas or temporary underground storage areas. If sufficient quantities of mine drainage are available, stored mine drainage will be utilized to supplement the operational mine water supply. Plans for handling mine drainage are described in R645-301-521 - 531, General Description of Mine Plans, Mining Methods, and Related Design Requirements.

## Table 18. Ditch Design Detail

| Drainage Ditch | 10yr-6hr Design Flow (cfs) | Side Slope m1 (H:1) | Side Slope m2 (H:1) | Ditch Slope Max (%) | Ditch Slope Min (%) | Manning's n | Max Velocity (fps) | Flow Depth (ft) | Freeboard (ft) | Minimum Ditch Depth[1] (ft) | Bottom Width (ft) | Top Width (ft) | Riprap $D_{50}$[2] (inches) | Grout (yes/no) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DA-1 | 0.6 | 2 | 2 | 14.0 | 5.0 | 0.02 | 6.64 | 0.32 | 0.48 | 0.8 | 0.0 | 3.2 | 0.25 | Yes |
| DC-1 | 1.0 | 2 | 2 | 0.5 | 0.5 | 0.02 | 1.90 | 0.32 | 0.48 | 0.8 | 1.0 | 4.2 | n/a | No |
| DC-2 | 2.9 | 2 | 2 | 15.0 | 0.6 | 0.02 | 8.68 | 0.52 | 0.48 | 1.0 | 1.0 | 5.0 | 0.25 | Yes |
| DC-3 | 2.9 | 2 | 2 | 0.8 | 0.8 | 0.02 | 3.05 | 0.48 | 0.52 | 1.0 | 1.0 | 5.0 | n/a | No |
| DC-4 | 1.0 | 2 | 2 | 9.3 | 9.3 | 0.02 | 5.86 | 0.29 | 0.51 | 0.8 | 0.0 | 3.2 | 0.25 | Yes |
| DC-5 | 2.9 | 2 | 2 | 0.8 | 0.8 | 0.02 | 3.01 | 0.49 | 0.51 | 1.0 | 1.0 | 5.0 | 0.25 | Yes |
| DC-6 | 3.5 | 2 | 2 | 12.3 | 12.3 | 0.02 | 8.88 | 0.44 | 0.46 | 0.9 | 0.0 | 3.6 | 0.25 | Yes |
| DD-1 | 0.2 | 2 | 2 | 3.8 | 3.8 | 0.02 | 2.8 | 0.19 | 0.51 | 0.7 | 0.0 | 2.8 | n/a | No |
| DD-2 | 0.2 | 2 | 2 | 13.0 | 13.0 | 0.02 | 4.44 | 0.15 | 0.55 | 0.7 | 0.0 | 2.8 | 0.25 | Yes |
| DD-3 | 0.3 | 2 | 2 | 3.8 | 3.8 | 0.02 | 3.10 | 0.22 | 0.48 | 0.7 | 0.0 | 2.8 | n/a | No |
| DE-1 | 0.6 | 2 | 2 | 0.9 | 0.9 | 0.02 | 2.15 | 0.37 | 0.53 | 0.9 | 0.0 | 3.6 | n/a | No |
| DE-2 | 0.2 | 2 | 2 | 2.0 | 2.0 | 0.02 | 2.18 | 0.21 | 0.49 | 0.7 | 0.0 | 2.8 | n/a | No |
| DE-3 | 4.1 | 2 | 2 | 1.0 | 1.0 | 0.02 | 2.55 | 0.53 | 0.47 | 1.0 | 2.0 | 6.0 | n/a | No |
| DE-4 | 4.2 | 2 | 2 | 1.0 | 1.0 | 0.02 | 2.57 | 0.53 | 0.47 | 1.0 | 2.0 | 6.0 | n/a | No |
| DF-1 | 0.4 | 2 | 2 | 14.3 | 3.3 | 0.02 | 5.47 | 0.25 | 0.55 | 0.8 | 0.0 | 3.2 | 0.25 | Yes |
| DF-2 | 0.4 | 2 | 2 | 6.1 | 6.1 | 0.02 | 3.97 | 0.22 | 0.48 | 0.7 | 0.0 | 2.8 | n/a | No |
| DF-3 | 1.3 | 2 | 2 | 10.0 | 10.0 | 0.02 | 6.42 | 0.32 | 0.48 | 0.8 | 0.0 | 3.2 | 0.25 | Yes |
| DF-4 | 1.7 | 2 | 2 | 5.7 | 5.7 | 0.02 | 5.56 | 0.39 | 0.51 | 0.9 | 0.0 | 3.6 | 0.25 | Yes |
| DF-5 | 1.7 | 2 | 2 | 5.7 | 5.7 | 0.02 | 5.56 | 0.39 | 0.51 | 0.9 | 0.0 | 3.6 | 0.25 | Yes |
| ALT A-1 | 0.4 | 2 | 2 | 4.7 | 4.7 | 0.02 | 3.60 | 0.24 | 0.56 | 0.8 | 0.0 | 3.0 | n/a | No |
| ALT A-2 | 0.4 | 2 | 2 | 4.7 | 4.7 | 0.02 | 3.60 | 0.24 | 0.56 | 0.8 | 0.0 | 3.0 | n/a | No |
| ALT B-1 | 0.2 | 2 | 2 | 14.3 | 5.3 | 0.02 | 4.60 | 0.18 | 0.52 | 0.7 | 0.0 | 2.7 | 0.25 | Yes |
| ALT C-1 | 0.2 | 2 | 2 | 14.3 | 5.3 | 0.02 | 4.60 | 0.18 | 0.52 | 0.7 | 0.0 | 2.7 | 0.25 | Yes |
| UDD-1 | 9.4[3] | 50 | 4 | 7.0 | 7.0 | 0.02 | 5.18 | 0.26 | 0.00 | 0.26 | 0.0 | 15.0 | n/a | n/a |
| UDD-2 | 9.4[3] | 50 | 4 | 7.0 | 7.0 | 0.02 | 5.18 | 0.26 | 0.00 | 0.26 | 0.0 | 15.0 | n/a | n/a |

1 - Includes 0.5 foot freeboard.
2 - Maximum riprap size is 1.5 times $D_{50}$. All Riprap to be installed over 1.0 foot Type II Granular Filter.
3 - 100 Year, 6 Hour runoff.

## TABLE 19. Culvert Design Details

| Culvert | Tributary Sub-Basins[1] | Area | Weighted CN | Peak Flow | Total Design Flow | Diameter |
|---|---|---|---|---|---|---|
| | | (acre) | | (CFS) | (CFS) | (in) |
| CB-1 | A1 | 4.09 | 83 | 0.9 | 2.0 | 18 |
| | B1 | 3.50 | 86 | 1.1 | | |
| CB-2 | A1 | 4.09 | 83 | 0.9 | 2.0 | 18 |
| | B1 | 3.50 | 86 | 1.1 | | |
| CC-1 | A1 | 4.09 | 83 | 0.9 | 2.9 | 18 |
| | B1 | 3.50 | 86 | 1.1 | | |
| | C1 | 4.18 | 84 | 1.0 | | |
| CD-1 | D2 | 1.97 | 79 | 0.2 | 0.4 | 18 |
| | D3 | 1.34 | 80 | 0.2 | | |
| CD-2 | D1 | 2.79 | 81 | 0.3 | 0.6 | 18 |
| | D2 | 1.97 | 79 | 0.2 | | |
| | D3 | 1.34 | 80 | 0.2 | | |
| CE-1 | D1 | 2.79 | 81 | 0.3 | 2.4 | 18 |
| | D2 | 1.97 | 79 | 0.2 | | |
| | D3 | 1.34 | 80 | 0.2 | | |
| | E1 | 4.44 | 88 | 1.6 | | |
| | E2 | 1.68 | 82 | 0.2 | | |
| CF-1 | F1 | 3.72 | 87 | 1.3 | 1.7 | 18 |
| | F2 | 1.27 | 85 | 0.4 | | |
| UDC-1 | UDC-1 | 99.37 | 75 | 14.3 | 14.3 | 30 |
| UDC-2 | UDD-1, UDD-2 | 64.96 | 75 | 9.4 | 9.4 | 24 |
| CP-1 | Pond 1 100 Yr, 6 Hr Discharge | | | 22.5 | 22.5 | 24 |
| CP-2 | UDD-1, UDD-2 | 64.96 | 75 | 9.4 | 33.8 | 42 |
| | Pond 1 100 Yr, 6 Hr Discharge | | | 22.5 | | |
| | G1 | 4.56 | 78 | 1.9 | | |
| IBC-1[2] | N/A | N/A | N/A | N/A | 10.4 | 30 |

1 - See Map 23, Drainage and Sediment Control Plan – Undisturbed Drainage Areas, and Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Sub Basins.

2 - Conservatively designed according to the capacity of the existing 24-inch diameter pipe crossing the highway and checked to verify adequacy under both inlet and barrel control conditions (see calculations in Exhibit 16 – Ditches and Culverts)

Based on preliminary estimates of anticipated mine inflow volumes and mine water use requirements, it is anticipated that all mine inflows can be either recycled through the operational mine water system or stored underground. The previous discussion in R645-301-731.110 - 112, Ground Water Protection Measures, indicated that based on available sampling data mine water, no mine water discharges are expected. If it becomes necessary to discharge any excess mine drainage to the surface, a revision to the mine permit will be made and coordinated with the Division.

**Mine Water Supply Withdrawals**

Mining, related coal processing operations, and support activities will require a consistent water supply with adequate capacity to meet all operational mine water supply requirements. Potable and sanitary water requirements will be provided through a water supply connection to the existing Scofield Town water system located adjacent to the mine site. Mine water requirements will be supplied from Scofield Town via Mud Creek, and from possible water sources encountered during mining, which are anticipated to be small.

Recycling of in-mine drainage to supplement the operational mine water system will help reduce water supply requirements. Dependent on the actual rate of mine inflows, mine drainage could provide the water required for dust control applications in the underground operations. CEG3 plans to construct a surface mine water storage tank and may be able to develop additional mine water storage capacity in inactive areas of the underground mine workings. This storage capacity may be utilized to good advantage during seasonal low flow periods to limit required stream withdrawals. CEG3's existing water rights provide additional water supply capacity beyond that acquired from Scofield Town.

**Coal Preparation Activities**

No coal preparation activities are planned, only inadvertent, per narrow interpretation of the regulations, during stacking, transferring and loading coal.

**Operation of Drainage and Sediment Control Structures**

The Kinney Mine drainage and sediment control network is designed to function as the primary mitigation system to prevent significant impacts on surface water quality. Operation of the sedimentation pond may, however, result in some delay in water discharge to the receiving drainages potentially altering discharge volume and consequently streamflow entering Scofield Reservoir, and may increase concentrations of TDS and other constituents in the runoff retained in the pond due to evaporation. Both delays in discharge and potential evaporative effects and related mitigation considerations were previously discussed in R645-301-731.110 - 1124.7.2.1, Ground Water Protection Measures. Significant overall increases in TDS and other chemical constituents for the receiving drainages are not expected because runoff volumes from disturbed areas will be limited by upstream diversion of undisturbed drainage, surface disturbance areas will be of limited size, and reclamation of disturbance areas will be occurring. CEG3 will monitor all discharges from the sedimentation structure to ensure compliance with UPDES requirements. If problems are noted with TDS or any other discharge constituent, CEG3 will coordinate with the regulatory agency regarding acceptable solutions to effectively control and mitigate the problems.

Mine disturbance areas will be reclaimed on completion of mining or when they are no longer required to support ongoing mining and related operations. Reclamation, re-establishment of vegetative cover, and restoration of effective surface drainage will minimize disturbed area runoff to the sedimentation pond, limiting the potential effects of surface leaching and evaporation. Restoration of natural drainage and direct discharge to the receiving drainages once the sedimentation pond is removed at the end of the extended liability period will effectively eliminate any potential surface water impacts related to the sedimentation pond.

**R645-301-731.200 Water Monitoring**

CEG3 currently maintains, and will continue, a program to monitor surface and groundwater quality and quantity for the duration of the proposed mining, processing, and reclamation operations. The Hydrologic Monitoring Plan consists of monitoring stations identified in Table 6, Kinney Mine Baseline Monitoring Stations, and Table 7, Kinney Mine Operational Monitoring Stations, according to the parameter sampling schedule shown in Table 20, Hydrologic Monitoring Schedule. Baseline monitoring has been conducted on a monthly basis and quarterly basis.

Operational monitoring is planned to be conducted on a quarterly basis as follows. Samples will be collected quarterly for parameters shown in Table 20, Hydrologic Monitoring Schedule, for all surface and ground water stations when the sites are accessible. At some sampling sites, winter conditions may create inaccessible or unsafe conditions. To help ensure as complete a data set as possible, first and fourth quarter samples will be collected during the time periods wherein there is the greatest likelihood of collecting a valid sample. This is believed to be in March and October respectively. Second and third quarter samples will be collected at a convenient time for the mine operator within the respective quarter.

As discussed in Section R645-301-731.800 of this MRP, some concerns as to the estimates of water rights replacement flow rates will be addressed by additional verification through monthly monitoring of flows for the springs and seeps in the area of Eagle Canyon. This effort will be coordinated with the Division Staff to ensure that the data collected will meet the concerns. These sites will include Eagle Seep 1, Eagle Seep 1a, Eagle Seep 3, Eagle Spring 2, Eagle Pond 2, and Aspen Spring (Eagle Pond 1). A minimum of 12 months, excepting months when sources are frozen over and not accessible, of verification data will be collected to more precisely determine the true volume of water needed for replacement. Additionally, CEG3 agrees to monitor these sites for 2 additional years on a quarterly basis to allow the average flows to be determined to account for wet and dry years. During this period, each of the spring/seep sites will be checked and a flow determination made. For the Aspen Spring site, efforts will be made to work with the land owner to see if there would be a way to modify/adjust the site to allow collection of water flow measurements. If not, then a staff gauge will be installed to record the level of the pond and this data along with a stage-capacity curve for the pond will be used to generate an estimate flow. Additionally, to add to the water quality database for potential future expansion plans, CEG3 will collect water quality data for any water sources where sufficient flow is available on a quarterly basis for the first 12 months.

The monitoring program thus instated serves as an integral part of CEG3's efforts to protect the hydrologic balance by providing an accurate and timely method of identifying and quantifying any possible concerns with respect to surface and ground water resources. The monitoring network is shown on Map 28, Surface and Ground Water Monitoring Sites. Table 6, Kinney # 2 Mine Baseline Monitoring Stations, and Table 7, Kinney # 2 Mine Operational Monitoring Stations, when combined with Map 28, summarizes the type and location of monitoring sites. The frequency, density and accuracy of monitoring will allow CEG3 to evaluate and determine the success of mine plans, drainage and sediment control facilities, and reclamation for the purpose

of minimizing disturbance to the hydrologic balance. The monitoring data and resulting evaluations will be used to identify any potential problems and develop necessary mitigation measures.

Hydrologic information submitted in R645-301-711- 727 of this permit application includes an identification of surface drainages and general flow characteristics, modeling of corresponding peak flows and annual runoff volumes, identification of ground water aquifers, and a general description of aquifer characteristics including ground water levels, movements, and recharge/discharge/storage characteristics.

The Hydrologic Monitoring Plan for the Kinney Mine provides for a frequency and distribution of both baseline and operational monitoring data collection adequate to identify and document baseline conditions and trends and fluctuations in the quantity and quality of surface water, the level and quality of ground water, and the overall effects of mining and reclamation activities on the hydrologic balance. As shown on Table 20, Hydrologic Monitoring Schedule, water quality parameters include field measurements for water level or flow, pH, specific conductance, dissolved oxygen, and temperature. Laboratory measurements include a significant list covering general water quality characteristics such as TDS, nutrients, major ions, and trace metals. Both surface and ground water quality samples will be collected, labeled and transported to a qualified analytical laboratory for analyses. Proper sample collection, preservation, handling, and storage methods will be utilized at all times to preserve the integrity of the samples and ensure validity of the analytical results.

The ongoing monitoring network consists of ~~10~~ 14 ground water wells, some having the capability of sampling from above, within or below the mined coal seam, 3 springs, and 3 surface or stream locations. Data from one additional well (CR-06-03-ABV) was drilled as part of the mine water monitoring program and was sampled between April and September 2006. However, due to legal issues related to the well it was abandoned and is not part of the ongoing water monitoring program. In a similar fashion, monitoring from Angle Springs has been terminated due to access limitations. Each of the historic and current sampling locations are identified on Table, 6 Kinney No. 2 Mine Baseline Monitoring Stations, and on Map 28, Surface and Ground Water Monitoring Sites. The spring/seep locations and monitoring wells will be used to evaluate the occurrence of ground water and the hydraulic characteristics of the aquifers. The surface water monitoring sites will be used to evaluate the quality and quantity of surface water.

Baseline and operational monitoring will be performed for the Kinney Mine at the following frequency:

**Spring -** Discharge measurements, field water quality parameters, and laboratory samples were collected for Angle, Eagle and Sulfur Springs starting in May 2005 and for Aspen Spring in November 2007. Baseline data having been collected. These springs will now be monitored for operational mining parameters.

**Stream Stations** - Flow and field water quality parameters were measured on Mud Creek and Miller Outlet from May 2005 through February 24, 2011. Pool elevation and field water quality parameters were measured for Scofield Reservoir beginning in June 2006 through February 24, 2011. Operational monitoring can now continue.

**Monitoring Wells** - Groundwater level measurements were taken, following well installation, for dry wells CR-06-01, CR-06-01BLW, CR-06-02, and CR-06-02ABV beginning in March 2006. Baseline monitoring of well CR-06-05 began in September 2006 and continued through May 2007 after which time operational monitoring began. Data for this site is available through December 2010. Baseline sampling of different zones within well CR-06-09 began as early as August 2006, with all three zones being monitored simultaneously beginning in October 2006. Measurements from this site area also available from June 2008 through December 2010. Operational monitoring began for well CR-06-09 in July 2007. Per the Divisions request, two additional monitor wells were

completed in 2010; CR-10-11 and CR-10-12. Both of these wells have been sampled eight times beginning in July 2010 through February 2011. They will be picked up as part of the operational quarterly sampling program. Four additional wells were drill and developed as part of and exploration plan outside of the plan boundaries in 2012; WNR-2012-5, WNR-2012-7, WNR-2012-7BLW and WNR-2012-8. These four wells have been monitored/sampled ten times since installation. They will be picked up as part of the operational quarterly sampling.

In the event any of the groundwater monitor wells that have been shown to be dry should be found to contain a static water level, sampling of that well will commence.

Within the constraints of the physical limits to do so, groundwater samples will be taken from all the monitor wells having a static water level within the system of monitor wells in preparation for the next revision of the MRP. During the 2011 field season, the ability to sample the wells not currently sampled will be determined. Those that, it is physically possible to sample, will be added to the operational sampling plan.

All water monitoring analysis results will be recorded, reviewed to identify potential problems or trends, and filed at the mine so as to be available for future inspection and review. In addition, and following initiating of development activities, CEG3 will file copies of both field data and laboratory analysis sheets on a quarterly basis with the UDOGM. At the end of each annual year, CEG3 will also tabulate all water monitoring data for the year, review the data with respect to changes in surface and groundwater hydrology systems, and provide a summary Annual Hydrology Report in compliance with the UDOGM schedule. CEG3 will continue to collect and evaluate hydrologic monitoring data during the operations and reclamation phases. If the additional data resulting from ongoing hydrologic monitoring indicates that any significant changes in general baseline characterizations are appropriate or that any assumptions or projections used to evaluate potential impacts are not accurate, CEG3 will review potential changes with UDOGM and modify any sections of the mining and reclamation permit application as appropriate to reflect necessary adjustments.

Following baseline monitoring, operational monitoring will be conducted for each sample location quarterly in accordance with the requirements of R645-301-731-212 and R645-301-731-223. In general, samples will be collected four times a year with one sample being taken within each quarter period. Ideally the samples will be taken in February, May, August and November. However, sample dates may be shifted one month earlier or later depending upon weather and environmental conditions. If the analysis of any surface water or groundwater sample indicates noncompliance with the permit conditions, then CEG3 shall promptly notify the Division and immediately implement expanded monitoring for the site in question. Expanded monitoring will include a single sample for the noncompliant parameter to be taken within 15 days of learning of the noncompliant event. The new sample will then be evaluated to determine the magnitude and seriousness of the event, and with the Division, determine whether additional sampling is warranted. If monthly monitoring is warranted, sampling of the parameter will continue until the cause is identified and rectified, appropriate action is taken to the satisfaction of the Division, or the cause is determined to be non-mine related.

CEG3 has applied for and received a UPDES permit which may be found in Exhibit 4, Other Permits. In addition, CEG3 will prepare and submit quarterly UPDES compliance reports to the UDOGM and UDWQ in compliance with Part 4.05.13 (2) (ii) (b). If non-compliance with a UPDES permit effluent limitation does occur, CEG3 will forward the analytical results concurrently with the written notification of non-compliance.

CEG3 will continue surface and ground water monitoring activities after completion of reclamation operations to document restoration of pre-mining hydrologic characteristics. All surface and groundwater monitoring installations and associated structures and equipment will be properly installed, maintained, and operated to assure the accuracy and consistency of monitoring data. Surface water monitoring will be discontinued when untreated surface runoff

meets applicable effluent limitations and the UDOGM approves removal of drainage and sediment control structures. Groundwater monitoring wells will be abandoned and removed in accordance with UDOGM guidelines following UDOGM approval to discontinue groundwater monitoring.

### R645-301-731.300 Acid and Toxic Forming Materials

This topic is dealt is addressed in R645-301-624.

### R645-731.500 Discharges

The Kinney mine workings will progress down dip from the outcrop area and mine drainage will be controlled during active operations so there is little or no potential for direct gravity discharge of water from the mine. The minor amounts of water encountered within the mine will be controlled underground and pumped, if necessary, to mined out areas. Upon completion of mining and related activities in-mine drainage control operations will cease and portions of the mine workings (especially the mine workings furthest down dip) may either partially or gradually fill as ground water inflows discharge to the mined-out areas. No post cessation flow is anticipated and CEG3 will seal and backfill the mine portals. Sealing practices are discussed in R645-301-542.300 – 800 & 550 – 553.900 and 560, Reclamation Practices, and R645-301-764 - 765, Casing and Sealing of Wells and Mine Openings.

There are no plans to develop, divert, or discharge any surface water into any underground mine in conjunction with ongoing mining and reclamation operations at the Kinney Mine.

Possible alternatives for the disposal of any in-mine water encountered are 1) discharge the water into remote or abandoned mine workings, 2) request a new NPDES discharge permit for surface discharge, 3) construct shallow or deep injection wells, 4) treat and discharge the water into Mud Creek, and 5) evaporate through new ponds. The feasibility and cost associated with these alternatives will be investigated in the unlikely event that mine discharges are required.

All temporary and permanent diversions within the Kinney mine and loadout areas have been designed and will be constructed to maintain effective flow under all anticipated conditions. Upon completion of mining and related activities, mine openings will be sealed and backfilled to further preclude any potential ground water discharge or surface water inflows in mine portal areas or boreholes.

### R645-301-731.600 Stream Buffer Zones

No streams requiring a buffer zone are located within the immediate or adjacent surface disturbed areas.

### R645-301-731.700 Cross Sections and Maps

Hydrologic information is presented in various locations within the permit including:

## R645-301-731.800 Water Rights and Replacement

As discussed in R645-301-727, Potential Impacts on Surface and Ground Water Sources, CEG3's mining and related operations are not expected to adversely impact any surface or ground water sources or water rights. Consequently, there is no need to explicitly address provisions for replacement of impacted water rights at this time. In the unlikely event however, that proximate contamination, diminution, or interruption does occur and can be documented as resulting from the Kinney mining and related operations, CEG3 will mitigate the associated water rights impacts through discussion and development of a cooperative agreement with any effected water rights holder. Potential mitigation options may include but will not be limited to replacement or augmentation of effected water rights, monetary compensation, development of alternative watering facilities such as guzzlers.

Coal Energy Group 3 is the owner of two shares of Scofield Reservoir water and is reserving this water right as potential mitigation for any claim against CEG3 relative to depletion of water due to evaporation of that small amount of water, contributed to from water encountered underground, that is carried out of the mine as a wet coating on coal transported out of the mine.

Per discussion with Mark Stiltson, Division of Water Rights, two shares of Scofield Water (which is Two Acre Feet of Scofield Reservoir water) is ample water rights to cover the extremely minor amount of water that may be depleted due to being transferred out of the mine as wetting on coal.

Some concerns regarding the volume of water replacement rates were raised by the Division for the area of Eagle Canyon. As allowed under the coal rules, some groundwater rates can be estimated if not directly measurable. This was done in the case of Aspen Spring (aka, Eagle Pond 1). Therefore, until the verification period is completed and accepted by the Division, if the springs in the graben area are affected by mining, CEG3 commits to replace the estimate quantity of Aspen Spring and the total of the flow measurements for the other springs in the graben area. Based on the maximum estimate of flow for Aspen Spring which is 5.0 gpm. Therefore, a total for the five seeps and springs in upper Eagle Canyon is 25 gpm. Once the verification is completed, CEG3 will adjust the commitment to the flow values verified.

The primary postmining land use in the mine, loadout, and adjacent areas will be undeveloped wildlife habitat, dispersed recreation and grazing requiring minimal supporting water requirements. The discussions presented in R645-301-711 – 727, Hydrology Information, indicate that while surface and ground water resources are limited in those areas to be affected by the Kinney Mine operations, they will be adequate in terms of both quantity and quality to support the designated postmining land use. Given the proposed postmining use, CEG3 currently has no plans to transfer any exploration boreholes or monitoring wells for subsequent use as water wells for the current mine plan

## R645-301-732 Sediment Control Measures

Sediment control measures for the Kinney Mine operations have been designed to meet or exceed all applicable State effluent limitations under the provisions of the required UPDES discharge permit. Primary long-term sediment control measures include re-grading and re-vegetating mine disturbance areas to control runoff and siltation and increase infiltration, and use of localized sediment control measures including mulching, erosion netting, sediment fences, check dams, sediment traps, straw bales and other means as appropriate. Short-term operational sediment control measures include the use of localized sediment control measures as noted above, construction of collection and diversion ditches where necessary to intercept and route runoff flows, and the use of a sedimentation pond to retain runoff and allow suspended solids to settle out prior to discharge to natural drainages. Major sediment control

structures for the Kinney Mine are shown on Map 24, Drainage and Sediment Control Plan Map – Undisturbed Drainage Areas, and Map 24, Drainage and Sediment Control Plan Map – Disturbed Drainage Areas. The runoff control pond is shown on Map 25, Sedimentation Pond 1 – Section and Details. These facilities have been designed utilizing the best technology currently available and will result in effective compliance with both the requirements of Kinney Mine's UPDES permit and all other applicable regulatory requirements.

One new sedimentation pond will provide effective sediment control for the Kinney mine facilities area. This pond is located in the northern end of the surface disturbed area east of and adjacent to Highway 96. This sedimentation pond is located as close as possible to the contributing disturbed areas and is not located within the floodplains of any perennial streams.

Complete detailed plans, calculations, and design specifications for sedimentation ponds are presented in Exhibit 16, Runoff Control Design Details. This design documentation include discussion of design methodology and assumptions, descriptions of specific drainage and sediment control structures or types of structures, hydrologic and hydraulic design calculations, and design specifications for all structures. In addition to compliance with applicable design standards and requirements under the Utah Coal Mining Regulations, the Kinney Mine sedimentation pond will be constructed, operated, and maintained to effect compliance with applicable UPDES discharge effluent standards. The pond has been designed to provide a minimum detention time of 24 hours, and longer if necessary, to meet applicable effluent limitations with respect to TSS and is sized to control pond discharge rates so that adequate detention times are maintained.

The proposed sedimentation pond has been designed to provide adequate storage for anticipated sediment accumulations from contributing drainage areas. Sediment storage calculations are conservative, reflecting the maximum anticipated disturbance acreage for each drainage area over the mine life. In addition to designing for adequate sediment storage capacity, CEG3 will monitor the sediment level in the sedimentation pond, and as necessary to maintain adequate storage capacity, will remove accumulated sediment and dispose of it at Utah State approved disposal sites such as ECDC in East Carbon, Utah or another facility. Sediment removal volumes will be minimal and should not have any significant effect on refuse stockpile stability, overall volume, or overall storage issues within the mine. It is anticipated that sediment removal will be only be required on an occasional basis.

As sediment removal becomes necessary, CEG3, in order to facilitate removal, minimize the potential for additional contributions of sediment to downstream waters, and prevent any potential adverse impacts on coal refuse stockpile stability, will schedule sediment removal during the portion of the year when the sedimentation pond is normally dry. Any water retained in the ponds at this time will be utilized for mine dust control application and pond surfaces will be allowed to dry out prior to initiation of equipment operations and sediment removal. If runoff occurs during pond cleanout, sediment removal operations will be temporarily suspended until any accumulated water can be discharged and effective operating conditions for sediment removal reestablished as described in R645-301-522, 523.100 – 220, 524.100 – 800, & 525.100 – 300, General description of Mine Plans, Mining Methods, and Related Design Requirements.

The sedimentation pond, unless otherwise required by Federal or State law, will be completely removed and effected area reclaimed upon completion of mining and related activities and restoration of contributing drainage areas. Restoration criteria include a re-vegetation success determination as described by R645-301-341.250, 300, 353.100 – 300, 356.100 – 400, & 357.100 - 300, Re-vegetation Success - Criteria and Evaluation Methods, and effective restoration of drainage characteristics such that the quality of untreated runoff from reclaimed areas is

approximately equal to the quality of receiving drainages before the initiation of any mining activity as established by baseline water quality data.

Sedimentation pond reclamation will involve removal of any man-made discharge structures, removal and disposal of any riprap and bedding materials which will not be utilized in conjunction with re-establishment of postmining drainages, grading of embankment fill into pond basin areas, and re-grading associated disturbance areas to blend with surrounding reclaimed and undisturbed terrain. Replacement of soil/substitute materials and re-vegetation as described in R645-301-542.300 – 800, 500 – 553.900, & 560, Reclamation Practices, will complete pond reclamation.

As previously discussed in the introduction to this section, operational plans for the Kinney Mine include standard hydrologic controls and mitigation measures that are designed to prevent significant changes in the quantity and quality of surface and ground water resources, preserve existing hydrologic functions, comply with regulatory requirements, and limit adverse impacts to surface water or ground water users. These measures include:

- Limiting surface disturbance areas
- Proper design, construction, and grading of facilities areas and roads
- Construction, operation, and maintenance of drainage and sediment control structures to divert undisturbed runoff around disturbance areas, collect and route disturbed area runoff to sedimentation ponds to allow settlement of suspended solids, and facilitate any treatment which may be necessary
- Utilization of localized erosion control measures in any areas having high erosion potential
- Initiation of reclamation operations as soon as practical following completion of mining or when the associated facilities are no longer required to support ongoing mining and related operations
- Effective reclamation to minimize gradients, re-establish surface drainage patterns, restore pre-mining runoff and infiltration characteristics, and establish an effective and self-sustaining vegetative cover
- Post-reclamation land use management

During active operations, the designed drainage and sediment control system along with appropriate surface grading and stabilization measures will be the primary mechanism used to provide effective erosion and sediment control. A detailed discussion of this system was provided in R645-301-731.120 – 122, Surface Water Protection Measures. The locations and configuration of disturbed area drainage and sediment control structures are shown on Map 24, Drainage and Sediment Control Plan Map – Disturbed Drainage Areas, and design information and calculations are provided in Exhibit 16, Runoff Control Design Details. Because of limited surface disturbance area available for the Kinney Mine, the surface facilities have been laid out in a series of elevated pads as shown on the map.

Following completion of mining operations reclamation of surface disturbance areas, restoration of effective drainage, and revegetation as described in R645-301-511.300, 541.100 – 400, 553.500 – 524, & 553.600 - 653, Reclamation of Mining Disturbance, will be the primary means of establishing both effective short and long-term erosion and sediment control.

This section presents the climatological information and methodology used in performing a hydrologic analysis to determine runoff volumes and peak runoff discharges which were used in designing the sediment pond, drainage ditches, conveyance/by-pass culverts, and reclamation channel.

**Runoff Calculations**

**Discharge Rate Calculations**

There are no streams that traverse the permit area. Three perennial streams however are located within ¾ to 2 1/5 miles which are tributary to Scofield Reservoir. Mud Creek is the largest and is located within the central valley area west of the proposed permit area and Long and Miller Canyons are located ¾ and 2 1/3 miles to the east. Long Canyon many not actually be perennial but intermittent. More field work will determine this. Smaller local drainages exhibit inflow in response to spring snowmelt and high intensity thunderstorms. These drainages do not contribute significant quantities, or yields of stream flow to Mud Creek or Scofield Reservoir.

The USGS monitors stream flow in the area at the Mud Creek below Winter Quarters Canyon Scofield (USGS Station 09310700). This monitoring station is immediately downstream of the confluence of Winter Quarters Canyon and Mud Creek.

Mud Creek is the only perennial stream potentially directly tributary to the mine permit area. It is however more likely that permit area discharges will enter Scofield Reservoir directly and will not enter Mud Creek itself. Long and Miller Canyons enter Scofield Reservoir approximately 1.6 miles north of the mine site.

Flows within Miller Canyon, to which Long Canyon is tributary, and from Sulphur Spring are measured in the field utilizing flow area and velocity calculations.

All other surface water discharge rates used for ditches, culverts and the pond are calculated using standard runoff prediction modeling which utilizes the SCS Curve Number method.

**Volume Calculations**

Surface water volume determinations used within in the permit area for the design of the sediment pond utilizes the SCS Curve Number procedure mentioned above for flow calculations, and is reported in ac-ft/year.

**Climatological Information**

Precipitation depths were obtained from the Point Precipitation Frequency Estimates from National Oceanic and Atmospheric Administration (NOAA) Atlas 14 found on the NOAA website (http://hdsc.nws.noaa.gov/hdsc/pfds). This site calculates rainfall depths at various durations and return frequencies for a given location and elevation. Estimates are based on annual precipitation data from over 300 stations in Utah and over 2,000 stations in the semiarid southwest. The design rainstorm depths were taken from the NOAA website at a location approximately near the center of the proposed mine site. The design rainfall depths used in the hydrologic analysis are shown in Table 16, Design Rainfall Depths.

**TABLE 16. DESIGN RAINFALL DEPTHS**

| LOCATION | RETURN PERIOD | RAINFALL DEPTH (INCHES) BY DURATION | |
|---|---|---|---|
| | | 6-HOUR | 24-HOUR |
| Kinney Mine | 10-Year | 1.28 | 1.92 |
| | 100-Year | 2.08 | 2.73 |

**Modeling Methodology**

Jones Draw (southern-most) and Columbine Draw (next north of Jones Draw) are the southern two of the three ephemeral drainages that cross the permit boundary. These two drainages currently are conveyed under Highway 96. The south drainage (Jones Draw) will be conveyed by way of culvert UDC-1 through the mining area and under Highway 96. The northern drainage (Columbine Draw) will also be culverted to bypass the proposed roads and ditches without effecting the mine permit area via culvert UDC-2. Storm drainage runoff from the remaining permit area, with exception of a small area south of the main mine access road and east of Highway 96, will be captured and conveyed to a sediment pond by way a drainage collection system consisting of a series of ditches and culverts. Runoff from the small area south of the entrance will be managed using alternate sediment control methods with revegetation and silt fencing and/or straw bales. The runoff conveyance plan is shown in Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas.

In order to design the collection system ditches and culverts, hydrographs and peak runoff flows were determined. The hydrology for the mine permit area was modeled with Hydrologic Modeling Software (HEC-HMS) 3.1.0 developed by the Army Corps of Engineers using the Soil Conservation Service (SCS) curve number loss method and the SCS unit hydrograph transform method. The SCS Type II rainfall distribution was used in analyzing the storm drainage runoff which was developed by the Natural Resources Conservation Service (NRCS) for 24-hour rainfall events. A modified SCS Type II 6-hour distribution was also developed by the Soil Conservation Service and is provided in the SCS National Engineering Handbook-4 (NEH-4).

Drainage basins (also referred to as watersheds or catchments) were delineated in AutoCAD using existing and proposed elevation contour data and the location of proposed pads and storm drainage facilities. A drainage basin is an area where all rainfall or snowmelt runoff within it will collect to a common point. Each drainage basin includes one or a combination of the following three land types: hard surface pad area revegetated graded area, and natural undisturbed area.

Each basin was assigned an SCS (Soil Conservation Service) curve number. The curve number is a function of vegetative cover, hydrologic soil groups, and Antecedent Moisture Conditions (AMC). Curve numbers range from 0 to 100. Areas with high runoff rates have high curve

numbers. Areas that are more pervious have lower curve numbers. Area-weighted curve numbers for each drainage basin were estimated by delineating the area of the three land types within each drainage basin and using curve numbers for the three land types obtained from the SCS NEH-4 which are 90 for the hard surface pads (C soil, hard surface, AMCII), 82 for the revegetated graded area (C soil, 10% ground cover density, AMCII condition), and 75 for the natural undisturbed area (C soil, 20% ground cover density, AMCII condition).

Drainage basins were modeled in HEC-HMS using the SCS unit hydrograph transform method which requires a lag time $t_L$ for each basin. Lag time is described as the time from the center of mass of rainfall excess to the peak of the runoff hydrograph. According to the SCS, the watershed lag time is equal to 0.6* $t_c$ (Time of concentration). The time of concentration $t_c$, (not is defined as the time required for flow from the hydraulically most remote point in a basin to reach the basin outlet. Times of concentration and lag times were calculated for each basin within the mine permit area using the method described in SCS Technical Report55 (TR-55) which takes into account sheet flow travel time, shallow concentrated flow travel time, and channel flow travel time. A lag time for the mountain watershed tributary to UDC-1 was estimated using the method described in the publication by M.J. Simas and R.H. Hawkins called "Lag time characteristics for small watersheds in the U.S." which takes into account width, slope, and curve number of the mountain drainage basin.

### R645-301-733 Impoundments

CEG3 does not propose any permanent impoundments within the mine or loadout areas. Upon restoration of disturbed areas, the sedimentation pond will be removed and associated disturbance areas reclaimed. In addition, all reclaimed areas will be re-graded to re-establish natural drainage patterns and eliminate any significant depressions which could impound water.

As described and referenced in R645-301-526.100 – 300, 527.100 – 250, 528.100 – 322, & 529.100 - 400, Mine Structures and Facilities, all impoundments will be designed and constructed with stable perimeter side-slopes, inlets, the tops of pond embankments, and embankment outslopes will be protected against erosion by vegetation or riprap as necessary. With the exception of downstream embankment slopes, all embankment areas will drain to the impoundment basins providing inherent sediment control. Runoff from downstream embankment slopes will be effectively limited by the semi-arid climate, minimal slope angles, and re-vegetation so that no additional sediment control will be necessary.

CEG3 has developed a pond maintenance program designed to assure continued safe and effective operation of the Sediment Detention pond and surface water control system. The sedimentation pond will be inspected at regular intervals during construction and on completion of construction by a professional engineer or specialist experienced in impoundment construction. An impoundment inspection report certified by a Registered Professional Engineer will be provided to UDOGM promptly following each inspection. The report will verify construction in accordance with design plans and will note and discuss any apparent instability, structural weakness, or other hazardous conditions. A copy of the report will be retained on file at the mine site for inspection by authorized agency representatives.

### Operation and Maintenance

Operation and maintenance of drainage and sedimentation control structures will involve

periodic inspection of all ditches and culverts, quarterly inspection and annual certification of the impoundment and related structures, ongoing discharge monitoring for the impoundment, and any necessary maintenance or repair of problems noted during the inspections.

CEG3's ditch inspection and maintenance procedures will focus on identification and repair of any significant ditch erosion, removal of any trash or debris from ditches, and maintenance of an adequate cross-sectional flow area, regardless of actual ditch configuration, to pass the design flows. In practice this will mean that CEG3 will not modify, recut, or clean out a ditch simply because the physical ditch dimensions are not the same as the original design or originally constructed configuration so long as the actual ditch configuration is adequate to pass the design flow. Since the ditches and culverts have been designed to a larger runoff event than is required by UDOGM regulations, there is excess capacity in the ditches and culverts. This approach allows for some siltation, and erosion without affecting the capacity of the ditches and culverts to carry the regulatory required flow. Culvert maintenance will involve removal of trash or debris from culvert inlets and any upgradient debris fences, repair of any significant erosion at culvert inlets, outlets, or of the cover material, and repair or replacement of any damaged culverts.

Sedimentation pond maintenance and operation procedures will include ongoing sampling and discharge monitoring under applicable provisions of a UDWQ permit; quarterly inspections of pond embankments, impoundment areas, discharge structures, and inlet/outlet structures and areas and reporting; notification of any hazardous conditions and development of emergency remedial control measures; maintenance or repair of any problems noted during the inspections; and the periodic removal of accumulated sediment. The sedimentation pond has been designed and will be operated and maintained to effectively retain storm runoff to allow settlement of suspended solids prior to discharge. Control of potential water quality impacts from pond discharge is monitored through compliance with applicable effluent standards under a UDWQ discharge permit. Effluent sampling and reporting will occur as outlined in R645-301-731.200 - 225, Water Monitoring Plan, and under the provisions of the UPDES permit.

The sedimentation pond will be inspected quarterly by a qualified person for any indication of structural weakness or other hazardous condition, instability, and any erosion or other problems; the depth and elevation of any impounded water will be measured; based on the depth measurements storage capacity will be estimated; and any required structural monitoring will be performed. Copies of the quarterly inspection reports discussing each of the noted inspection categories and verifying that the pond has been constructed and maintained as designed will be prepared, certified by a qualified Registered Professional Engineer, and submitted promptly to UDOGM. Copies of the inspection reports will also be maintained on file at the minesite. Any minor problems noted during the inspection will be addressed in a timely manner. This may involve repair of any minor localized erosion, clean-out or minor repair of discharge structures, reseeding of embankment slopes, mowing weeds which may interfere with pond inspection, or other minor maintenance and repair as necessary. If the inspection identifies any structural weakness or other conditions which could pose a hazard to the public, the person who conducted the inspection will notify UDOGM promptly of the hazardous condition and any emergency procedures which may be appropriate to protect the public and address the hazardous condition. In consultation with and with approval from UDOGM, appropriate remedial measures will be implemented as soon as is reasonably practicable to address any hazardous condition.

CEG3 has no plans for future construction of any additional ponds beyond that addressed in this mining and reclamation plan submittal. If changes in mine plans or effected areas dictate the necessity for additional sedimentation control structures, CEG3 will evaluate requirements, complete the necessary designs, and submit the designs as technical revisions to the approved permit for UDOGM review and approval prior to initiating any construction work.

**R645-301-735 Disposal of Excess Spoil**

As described in R645-301-521, 522, 523.100 – 220, 524.100 – 800 & 525.100 - 300, Engineering Designs and Operating Plans, mining and related operations will not result in the generation of any excess spoil and, in fact, reclamation activities will be limited to backfilling and re-contouring utilizing the limited spoil materials available on the site. Plans for handling and disposal of non-coal wastes are presented in R645-301-526.100 – 300, 527.100 – 250, 528.100 – 322, & 529.100 - 400, Mine Structures and Facilities, under the subheading of Noncoal Waste Disposal. The specific handling and disposal methods described in the referenced permit sections will effectively protect ground and surface water resources by minimizing the potential for pollution or contamination from placement and handling of waste materials generated by mining and related operations.

**R645-301-736 Coal Mine Waste & Underground Development Waste**

**Underground Development Waste**

Please refer to a full treatment of this topic in Chapter 5 under R**645-301-526 Mine Facilities – Mine Development Waste.**

**R645-301-737 Noncoal Mine Waste**

Plans for handling and disposal of non-coal wastes are presented in Chapter 5, Engineering Design and Operations Plans Noncoal Waste Disposal, and to follow. The specific handling and disposal methods described in the referenced permit sections will effectively protect ground and surface water resources by minimizing the potential for pollution or contamination from placement and handling of waste materials generated by mining and related operations.

Noncoal Waste Disposal

Noncoal wastes generated in conjunction with mining and related activities will including but not limited to used oil and lubricants, garbage, paper waste, machinery parts, tires, cable, wood waste, and other miscellaneous debris. All smaller noncoal solid wastes will be collected and stored in dumpsters or similar closed containers. Larger solid waste materials including such items as used equipment, machinery parts, tires, and cable will be temporarily stored in designated sap yards located in areas as shown on Map 13, Surface Facilities Map. Dumpsters will be located primarily near buildings during mine operations, however, during construction they may be located throughout the disturbed area. Used oil will be handled according to Utah State and EPA requirements. Any waste other used oil and lubricants and any used oil not

meeting the applicable EPA requirements will be collected and stored in either closed drums or in the waste oil storage tank located in the maintenance shop building. Temporary storage areas for used oil and lubricants will provide full containment to prevent accidental release of petroleum products to the surface drainage system.

CEG3 does not currently plan or anticipate that any materials classified as "hazardous waste" will be utilized or generated in conjunction with the proposed mining and related operations. In the unlikely event that hazardous materials storage or disposal become necessary, CEG3 will comply with all applicable storage, labeling, and documentation requirements, and disposal will occur off-site at a licensed hazardous waste disposal facility.

A contract disposal service will regularly collect and haul the noncoal solid wastes from the dumpsters to the permitted Carbon County municipal landfill, or to the East Carbon Development Corporation (ECDC) facility. Dependent on the market for sap materials, the larger noncoal solid waste and sap will be collected periodically either by a salvage contractor for salvage and recycling or by a contract disposal firm which will haul these materials off-site and dispose of it in a suitable disposal site. Any used oil, lubricants, or other potentially combustible materials will be collected and either recycled or disposed of by a licensed disposal contractor in accordance with all applicable Utah and EPA regulations. No noncoal wastes will be disposed of on site during active operations.

### R645-301-738 Temporary Casing and Sealing of Wells

All exploration boreholes and any boreholes which have been converted to monitoring wells following completion of drilling within the Kinney Mine permit area will be plugged and sealed during mining reclamation. In the case of the boreholes, plugging and sealing will occur as soon as drilling, sampling, and logging operations are completed. In the case of monitoring wells, the wells will be plugged and sealed when no longer needed for ongoing ground water monitoring. Standardized procedures for plugging and sealing are detailed in R645-301-631 – 631.200, & 641, Casing and Sealing Exploration Holes and Boreholes. Measures to plug and seal boreholes and water monitoring wells will minimize the potential for mixing of surface and ground water sources and will also limit the potential for communication and mixing between various but locally limited ground water aquifers.

### R645-301-740 Design Criteria and Plans

This section presents detailed information on the design standards and requirements which have been or will be utilized in the design, construction, operation, maintenance, and reclamation of drainage and sediment control structures and facilities for disturbed and undisturbed areas. Forward references to methods and calculations used in design criteria are:

| | |
|---|---|
| Curve Number Methodology | |
| Sec 732 | Discharge Rate Calculation |
| Sec 732 | Volume Calculation |
| Sec 732 | Modeling Methodology |
| Ditch Design | |
| Sec 742.300 | Collection Ditches and Associated Structures |
| Sec 724.400 | Road Drainages |
| Pond Design | |

| | |
|---|---|
| Sec 742.220 | Sedimentation Ponds |
| Sec 728 | Surface Water Consequences |
| Sec 731.110 | Retention of Drainage in Sedimentation Pond Structures |
| Sec 732 | Table 16 – Design Rainfall Events |
| Reclamation | |
| Sec 760 | This section discusses reclamation activities based on the criteria set in Sections 728 through 742.220 |

**R645-301-742 Sediment Control Measures**

CEG3 has designed and will construct, operate, and maintain drainage and sediment control structures to minimize erosion, control surface runoff, and prevent, to the extent possible, increased contributions of suspended solids to area drainages. By effectively accomplishing these objectives CEG3R will also affect full compliance with all applicable discharge effluent limitations under any required UPDES discharge permit(s). Discussions of drainage and sediment control practices are presented in R645-301-521, General Description of Mine Construction and Development Activities and in R645-301-526.100 – 300, 527.100 – 250, 528.100 – 322, and 529.100 - 400, Mine Structures and Facilities, under the subheading of Drainage and Sediment Control Structures. In addition, a description of design methodology and all design calculations for drainage and sediment control structures to be constructed in the mine facilities area are presented in Exhibit 16, Runoff Control Design Details.

During construction, active mining operations, and reclamation, drainage from all disturbance areas will be effectively controlled by the drainage and sediment control network. To the extent reasonably feasible, runoff from undisturbed areas will be diverted and routed around the effected areas, and all disturbed area runoff will be intercepted and routed to a sedimentation pond except for the small area south of the main mine access road where alternate sediment control measures will be utilized. Operation of the drainage and sediment control network will effectively control disturbed area runoff and retain sediment from disturbed area runoff within mine disturbance areas. In addition to the engineered drainage and sediment control structures site specific drainage control and surface stabilization measures will be utilized on an as needed basis. These may include the use of temporary berms, straw bales, mulch, sediment traps, vegetative filters, silt fence, and other appropriate drainage localized drainage and sediment control measures.

Upon completion of mining and related activities, all disturbance areas will be reclaimed, with reclamation activities designed to restore drainage conditions and land use capabilities comparable to those existing prior to the Kinney mining related disturbance. Disturbance areas will be backfilled where necessary and re-graded to establish an undulating configuration with relatively short gradual slopes which will blend with surrounding undisturbed terrain. Re-graded surfaces will be left in a roughened condition to limit runoff and provide for an effective bond between the re-graded materials and subsequently placed topsoil. Reclamation will be completed by replacing available topsoil resources and re-vegetating disturbance areas to establish an effective vegetative cover which will control runoff, erosion, and provide effective habitat and grazing/forage values for wildlife and domestic livestock.

**R645-301-742.200 Siltation Structures**

The purpose of siltation structures is to prevent additional contributions of suspended solids from disturbed area watersheds to receiving drainages. Consistent with applicable regulatory

requirements, siltation structures should represent the best control technology currently available and are intended to be constructed prior to initiation of any mining related disturbance within the contributing watershed. As described in R645-301-522, 523.100 – 220, 524.100 – 800, & 525.100 - 300, General Description of Mine Construction and Development Activities, CEG3 will construct required drainage and sediment control structures as one of the initial development activities prior to other construction related surface disturbance. Generally, the downstream sedimentation pond will be utilized as the primary siltation structure and the design criteria and other requirements for the sedimentation pond will therefore be applicable as described in the following section. In the following case where routing of disturbed area drainage to the sedimentation pond is not practical, siltation structures will consist of appropriate alternative sediment control measures:

Outslope of Office Pad (Pad F) and the Topsoil Stockpile (see Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas) - Siltation control for the outslope of Pad F and areas adjacent to the mine entrance will be achieved through the use of silt traps, vegetative matting and perimeter silt fencing which will intercept and contain runoff sediment. If vegetative matting and perimeter silt fencing prove inadequate to control erosional runoff, straw bales and/or additional silt fencing will be placed on contours to further control local silt movement.

Silt control for the alternate sediment control area west of Highway 96 (see Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas) will be achieved through the use of vegetative matting and perimeter silt fencing which will intercept and contain runoff sediment. If vegetative matting and perimeter silt fencing prove inadequate to control erosional runoff, straw bales and/or additional silt fencing will be placed on contours to further control local silt movement.

Sediment traps will be used on both sides of the mine entrance off of Highway 96 to control runoff from the small area between the cattle guard and Highway 96 (see Map 24).

**R645-301-742.220 Sedimentation Ponds**

One sedimentation pond will provide effective sediment control for the Kinney mine facilities disturbance areas. This pond is located near the north end of the mine facilities Loadout Pad (Pad C) as shown on Map 24, Drainage and Sediment Control Plan Map – Disturbed Drainage Areas and is located as close as possible to the contributing disturbance area(s). The proposed sedimentation pond is not located within the floodplain of any perennial streams as documented by the classification of streams within the permit areas described in detail in R645-301-711, 720, 722, 724726, & 727, Hydrology Information.

The sedimentation pond has been designed to be constructed to provide adequate storage for anticipated sediment contributions from contributing drainage areas. Sediment storage calculations reflect the maximum anticipated disturbance acreage for each drainage area over the mine life. The design also reflects a basin capacity sufficient to retain the flood routed volume equal to the runoff resulting from a 10-year, 24-hour storm event. Design calculations are presented and design methodology for the sedimentation pond are discussed in Exhibit 16, Runoff Control Design Details. Generally, mining and related activities will result in the direct hydrologic impacts associated with initial site disturbance and facility construction but will not result in significant further changes in hydrologic conditions for disturbed area drainages. Runoff from undisturbed areas will be diverted around or under disturbance areas and is not considered in sedimentation pond design.

The pond has been designed to provide a minimum detention time of 24 hours, and longer if necessary, to meet applicable effluent limitations with respect to TSS. Pond outlet structures are sized to control pond discharge rates so that adequate detention times are maintained. Inflow to the sedimentation pond will be routed through the pond and discharged through the outlet structure. The principal/emergency spillway structure is designed to pass the peak flows resulting from a 100-year, 6-hour storm event.

The discharge structure for the sedimentation pond is sized based upon calculated flows for the design storm events. Invert elevations for principal spillways are set above design sediment levels and the pond is designed with adequate freeboard consistent with applicable regulatory requirements. CEG3 has designed the sedimentation pond to minimize the potential for short circuiting, and constructed it so that the primary outlet structure is located as far as possible from pond inlets. The pond outlet structure is also specifically designed to insure adequate retention time, prevent short circuiting, and minimize erosion with vegetation or riprap lined spillway and discharge channels as appropriate based on discharge flow velocities.

Pond design for the Kinney mine facilities have been developed under the supervision of a qualified Registered Professional Engineer. Consistent with applicable regulatory requirements, construction of the pond will be certified by a Registered Professional Engineer. Pond certifications for the new pond will be included as an appendix to Exhibit 16, Runoff Control Design Details.

Pond construction will also be consistent with applicable regulatory construction requirements. Foundation areas will be cleared, soil and incorporated vegetative materials removed, and foundation areas graded prior to embankment construction. Embankments will be constructed of materials specifically selected to exclude vegetation, roots, frozen soil, coal or other unsuitable materials. The selected embankment fill materials will then placed and compacted in a controlled manner in thin horizontally continuous lifts. As previously noted, embankments will be designed and constructed to provide a minimum of one (1) foot of freeboard between the emergency spillway design flow level and the top of the embankment. Actual embankment construction height (except for excavated portions) will be increased by approximately 5 percent to allow for any potential settlement, and upstream and downstream embankment slopes will be established at slopes no greater than 2H:1V. Upon completion of construction, all embankment slopes as well as exposed basin areas will be graded, scarified and seeded to stabilize the slopes, prevent erosion, and establish an effective vegetative cover.

The sedimentation pond will be completely removed and effected areas reclaimed upon completion of mining and related activities and restoration of contributing drainage areas. Pond reclamation will occur following a determination by UDOGM of re-vegetation success and hydrologic restoration. Sedimentation pond reclamation will involve removal of any man-made discharge structures, removal and disposal of any riprap and bedding materials which will not be utilized in conjunction with re-establishment of post-mining drainages, grading of embankment fill into pond basin areas, and re-grading associated disturbance areas to blend with surrounding reclaimed and undisturbed terrain. Replacement of soil/substitute materials and re-vegetation will complete pond reclamation.

As shown in Figure 35, Pond 1 Stage-Volume Curve, the sedimentation pond has an embankment height and storage volume of 8 feet and 4.82 acre-feet respectively, and therefore does not fall within the jurisdiction of the State Engineer requiring additional regulatory submittals. Pond 1 is therefore not designated an MSHA pond and will be inspected on a quarterly basis at a minimum for structural weakness, erosion and other hazardous conditions. Consistent with applicable regulations, UDOGM will be notified of any hazardous conditions.

Should any such conditions be identified, remedial measures will be initiated and appropriate modifications will be completed in a timely manner.

**R645-301-742.300 Diversions**

Surface facilities diversions will be constructed to intercept and divert surface runoff flows from undisturbed upgradient areas around the mine surface facilities areas. Diversion of undisturbed drainage will minimize additional sediment contributions, prevent impacts from the undisturbed drainage on mine disturbance areas, and limit requirements for retention and treatment of surface runoff to disturbed area drainage flows. All temporary diversions related to the mine facilities area are shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Areas. The permanent re-establishment of the ephemeral drainage through the disturbed mining area is shown on Map 29, Mine Surface Facilities Area - Postmining Topography. Design calculations for temporary and permanent diversions are provided in Exhibit 16, Runoff Control Design Details.

Diversion structures utilized in conjunction with the Kinney Mining and related operations will include both temporary diversions to control undisturbed runoff during active mining and reclamation operations and the permanent diversions which will be constructed in order to restore effective surface drainage following completion of ongoing mining and related operations.

In an effort to restore the natural environment to pre-mining conditions through the reclamation process, culvert UDC-1 will be removed and the topography restored to the extent possible to pre-mining conditions. Slopes and contours will be re-established to blend with both upstream and downstream topography to approximate the natural gradients as shown on Map 29, Mine Surface Facilities Area – Post Mining Topography. Given the local conditions noted, aquatic habitat values are non-existent.

The original and post-mining alignments of the irrigation ditch are similar. As can be seen on Map 29, Mine Surface Facilities Area – Post Mining Topography, the south end of the irrigation ditch is fixed, and must match the alignment of the existing ditch to the south. The north end is fixed by the drainage culvert underneath Highway 96. The ditch must therefore be reclaimed using a uniform gradient between the two points, with a bottom width and side slope configuration that matches those conditions found in the natural ditch south of the disturbed area.

**Collection Ditches and Associated Structures**

Collection ditches for disturbance areas associated with the proposed Kinney Mine surface facilities diversions will be established to collect and route disturbed area runoff flows to a designed sedimentation pond. The locations of disturbed area collection ditches in the mine facilities areas are shown on Map 24, Drainage and Sediment Control Plan – Disturbed Drainage Area and corresponding design calculations are provided in Exhibit 16, Runoff Control Design Details.

All temporary runoff ditches have been conservatively sized to carry the peak runoff flows from the 25-year, 6-hour storm event. Ditches UDD-1 and UDD-2 are upgradient undisturbed area

ditches which will remain following reclamation. These two ditches were designed using the 100-year, 6-hour storm event. In order to assure effective collection and routing of disturbed drainage flows and minimize both erosion and sedimentation, required culverts have been sized to safely pass the peak flow from the contributing inlet ditches with a significant factor of safety and culvert inlets, outlets, diversion channels, and those areas where one or more channels intersect have been designed and will be constructed using properly sized and placed riprap or other erosion control materials, as required. Specific information on culvert design and erosion protection measures is also provided in Exhibit 16, Runoff Control Design Details.

Temporary diversion ditches in disturbed areas are designed to safely pass the peak discharge from the 10-year, 6-hour storm event. All diversions have been designed and will be constructed to remain stable under design flow conditions. Calculated flow velocities based on channel configuration, slope and flow volume have been utilized as the basis for design of either vegetative channel linings or specification of riprap and bedding materials to assure channel stability. Locations of all temporary diversions are shown on Map 23, Drainage and Sediment Control Plan Map – Undisturbed Drainage Areas, and on Map 24, Drainage and Sediment Control Plan Map – Disturbed Drainage Areas. Design calculations for the mine facilities area are included and design methodologies discussed in Exhibit 16, Runoff Control Design Details.

Upon completion of mining and related activities all temporary diversions will be removed (with the exception of ditches DE-3, and DE-4) and the effected lands reclaimed when no longer required for sediment control. Ditches UDD-1 and UDD-2 remain as permanent structures. Ditches DE-3 and DE-4 will remain to divert and control runoff and from the reclaimed areas into the sediment pond. Ditches DE-3 and DE-4 will be reclaimed along with the sediment pond. When it occurs, reclamation will consist of full or partial filling of the diversion ditches with material from adjacent areas consistent with the design post mining drainage configuration, grading to blend ditch areas with surrounding terrain, replacement of available soil/substitute materials, and reseeding.

None of the planned diversions will drain into underground mines. The potential for subsidence will generally be limited and is not expected to impact surface structures. Because of location, there is no potential for drainage from Mud Creek to enter underground workings. In addition, upon completion of mining and related activities, CEG3 will seal and backfill the mine portals and other mine openings to prevent any significant exchange between surface and ground water systems. Details of portal sealing are discussed in R645-301-541.100 – 400, & 542.200, Reclamation Plan, under the subheading of Stabilization and Sealing of Mine Openings.

**R645-301-742.400 Road Drainage**

All roads have been designed to be constructed, operated, and maintained to provide for effective control of drainage from road surfaces, associated cuts and fills, and other related areas. Road construction in perennial and ephemeral streams has been avoided except where a road crossing for UDC-1 was necessary, and road alignments and designs minimize the

potential for downstream sedimentation or flooding and uncontrolled drainage over the road surface.

Road designs incorporate grading or crowning to promote effective drainage off the road surface, road surfaces will generally be protected from erosion and damage by appropriate surfacing materials and regular maintenance, roadside ditches have been designed to effectively collect and convey runoff from road areas, and culverts are provided where appropriate to convey drainage flows under or around designed roads. All road ditches and culvert structures have been designed to pass the flows from the 10-year, 6-hour storm event. Road culverts have been located and sized to avoid plugging or collapse and culvert installations will incorporate inlet and outlet protection and trash racks as appropriate to minimize both plugging and erosion. Roads, ditches, and associated culverts are shown on Map 24, Drainage and Sediment Control Plan Map – Disturbed Drainage Areas.

Flows from the 100-year, 6-hour storm were used to check the design capacity of undisturbed area drainage road ditches UDD-1 and UDD-2. In fact, the design is slightly conservative for UDD-1 since the area used also includes that area tributary to UDD-2. In a similar fashion, the design for UDD-2 is conservative since it also includes flows from the area tributary to UDD-1. Details regarding ditch design are provided within R645-301-731.110 - 112.

**R645-301-743 Impoundments**

The sedimentation pond described in the preceding section is the only impoundment which will be utilized for drainage and sediment control purposes in conjunction with the Kinney mining and related operations. Applicable regulatory requirements for impoundments essentially duplicate the specified requirements for sedimentation ponds addressed above. Given limited pond size and capacity, the minimum design freeboard of 1 foot is more than adequate to resist overtopping of the embankment due to wave action or sudden increases in inflow.

To ensure that the designed storm water storage capacity is maintained, a staff gage will be installed in the sediment pond with the sediment cleanout level clearly marked so it can be visually monitored. Marks will be made on the staff gage at elevations of 7683.80 (5.3 year sediment level), and at each 0.5 foot level below the 5.3 year sediment level. This will allow mine operators to visually monitor the sediment level and plan for sediment cleanout.

**R645-301-744 Discharge Structures**

Flow rates and velocities for temporary diversion ditches and discharge calculations for the sedimentation pond outlet are presented in Exhibit 16, Runoff Control Design Details. Where specific constraints imposed by the natural terrain result in steeper gradients, flows may exceed five feet per second and placement of riprap and bedding material may be necessary to limit flow velocities, assure channel stability, and prevent any significant erosion. Design calculations

include information on riprap sizing where required and the descriptive text in Exhibit 16, Runoff Control Design Details addresses standard procedures to be utilized in placing and securing riprap and bedding materials, and can be seen on Map 27, Runoff Control Details.

Generally, discharge structures have been designed at minimum gradients to limit discharge flow energy. Any potential for erosion at the outflow of discharge structures will be effectively controlled by placement of riprap and bedding materials in an apron configuration at the outflow. Generally, once the initial discharge energy is dissipated in these apron areas, erosion from the discharge flow will not be a problem since most receiving drainages have established a stable bed configuration and most drainages are effectively armored by exposed cobble and gravel materials. Because of limited space, grouted riprap has been utilized where hydraulic calculations show the need for ditch erosion control. Riprap aprons have also been utilized to dissipate energy as undisturbed area flows exit culverts west of Highway 96. Use and placement of riprap and bedding materials as designed herein should provide adequate channel protection and erosion control.

Other than the sedimentation pond and alternative sediment control measures discussed in the preceding sections, no additional treatment facilities will be necessary or will be utilized to provide effective drainage and sediment control and meet applicable discharge effluent limitations.

Runoff from the Kinney No. 2 Mine area to be disturbed flows to 4 existing culverts beneath UDOT Highway 96, one culvert is located at the south end of the permit area adjacent to the proposed topsoil stockpile, a second culvert is located near the existing gravel road accessing the proposed mine site, a third culvert is located near the north end of the proposed permit area adjacent to the proposed sediment pond, the fourth culvert is located well north of the proposed permit area. The vast majority of runoff water flows to the second and third culverts mentioned above. The vast majority of runoff from the mining disturbed area will report to the sediment pond, with a discharge point at the west side of Highway 96. The first three culverts discussed above can be seen on Map 24, Drainage and Sediment Control Plan Disturbed Drainage Areas Map.

Of the two existing culverts carrying the vast majority of the pre-mine runoff, the third culvert mentioned above will be replaced with culvert No. CP-2 during reconstruction of Highway 96 for turning lanes into the mine site. This culvert will receive discharge from the sediment pond. Pre-mining runoff reports to this culvert so no significant increase in flows will be experienced, and in fact, since the sediment pond will collect sediments from the runoff water and act as a regulating pond for storm events there should be no adverse affects from the pond discharge. There is little evidence of flows through this culvert in recent years. An energy dissipation fan structure will be constructed to prevent erosion at the end of Culvert No. CP-2 as shown on Map 24, and detailed in Exhibit 16, Runoff Control Design Details.

The sediment pond is an incised pond. In the event of the pond over-topping due to an extreme runoff event, or plugging of the primary and emergency spillways, water would flow overland to the UDOT Highway 96 rode-side ditch and flow through Culvert CP-2.

**R645-301-745 Disposal of Excess Spoil**

As described in R645-301-521, 523.100 – 220, 524.100 – 800, & 525.100 - 300, Engineering Designs and Operating Plans, mining and related operations will not result in the generation of any excess spoil and, in fact, reclamation activities will be limited to backfilling and re-contouring utilizing the limited spoil materials available on the site. Plans for handling and disposal of non-coal wastes are presented in R645-301-526.100 – 300, 527.100 – 250, 528.100 – 322, & 529.100 - 400, Mine Structures and Facilities, under the subheading of Noncoal Waste Disposal. The specific handling and disposal methods described in the referenced permit sections will effectively protect ground and surface water resources by minimizing the potential for pollution or contamination from placement and handling of waste materials generated by mining and related operations.

**R645-301-746 Coal Mine Waste**

Please refer to a full treatment of this topic in Chapter 5 under R645-301-526 Mine Facilities – Mine Development Waste. Design and Operations Plans for handling Non-coal Waste Disposal, are described underR645-301-747 Disposal of Noncoal Mine Waste, below and will effectively protect ground and surface water resources by minimizing the potential for pollution or contamination from placement and handling of waste materials generated by mining and related operations.

**R645-301-738 Temporary Casing and Sealing of Wells**

All exploration boreholes and any boreholes which have been converted to monitoring wells following completion of drilling within the Kinney Mine permit area will be plugged and sealed during mining reclamation. In the case of the boreholes, plugging and sealing will occur as soon as drilling, sampling, and logging operations are completed. In the case of monitoring wells, the wells will be plugged and sealed when no longer needed for ongoing ground water monitoring. Standardized procedures for plugging and sealing are detailed in R645-301-631 – 631.200, & 641, Casing and Sealing Exploration Holes and Boreholes. Measures to plug and seal boreholes and water monitoring wells will minimize the potential for mixing of surface and ground water sources and will also limit the potential for communication and mixing between various but locally limited ground water aquifers.

## R645-301-747 Disposal of Noncoal Mine Waste

Noncoal wastes generated in conjunction with mining and related activities will including but not limited to used oil and lubricants, garbage, paper waste, machinery parts, tires, cable, wood waste, and other miscellaneous debris. All smaller noncoal solid wastes will be collected and stored in dumpsters or similar closed containers. Larger solid waste materials including such items as used equipment, machinery parts, tires, and cable will be temporarily stored in designated sap yards located in areas as shown on Map 13, Surface Facilities Map. Dumpsters will be located primarily near buildings during mine operations, however, during construction they may be located throughout the disturbed area. Used oil will be handled according to Utah State and EPA requirements. Any waste other used oil and lubricants and any used oil not meeting the applicable EPA requirements will be collected and stored in either closed drums or in the waste oil storage tank located in the maintenance shop building. Temporary storage areas for used oil and lubricants will provide full containment to prevent accidental release of petroleum products to the surface drainage system.

CEG3 does not currently plan or anticipate that any materials classified as "hazardous waste" will be utilized or generated in conjunction with the proposed mining and related operations. In the unlikely event that hazardous materials storage or disposal become necessary, CEG3 will comply with all applicable storage, labeling, and documentation requirements, and disposal will occur off-site at a licensed hazardous waste disposal facility.

A contract disposal service will regularly collect and haul the noncoal solid wastes from the dumpsters to the permitted Carbon County municipal landfill, or to the East Carbon Development Corporation (ECDC) facility. Dependent on the market for sap materials, the larger noncoal solid waste and sap will be collected periodically either by a salvage contractor for salvage and recycling or by a contract disposal firm which will haul these material off-site and dispose of it in a suitable disposal site. Any used oil, lubricants, or other potentially combustible materials will be collected and either recycled or disposed of by a licensed disposal contractor in accordance with all applicable Utah and EPA regulations. No noncoal wastes will be disposed of on site during active operations.

## R645-301-748 Casing and Sealing of Wells

All exploration drillholes established by CEG3 within the Kinney Mine permit area will either be completed as monitoring wells or sealed following completion of drilling, sampling, and logging. Well completion methods are described in R645-201 – 225, 323.200, 325, 202-235, & 236, Completion as Ground Water Monitoring Wells, and in Figure 21, Typical Well Completion Diagram. Similar to exploration drillholes, monitoring wells will be plugged and sealed when they are no longer needed for ongoing ground water monitoring activities. Standardized procedures for plugging and sealing are detailed in R645-301-631 – 631.200, & 641, Casing and Sealing

Exploration Holes and Boreholes. Measures to plug and seal boreholes and water monitoring wells will minimize the potential for mixing of surface and ground water sources and will also limit the potential for communication and mixing between various ground water aquifers.

**R645-301-750 Performance Standards**

**R645-301-751 Water Quality Standards and Effluent Limitations**

Discharges of water from areas disturbed by coal mining and reclamation activities will be in compliance with all applicable Utah and Federal water quality laws and regulations. Additionally, discharges will comply with effluent limitations for coal mining promulgated by the U.S. Environmental Protection Agency as set forth in 40 CFR Part 434.

Water quality standards and effluent limitations for discharges from the Kinney Mine permit area will be regulated by the UDWQ under the terms of UPDES discharge permit(s) for the Kinney Mine. As part of the mine permitting process, CEG3 has obtained a discharge permit from the UDWQ. Compliance with applicable UPDES effluent limitations will involve diversion of runoff from undisturbed areas around areas effected by mining operations, collection of disturbed area runoff which will be routed through the sedimentation pond prior to discharge, other localized drainage and sediment control measures, reclamation practices designed to effectively restore effected areas, and implementation of a comprehensive ongoing discharge monitoring program to verify compliance.

Drainage from mine and loadout areas, after retention in the sedimentation pond, is not anticipated to exceed applicable effluent limitations or any other Federal or State water quality limitations or standards. No acid or toxic mine drainage is anticipated from surface runoff and no mine drainage discharge is anticipated.

**R645-301-752 Sediment Control Measures**

Refer to responses to: R645-301-732, Sediment Control Measures; R645-301-742.200, Siltation Structures; R645-301-742.300, Diversions; and R645-301-742.400 Road Drainage.

**R645-301-753 Impoundments and Discharge Structures**

Refer to responses to: R645-732, Sediment Control Measures; R-645-301-742, Sediment Control Measures; and R645-301-743, Impoundments.

**R645-301-754 Disposal of Excess Spoil, Coal Mine Waste and Noncoal Mine Waste**

Refer to responses to: R645-301-735, Disposal of Excess Spoil; R645-301-736, Coal Mine and Underground Development Waste; R645-301-737, Noncoal Mine Waste; R645-301-742.300, Diversions; and R645-301-747, Disposal of Noncoal Waste.

**R645-301-755 Casing and Sealing of Wells**

Generally, a determination will be made either prior to or during completion of any exploration holes or boreholes of whether or not the hole(s) will be utilized for ground water monitoring purposes. If the hole is to be utilized for monitoring it will be cased, completed, and developed as a monitoring well consistent with Figure 21, Typical Well Completion Diagram, and as described in R645-301-201 – 225, 323.200, 325, 202-235, & 236, Completion as Ground Water Monitoring Wells. If the hole(s) is not to be utilized as a monitoring well or when an existing well is no longer required for ongoing monitoring, it will be sealed by filling the borehole or casing with cement to form a plug from the bottom of the hole to at least 20 feet above any zone of completion or water-bearing zone; filling the remainder of the hole to within 20 feet of the ground surface; and filling the remainder of the hole to the ground surface with cement to form a surface plug. A steel fence post will be placed in the center of the surface plug before the cement sets-up to provide a permanent marker for the hole location.

**R645-301-760 Reclamation**

This section describes the plan for restoration of hydrologic resources in the permit and adjacent areas that could potentially be affected or impacted by the mining and reclamation activities. Information in this section was developed in accordance with applicable regulatory guidelines (R645-301-700) for coal mine permitting in the State of Utah.

Before abandoning the Kinney No. 2 Mine area or seeking final bond release, CEG3 will remove and reclaim temporary structures and take appropriate actions to assure that any permanent sedimentation ponds, diversions, impoundments, and treatment facilities meet applicable regulatory requirements.

All areas disturbed by mining and related operations will be reclaimed as soon as operationally practical following completion of mining. CEG3 has incorporated specific control and mitigation measures in mining, processing, and reclamation plans in order to prevent any significant impacts on surface or ground water quality. All mining related activities including soil/substitute removal, mine development, coal recovery, mine sealing, backfilling and grading, topsoiling, and revegetation are designed and sequenced to minimize disturbance and progress in a logical manner towards effective restoration of disturbed areas to pre-disturbance conditions. Reclamation will involve backfilling and regrading disturbance areas, re-establishment of drainage patterns similar to those existing in the premining environment, replacement of soil or substitute materials, and revegetation, and development of a self-sustaining vegetative community. As a result of effective reclamation, infiltration and runoff

relationships will be restored, limiting the time interval over which water quality impacts may occur.

**R645-301-761 General Requirements**

In conjunction with reclamation of all areas disturbed by mining and related activities, CEG3 will reestablish an effective post mining drainage configuration as shown on the Mine Facilities Area Post Mining Topography & Interim Drainage Control Map, (Map 29). Permanent runoff control structures remaining following reclamation include ditches UDD-1, UDD-2, culverts UDC-2 and CP-2 and the reconstructed irrigation ditch. Post mining drainages have been designed in compliance with requirements for permanent diversions and provide drainage distribution and density characteristics similar to the pre-disturbance environment. Anticipated runoff characteristics and site geomorphic considerations have been incorporated in post mining drainage designs to assure long-term stability, minimize erosion, and prevent significant additional contributions of suspended solids to area drainages. CEG3 will continue to operate and maintain sedimentation ponds and associated drainage structures until contributing drainage areas are effectively restored through application of the reclamation practices. Effective restoration will include a determination of re-vegetation success and restoration of surface drainage characteristics such that contributions of suspended solids from untreated disturbed area runoff are within applicable water quality limitations.

**Figure 21**

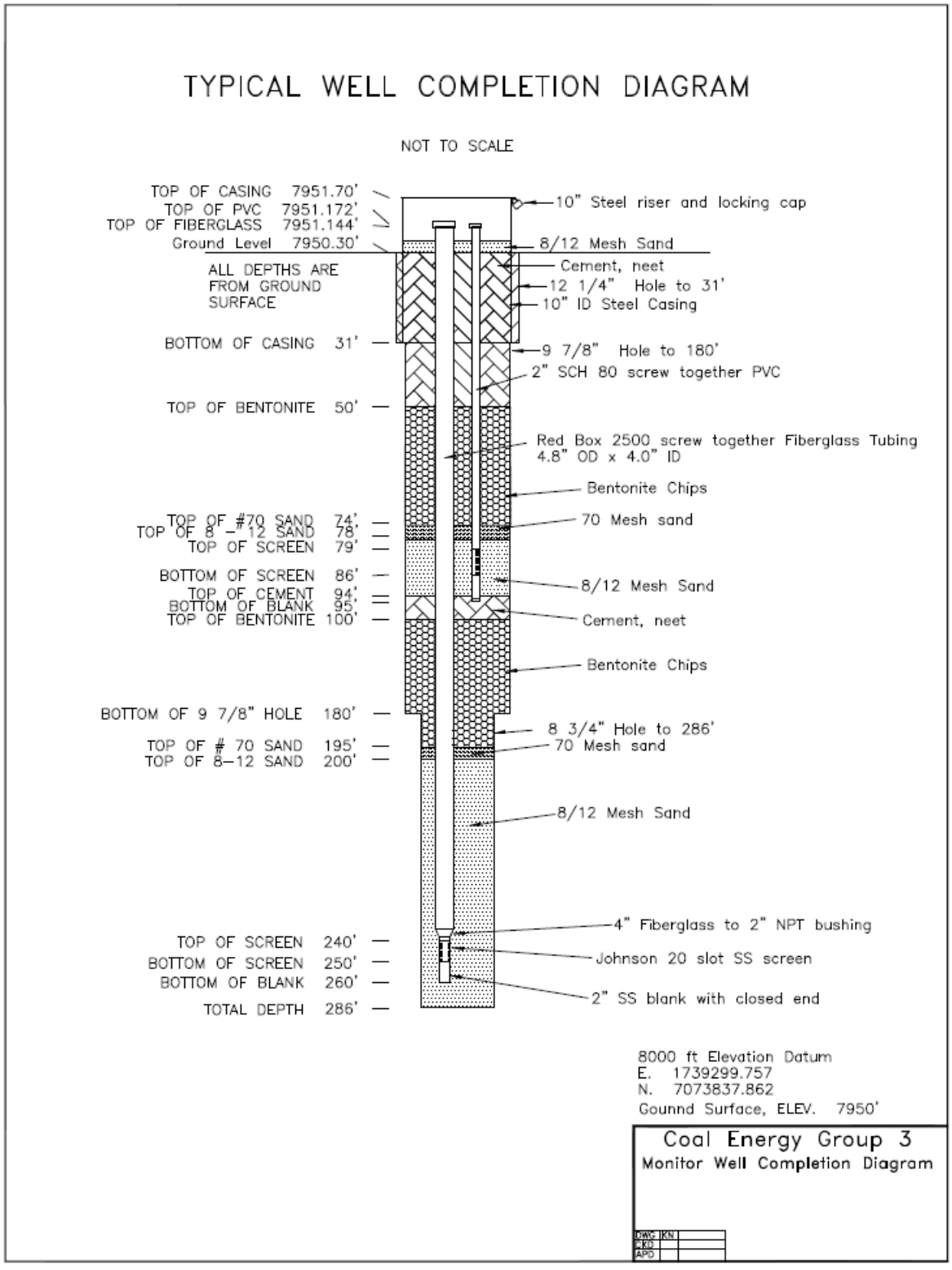

TYPICAL WELL COMPLETION DIAGRAM
NOT TO SCALE
TOP OF CASING 7951.70'
TOP OF PVC 7951.172'
TOP OF FIBERGLASS 7951.144'
Ground Level 7950.30'
ALL DEPTHS ARE FROM GROUND SURFACE
BOTTOM OF CASING 31'
TOP OF BENTONITE 50'
TOP OF #70 SAND 74'
TOP OF 8 – 12 SAND 78'
TOP OF SCREEN 79'
BOTTOM OF SCREEN 86'
TOP OF CEMENT 94'
BOTTOM OF BLANK 95'
TOP OF BENTONITE 100'
BOTTOM OF 9 7/8" HOLE 180'
TOP OF # 70 SAND 195'
TOP OF 8–12 SAND 200'
TOP OF SCREEN 240'
BOTTOM OF SCREEN 250'
BOTTOM OF BLANK 260'
TOTAL DEPTH 286'
10" Steel riser and locking cap
8/12 Mesh Sand
Cement, neet
12 1/4" Hole to 31'
10" ID Steel Casing
9 7/8" Hole to 180'
2" SCH 80 screw together PVC
Red Box 2500 screw together Fiberglass Tubing
4.8" OD x 4.0" ID
Bentonite Chips
70 Mesh sand
8/12 Mesh Sand
Cement, neet
Bentonite Chips
8 3/4" Hole to 286'
70 Mesh sand
8/12 Mesh Sand
4" Fiberglass to 2" NPT bushing
Johnson 20 slot SS screen
2" SS blank with closed end
8000 ft Elevation Datum
E. 1739299.757
N. 7073837.862
Gounnd Surface, ELEV. 7950'
Coal Energy Group 3
Monitor Well Completion Diagram
DWG KN
CKD
APD

**Table 8. Well Conditions**

| Well | Bottom of Screen | Water Level | Depth Relative to Screen Bottom | Status |
|---|---|---|---|---|
| CR-06-01 | 7865.2 | 7853.8 | -7.7 | Dry |
| CR-06-01-BLW | 7701.1 | 7695.8 | -4.5 | False Positive Water Levels, But Hole is Dry. |
| CR-06-02 | 7901.6 | 7898.5 | -7.1 | Dry |
| CR-06-02-ABV | 8039.8 | 8036.0 | -1.2 | Dry |
| CR-06-03-ABV* | 7646.0 | 7798.2 | 152.2 | Reclaimed Per UDOGM Directive |
| CR-06-05A | 7747.9 | 7741.1 | -4.1 | Dry |
| CR-06-09-BLW | 7802.9 | 7851.9 | 51.0 | Water level has varied by only 2.8 feet over period of record |
| CR-06-09 | 7841.8 | 7860.7 | 20.5 | Water level has varied by only 1.5 feet over period of record |
| CR-06-09-ABV | 7945.3 | 7977.2 | 31. 9 | Water level has varied by 5 feet over period of record, and is falling. |
| CR-10-11 | 7586.51 | 7647.2 | 63.2 | Subartesian, Level varied by 2.2 feet over period of record. |
| CR-10-12 | 7611.23 | 7650.7 | 42.0 | Subartesian, Level varied by 2.5 feet over period of record. |
| WNR-2012-5 | 7815.96 | 7938.4 | 122.44 | Water level has varied by 28.0 feet over period of record |
| WNR-2012-7 | 7730.03 | | | Dry |
| WNR-2012-7 BLW | 7642.52 | | | Dry |
| WNR-2012-8 | 7900.86 | 8010.9 | 110.04 | Water level has varied by 18.0 feet over period of record |

* - Last reading taken on 9/7/2006 due to a property owner access dispute.

All of the monitor wells were professionally completed using either fiberglass or PVC as non-corrosive well tubing with stainless steel slotted well screens and a ten foot stainless steel closed bottom "blank" beneath each well screen. Washed round silica sand was tremmied into position around the screen/blank assembly (Figure 21 & Exhibit 11). Water level in each well was measured and recorded through the baseline period. Field visit to each well is demonstrated by the date and water level noted in the field notes (Exhibit 10). Confusion is caused by the fact that the ten foot "blanks" capture and hold water even in a dry hole because there is always

some drilling water remaining in the formation immediately following the drilling process that is captured by the blank. The water levels shown in all of the "dry holes" are below the well screens, but within the blanks which contain only remnant water from the drilling process, and therefore do not represent a groundwater level and consequently are dry holes.

CR-06-01-BLW is completed with 4" fiberglass well tubing and a custom made reducer connecting the 2" stainless steel well screen and blank assembly to the 4" fiberglass. The inside of this reducer is not tapered but has a "lip" at the bottom of the 4" fiberglass. Unfortunately, the well deviates from vertical causing the water level probe to strike the lip of the reducer instead of entering into the 2" well screen. These two factors when combined with a third, that is , moisture condensation in the well tubing, caused the water level probe to encounter the moisture at, and in some cases above the lip by scraping sided of the casing, and gave "false positive" water levels for this hole. This information has been verified by lowering a color, led lighted, borehole camera into the hole that produced a digital video.

**R645-301-762 Roads**

Roads that will not be retained for use under an approved postmining land use will be reclaimed immediately after they no longer needed for coal mining and reclamation activities. Reclamation of roads will include reshaping of all cut and fill slopes to be compatible with post-mining land use and to compliment the drainage pattern of the surrounding terrain.

**R645-301-763 Siltation Structures**

As a component of the planned reclamation activities CEG3 will implement an interim runoff control plan wherein the majority of temporary operational drainage structures will be removed. Interim structures (including the sediment pond) will remain throughout the re-vegetation of the mine site after which time they too will be removed and the area re-vegetated. The only structures which will remain following final reclamation will be those identified as permanent ditches and culverts (and related riprap energy dissipation aprons). Details of the interim drainage control plan addressing the period between site reclamation and final bond release are discussed in R645-301-542.100, & 500, and illustrated by the Mine Surface Facilities Area – Post Mining Topography & Interim Drainage Control Map, (Map 29).

When no longer required for sediment control, all temporary diversions and associated structures will be removed and the affected lands reclaimed, with the exception of permanent diversion ditches UDD-1,UDD-2, UDC-2, culvert CP-2, and the associated energy dissipation riprap shown on Map 29. The irrigation ditch shown at the southern end of Map 29 will also be re-established. The Post Mining Land Use road will also remain to allow private property access following mining. Reclamation will consist of filling of the diversion ditches with material from adjacent areas

consistent with the design postmining drainage configuration, grading to blend ditch areas with surrounding terrain, replacement of available soil and reseeding.

Sedimentation pond reclamation will involve removal of any man-made discharge structures, removal and disposal of any riprap, concrete, and bedding materials which will not be utilized in conjunction with reestablishment of post-mining drainages, grading of embankment fill into pond basin area, and regrading associated disturbance areas to blend with the surrounding terrain. Replacement of soil and revegetation as described in R645-301-240, 241, 250, 242.100, 242.100 – 310, 243, & 244.100 - 320, Reclamation Plan, will complete pond reclamation. Upon restoration of disturbed areas, all sedimentation ponds and water storage and treatment impoundments will be removed and associated disturbance areas reclaimed. In addition, all reclaimed areas will be regraded to reestablish natural drainage patterns and eliminate any significant depressions which could impound water.

Postmining drainages and temporary ditches will route any disturbed area runoff to the sedimentation pond or through alternative sediment controls as shown on Map 29 through the post-reclamation period to the point of bond release. Runoff from the area south of the site access road cannot flow to the sedimentation pond and therefore will be controlled by alternative sediment control measures as shown on Map 29, Mine Facilities Area Post Mining Topography & Interim Drainage Control Map. Following determination of reclamation success, sedimentation ponds and temporary diversion ditches will be reclaimed and postmining drainages will be connected to existing natural drainages. Where postmining drainages intersect existing natural drainages, the transition channel will be constructed to provide a smooth transition of both channel configuration and flow. Siltation structures will be maintained until removal is authorized by UDOGM and the disturbed area has been stabilized and revegetated. Structures will not be removed within two years after the last augmented seeding.

**R645-301-764 Structure Removal**

As an underground mining operation, surface disturbance associated with CEG3's mining activities will be minimal relative to the overall permit area. However, where disturbance does occur, CEG3 will reclaim disturbed areas using reclamation practices that restore normal infiltration and runoff characteristics to conditions that are comparable to premining conditions. This will be done as soon as operationally feasible following completion of mining and related activities.

Reclamation will involve backfilling and grading to stabilize the slopes, reestablishment of natural drainage patterns, topsoil replacement, and revegetation. CEG3 has also designed the postmining topography and associated backfilling and grading plans to effectively utilize available materials and minimize disturbance of adjacent areas.

Permanent postmining drainages have been located and designed to generally duplicate premining drainage patterns and densities and to effectively convey surface drainage flows. Postmining drainage patterns and designs are illustrated by the Mine Surface Facilities Area – Post Mining Topography & Interim Drainage Control Map, (Map 29) and Exhibit 16 Runoff Control Design Details.

Disturbance areas will be backfilled where necessary and regraded to establish a stable undulating configuration with relatively short gradual slopes which will blend with surrounding undisturbed terrain. Regraded surfaces will be left in a roughened condition to limit runoff and provide for an effective bond between the regraded materials and subsequently placed topsoil. Soil replacement and reseeding will be scheduled to minimize the period of time during which soil materials will be exposed without a protective vegetative cover.

Reclamation will be completed by replacing available soil resources and revegetating disturbance areas to establish an effective vegetative cover which will control runoff, erosion, and provide effective habitat and grazing/forage values for wildlife.

Under applicable regulatory provisions, one of the conditions for final bond release is documentation of restoration of premining drainage conditions. CEG3 will develop and provide this documentation to UDOGM using one of two methods or by a combination of the two; 1) Comparisons of post-reclamation water monitoring data with premining baseline data and applicable effluent standards; 2) Runoff and sedimentation modeling utilizing measured reclamation cover values to determine runoff curves and sediment contributions and comparison with model results developed using baseline cover values.

## R645-301-765 Permanent Casing and Sealing of Wells

### References

All exploration drillholes completed by CEG3 within the Kinney No. 2 Mine permit area will either be completed as monitoring wells or sealed following completion of drilling, sampling, and logging. Generally, a determination will be made either prior to or during completion of any exploration holes or boreholes of whether or not the hole(s) will be utilized for ground water monitoring purposes. If the hole is to be utilized for monitoring it will be cased, completed, and developed as a monitoring well consistent with Figure 21, Typical Well Completion Diagram. If the hole(s) is not to be utilized as a monitoring well or when an existing well is no longer required for ongoing monitoring, it will be sealed by filling the borehole or casing with cement to form a plug from the bottom of the hole to at least 20 feet above any zone of completion or water-bearing zone; filling the remainder of the hole to within 20 feet of the ground surface with bentonite; and filling the remainder of the hole to the ground surface with cement to form a surface plug. A steel fence post will be placed in the center of the surface plug before the cement sets-up to provide a permanent marker for the hole location.

CEG3 does not intend to transfer title of any monitoring wells to a second party following the cessation of mining and reclamation activities.

# Chapter 8

# R645-301-800 BONDING

# Kinney No 2 Mine

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## R645-301-820 General Requirement

This section defines the requirements for filing and maintenance of performance bonds, addresses requirements for determination of bond amounts, identifies acceptable bond forms and required bond terms and conditions, describes requirements for replacement of bonds, and defines specific actions and requirements for bond release. Information in this section was developed in accordance with applicable regulatory requirements (R645-301-811) for coal mine permitting in the State of Utah.

## R645-301-820.100 – 352 Requirement to File a Bond

After approval but prior to issuance of the mining permit, ~~CR~~ CEG3 will file a reclamation bond payable to UDOGM. The bond will be provided on a form prescribed and provided by UDOGM and will be conditioned on faithful performance of the permit plans, and applicable requirements of the State of Utah Coal Mining Rules. As an underground coal mining operation, the bond will cover long-term surface facilities and structures and surface disturbance areas associated with the mining and related activities. Bond coverage may be for a specific term but will be maintained to provide continuous bonding coverage over the entire period of active mining and reclamation and for the extended liability period following completion of reclamation. Under the bond, ~~CR's~~ CEG3's liability will be limited to those obligations or commitments under the approved permit specifically including reclamation of surface disturbance to return the land to a condition and productive capacity capable of supporting the approved postmining land use.

## R645-301-830.100 – 500 Determination of Bond Amount

Under Rule R645-301-830.120, the bond amount will depend on the requirements of the approved permit and reclamation plan. Consistent with this requirement, bond reclamation calculations do not accompany this initial permit application submittal. Once UDOGM has had opportunity to review and comment on the permit application and reclamation plan and any related issues have been effectively resolved, ~~CR~~ CEG3 will proceed with preparation of a detailed bond reclamation cost estimate. This estimate, which will be submitted to UDOGM for insertion in Exhibit 18, Bonding and Insurance Information, will be based on the approved reclamation plan; reflect the anticipated level of effort required to reclaim all surface disturbance given site topography, geology, hydrologic conditions, revegetation potential, and other relevant factors; and will reflect any appropriate inflation factors to address potential increases in reclamation cost over the permit term.

Generally, the method used in calculating the bond reclamation cost estimate is consistent with the guidance provided by the Handbook for Calculation of Reclamation Bond Amounts (USDI-OSMRE, [latest version]) and will involve the following sequential steps:

- Determine the maximum disturbance scenario relative to reclamation requirements
- Identify, delineate, and determine disturbance area acreages
- Determine required reclamation functions and sequencing
- Calculate material handling requirements and volumes
- Delineate haulage routes and determine material haul or push distances
- Select and specify appropriate reclamation equipment
- Calculate equipment productivities
- Calculate equipment and manpower schedules and project time requirements

- Develop equipment, labor, material, demolition, and revegetation unit costs
- Calculate project profit and indirect, overhead, management and other costs
- Develop cost summary for total estimated bond reclamation cost
- Develop and present bond reclamation cost estimate documentation including description of methodology, summary calculations, and supporting volumetric, productivity, and cost data

With the exception of the text description included in the summary report, reclamation calculations will be developed and presented in computer format to facilitate review and any necessary future modifications.

Following submission of ~~CR's~~ CEG3's detailed bond reclamation cost estimate, UDOGM will determine the appropriate bond amount which will be based on but not necessarily limited to ~~CR's~~ CEG3's bond estimate. If the cost of reclamation and corresponding bond coverage increases or decreases due to changes in the method of operation or other factors, ~~CR~~ CEG3 may request or UDOGM may determine that an adjustment in the bond amount is appropriate. ~~CR~~ CEG3 and the bond surety will be notified by UDOGM of any proposed adjustment in bond amount and will have opportunity for review of the proposed adjustment and an informal conference to discuss the adjustment and related matters. If ~~CR~~ CEG3 elects to request an adjustment in bond amount, the request will be accompanied by appropriate documentation supporting the request. Adjustments involving undisturbed lands or revised reclamation costs are not considered a bond release.

**R645-301-840.100 – 520 Bond Terms and Conditions**

In compliance with applicable regulatory provisions, the reclamation bond submitted prior to permit issuance and initiation of development, construction, and operations will be in the amount determined by UDOGM and will be payable to UDOGM. Other specific required bond terms and conditions will include the following:

- The bond will be conditioned on faithful performance of all applicable requirements of the State Program and the approved permit, including completion of the reclamation plan
- Continuous bonding coverage will be provided for the latter of, the period of active mining and reclamation and the extended liability period following completion of reclamation, or until the reclamation requirements under the State Program and permit are achieved
- The bond will provide for prompt notification of UDOGM and ~~CR~~ CEG3 by the surety in the event of any action which would render the surety incapable of providing continuing, valid bond coverage including insolvency or bankruptcy of the surety or ~~CR~~CEG3, or alleged violations which could result in suspension or revocation of the surety's charter or business licenses
- If the surety is incapable of providing continuing, valid bond coverage, ~~CR~~ CEG3 will promptly notify UDOGM and UDOGM will, in turn, provide written notification to the ~~CR~~ CEG3 that replacement bond coverage must be obtained within a specified period not to exceed 90 days. If replacement coverage is not obtained prior to the end of the specified period, the ~~CR~~ CEG3 will cease coal mining operations and will comply with applicable requirements for temporary cessation. Mining operations will not resume until a suitable replacement bond has been posted.

**R645-301-850.100 – 320 Bonding for Underground Coal Mining and Reclamation Activities**

Specific reclamation bonding requirements and provisions which are applicable to underground coal mining and reclamation operations include limitation of bonding coverage to surface facilities and structures and surface disturbance areas associated with the underground mining operations and designation of a "long-term period of liability" in recognition of the extended period of use which is typical for such facilities and areas.

The long-term liability period will begin with permit issuance and will continue until the bond has been released, replaced, or extended in compliance with applicable regulatory provisions.

In order to maintain continuous bonding coverage, the bond will be conditioned on extension, replacement, or payment in full 30 days prior to expiration of the permit term. If the bond does not provide coverage for the entire reclamation liability period or alternatively, if a bond for the new permit term is not filed 30 days prior to expiration of the permit term, UDOGM may act to initiate bond forfeiture.

**R645-301-860.100 – 380 Form of Bond**

The applicable regulations provide several alternatives for compliance with requirements for reclamation bonding coverage. Each specific alternative or bond form has a number of associated compliance requirements. Once the bond amount is determined, ~~CR~~ CEG3 will evaluate potential bonding alternatives and will select and submit a bond in a form which meets all applicable compliance criteria.

**R645-301-870.100 – 200 Replacement of Bond**

Under regulatory provisions for bond replacement, ~~CR~~ CEG3 may elect to replace any existing bond(s) with another bond(s) providing equivalent coverage, however, existing bond(s) will not be released until UDOGM has approved as acceptable the replacement bond and bond replacement will not constitute bond release.

**R645-301-880.100 – 932 Bond Release**

The applicable UDOGM regulations provide specific guidance relative to procedures for release of reclamation performance bonds. On completion of mining and related activities, ~~CR~~ CEG3 anticipates that all associated surface disturbance will be reclaimed consistent with the approved reclamation plan in order to restore the effected lands to a condition and capability consistent with the approved postmining land use. Upon completion of reclamation and surface restoration ~~CR~~ CEG3 will file application for bond release consistent with the following bond release process:

- ~~CR~~ CEG3 files application for bond release
- Within 30 days of the application date, ~~CR~~ CEG3 will file a public notice in a local newspaper general circulation with publication at least once per week over a period of four weeks
- ~~CR~~ CEG3 mails notices of bond release inspection to surface owners
- Within 30 days of the application filing UDOGM will conduct a bond release inspection which may also include interested surface owners or agents

- Persons with a valid legal interest which could be effected by bond release or responsible officials of jurisdictional agencies can submit written comments or objections and may request a hearing within 30 days following the date of last publication of the public notice
- If a hearing is requested it will be held within 30 days of receipt of the hearing request
- If no public hearing is held UDOGM, within 60 days of the application filing, will notify ~~CR~~CEG3, the bond surety, and other interested persons of its determination on the bond release request
- At least 30 days prior to bond release UDOGM will notify, by certified mail, the municipality in which the mining activities are located of the pending bond release.

# Chapter 9

# R645-302 Special Categories

# Kinney No 2 Mine

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## R645-302 SPECIAL CATEGORIES AND MINING AREAS

This section of the Kinney No. 2 Mine Permit Application provides both general and specific information on design, construction, operation, maintenance, and reclamation for mining and related operations which fall under the categories of either "Special Categories of Mining", as defined by Rule R645-302-200, or "Special Areas of Mining", as defined by Rule R645-302-300. Information sources utilized in developing the descriptions presented in this section include baseline investigations, particularly with respect to evaluation of areas as potential alluvial valley floors or prime farmlands; detailed mining plans developed by the ~~CR~~ CEG3 team; conceptual and detailed facility layouts and designs; and specific plans for control, monitoring, and mitigation of mining related impacts. The information presented in this section has been prepared in compliance with applicable provisions of the State of Utah Coal Mining Rules and are intended to address the applicability of the regulatory definitions and provisions under the two designated special categories. The discussions presented in this section reflect consideration of the environmental resource information presented in Chapters 2 through 7, and are designed to address prevention, control, and mitigation of the potential effects of mining for areas or activities falling within the defined categories.

Each subsection identifies the applicable regulatory provisions addressed and sources for the information presented and includes related supporting tables and figures. Other supporting documentation, including maps and exhibits, is referenced in the text and provided in the separate map and exhibit volumes.

This section also provides information on the applicability of the designated regulatory categories of either "Special Categories of Mining", as defined by Rule R645-302-200, or "Special Areas of Mining", as defined by Rule R645-302-300 relative to the Kinney No. 2 Mine mining and related operations. For any categories which are applicable, design, construction, operation, maintenance, and reclamation information is provided for mining and related operations which fall under the categories. Information in this section was developed in accordance with applicable regulatory requirements (R-645-302-200 and 300) for coal mine permitting in the State of Utah.

### R645-302-211 through 218 EXPERIMENTAL PRACTICES

~~CR~~ CEG3 has no current plans to implement or utilize experimental practices in conjunction with planned mining and related activities for the Kinney No. 2 Mine Mine. In addition, all of ~~CR's~~ CEG3's planned operations will affect full compliance with applicable regulations without a variance from the environmental protection performance standards for experimental or research purposes or alternative postmining land uses. Since ~~CR~~ CEG3 does not plan to conduct experimental practices in conjunction with planned mining and related operations the provisions of Rule R645-302-210 are not applicable.

### R645-302-221 through 227.900 MOUNTAINTOP REMOVAL

As described in Chapter 5, Mine Plans, Mining Methods, and Related Design Considerations, the Kinney No. 2 Mine operations will be exclusively underground coal mining operations. Since no surface mining activities are planned in conjunction with the Kinney No. 2 Mine operations, the provisions of Rule R645-302-220 are not applicable.

**R645-302-231 through 234.400 STEEP SLOPE MINING**

The only areas where steep slopes exist in the planned surface disturbance area which will be affected by mining and related activities are along the eastern margin of the facilities area and disturbance in these areas will be limited. Consistent with Rule R645-301-231.100, most of the planned surface disturbance will occur on terrain condusive to topsoil salvage, and planned reclamation efforts will result in a configuration similar to that which existed prior to the Kinney No. 2 Mine disturbance. Reclamation considerations relative to the existing land configuration and final reclamation will be addressed under the applicable provisions for remining of previously mined areas (R645-301-553.500). Given these considerations, the provisions of Rule R645-302-230 are not applicable.

**R645-302-241 through 245.500 AUGER MINING**

As described in Chapter 5, Mine Plans, Mining Methods, and Related Design Considerations, the Kinney No. 2 Mine operations will be conventional underground coal mining operations utilizing continuous underground mining methods. The planned mining operations will result in significantly higher production levels and greater resource recovery and conservation than would be possible using auger mining methods. Given these considerations, ~~CR~~ CEG3 has no present plans to conduct auger mining in conjunction with the Kinney No. 2 Mine operations and the provisions of Rule R645-302-240 are not applicable.

**R645-302-251 through 254.620 IN-SITU PROCESSING**

~~CR~~ CEG3 has no current plans to implement or utilize in-situ extraction or processing methods in conjunction with planned mining and related activities for the Kinney No. 2 Mine Mine. Since ~~CR~~ CEG3 does not plan to conduct any type of in-situ activities in conjunction with planned mining and related operations the provisions of Rule R645-302-250 are not applicable.

**R645-302-261 through 264.900 COAL PROCESSING PLANTS NOT WITHIN THE MINE PERMIT AREA**

The Kinney No. 2 Mine mining and related operations will not utilize a coal processing plant at the mine site, all coal will be sold FOB mine site.

**R645-302-271 through 275 VARIANCES FROM AOC RESTORATION REQUIREMENTS**

Planned final backfilling and grading activities will result in a reclaimed land configuration which is similar to that which existed prior to the Kinney No. 2 Mine disturbance. The area which will be affected by construction of the required mine surface facilities is a previously mined area consisting of an existing face-up area which has been partially reclaimed by the Utah AML program. An old railroad grade exists at the western edge of planned surface facilities and had very limited reclamation done by the AML project, if any. This railroad grade will not be affected by the Kinney No. 2 Mine operations. Given this previous mining related disturbance, the planned mine construction activities constitute remining of a previously mined area under applicable provisions of Rule R645-301-553.500. These provisions take into consideration the practical reclamation limitations associated with previously mined areas and encourage

effective restoration by allowing final backfilling and grading utilizing all available spoil material and partial retention of highwall exposures if the volume of available spoil material is not sufficient to provide for total highwall elimination.

The planned postmining topography for the mine surface facilities areas effects compliance with all applicable provisions of Rule R645-301-553.500 and will result in a stable regraded configuration which provides for effective drainage, is compatible with the planned postmining land use, and minimizes the height and extent of any highwall remnant which remains. Under the applicable provisions of Rule R645-301-553.500 a variance from AOC restoration requirements is not necessary for remining of previously mined areas, therefore, the provisions of Rule R645-301-270 are not applicable. The remaining highwall at the pre-SMCRA mine was partially backfilled and will not be disturbed by the Kinney No. 2 Mine, however small pre-SMCRA cuts may be disturbed by Kinney No. 2 Mine operations in the general mine area. These small cuts may be reclaimed back to similar configurations as existed pre-Kinney No. 2 Mine.

**R645-302-281 through 284 VARIANCES FOR DELAY IN CONTEMPORANEOUS RECLAMATION**

As described in Chapter 5, Mine Plans, Mining Methods, and Related Design Considerations, the Kinney No. 2 Mine operations will be exclusively underground coal mining operations and will not include surface mining operations or combined surface and underground mining operations. Under Rule R645-301-553, requirements for contemporaneous reclamation are only applicable to surface coal mining operations. Since no surface mining activities are planned in conjunction with the Kinney No. 2 Mine operations, the provisions of Rule R645-302-280 are not applicable.

**R645-302-291 through 299.400 SMALL OPERATOR ASSISTANCE PROGRAMS**

The small operator assistance program (SOAP) is designed to provide financial, technical, and permitting assistance to operators who qualify under specific production threshold limits and other eligibility criteria. ~~CR~~ CEG3 does not qualify under the SOAP eligibility guidelines and is not seeking assistance under SOAP, therefore the provisions of Rule R645-301-900 are not applicable.

**R645-302-311 through 317 OPERATIONS ON PRIME FARMLANDS**

As described in R645-301-221, Prime Farmland Investigation, formal consultation with the USDA-NRCS resulted a determinations that prime farmlands do not exist in the Kinney No. 2 Mine permit area. Documentation of these determinations is provided in Exhibit 6, Soils Information. Given the determination that prime farmlands do not exist in the Kinney No. 2 Mine permit area and, therefore will not be affected or impacted by the planned mining and related operations, the provisions of Rule R634-302-310 are not applicable.

**R645-302-320 Alluvial Valley Floors**

The area adjacent to the west of the permit, but not within the permit area, displays characteristics that fit two different parts of the AVF definition, below under OSM Guidelines, and have been identified with two different AVF boundaries. A "True AVF Boundary" and a "Quasi AVF Boundary" Map (32). The True AFV fits the classical definition of AVF as having unconsolidated stream-laid sediment, whereas, the Quasi AVF does not have unconsolidated stream-laid sediment, however, by virtue of a historic ditch could have sufficient water available to support agricultural, which is a secondary characteristic of AVF. A review of the AVF definitions is required prior to continuing discussion of the adjacent AVF boundaries.

**R645-302-320**

**BEFORE ADDRESSING THE FOLLOWING REGULATIONS, IT IS CLEAR IN THIS REGULATION THAT THEY 320APPLY ONLY TO SURFACE MINING AND RECLAMATION OPERATIONS. As stated in R645-302-320, "Before applying for a permit to conduct, or before conducting surface coal mining and reclamation operations within a valley holding a stream or in a location where the adjacent area includes any stream, the applicant shall either affirmatively demonstrate, based on available data, the presence of an alluvial valley floor, or submit to the Division the results of a field investigation of the proposed permit and adjacent area."** *(Underlining added)*

**Since the Kinney No. 2 Mine is an underground mine, these regulations do not apply, however, to complete the application and to fully address the hydrologic consequences of operating the mine, ~~CR~~ CEG3 has addressed this regulation as follows:**

**DEFINITIONS OF ALLUVIAL VALLEY FLOOR (AVF)**

**Rule R645-100. Administrative: Introduction.**

http://www.rules.utah.gov/publicat/code/r645/r645-100.htm
"Alluvial Valley Floors" means the unconsolidated stream-laid deposits holding streams with water availability sufficient for subirrigation or flood irrigation agricultural activities, but does not include upland areas which are generally overlain by a thin veneer of colluvial deposits composed chiefly of debris from sheet erosion, deposits formed by unconcentrated runoff or slope wash, together with talus, or other mass-movement accumulations, and windblown deposits.

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**TITLE 30 - MINERAL RESOURCES**
http://cfr.vlex.com/vid/19696193
CHAPTER VII - OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT, DEPARTMENT OF THE INTERIOR SUBCHAPTER G - SURFACE COAL MINING AND RECLAMATION OPERATIONS PERMITS AND COAL EXPLORATION SYSTEMS UNDER REGULATORY PROGRAMS

PART 785 - REQUIREMENTS FOR PERMITS FOR SPECIAL CATEGORIES OF MINING

785.19 - Surface coal mining and reclamation operations on areas or adjacent to areas including alluvial valley floors in the arid and semiarid areas west of the 100th meridian.

(a) Alluvial valley floor determination. (1) Permit applicants who propose to conduct surface coal mining and reclamation operations within a valley holding a stream or in a location where the permit area or adjacent area includes any stream, in the arid and semiarid regions of the United States, as an initial step in the permit process, may request the regulatory authority to make an alluvial valley floor determination with respect to that valley floor. The applicant shall demonstrate and the regulatory authority shall determine, based on either available data or field studies submitted by the applicant, or a combination of available data and field studies, the presence or absence of an alluvial valley floor. Studies shall include sufficiently detailed geologic, hydrologic, land use, soils, and vegetation data and analysis to demonstrate the probable existence of an alluvial valley floor in the area. The regulatory authority may require additional data collection and analysis or other supporting documents, maps, and illustrations in order to make the determination.

(2) The regulatory authority shall make a written determination as to the extent of any alluvial valley floors within the area. The regulatory authority shall determine that an alluvial valley floor exists if it finds that (i) Unconsolidated streamlaid deposits holding streams are present; and (ii) There is sufficient water available to support agricultural activities as evidenced by (A) The existence of current flood irrigation in the area in question; (B) The capability of an area to be flood irrigated, based on evaluations of typical regional agricultural practices, historical flood irrigation, streamflow, water quality, soils, and topography; or (C) Subirrigation of the lands in question derived from the ground-water system of the valley floor.

Title of Report:

**OSM ALLUVIAL VALLEY FLOOR GUIDELINES** (1980). 54 pp.

Performing Organization Name and Address: OSM

Type of Report: Final Report – Guidelines

OSM Library Number: 002 Date to NTIS: 05/31/90
NTIS Accession No: PB90-225681/AS
CFR Citation: 30 CFR 785.19

Abstract:

Part 1: Investigations used to distinguish between lands which may be alluvial valley floors (AVFs) and lands clearly not AVFs. Part 2: Intermediate investigation provides sufficient information to permit final determination of AVF studies which could be used in submittal of a complete permit application. Three studies can lead to definition of important characteristics of AVFs, agricultural significance of AVFs, and the impact of mining on AVFs. Procedures in Part 1 are intended to be those which can be accomplished in a short period of time.

**Significant and applicable sections of this OSM report together with sections of Rule R-645-302-320 are:**

Study in areas surrounding permit area:
- Operators discretion as to study area

Study area in relation to permit area:
- The department suggests but does not require an evaluation of AVF in the mine plan area and adjacent areas

Map Scales Acceptable:
- 1:6,000 to 1:24,000

Qualifications of Personnel conducting alluvial valley floor studies Includes:
- Geologists
- Geomorphologists

Applicability to Underground Mining:
- Must assess potential affect from mining or from surface operations

"All available data" to be used includes:
- Aerial Imagery
- Soil Studies

Geologic Characteristics:
- "unconsolidated stream-laid deposits holding streams with water availability sufficient for subirrigation or flood irrigation agricultural activities, but does not include upland areas

which are generally overlain by a thin veneer of colluvial deposits composed chiefly of debris from sheet erosion, deposits formed by unconcentrated runoff or slope wash, together with talus, or other mass-movement accumulations, and windblown deposits."

Geomorphic Characteristics:

- Terraces not considered part of AVF

Floodplains:

- Not a criterion for AVF determination

Channel Size:

- At least 3 feet in width
- No standard method of measure

Alluvial Fans:

- Case by case evaluation in complex alluvial fans
- Fan has to be part of the hydrologic system

Flood Irrigation Assessment:

- Determination of irrigable land as well as irrigated land by flood irrigation

Identification of Marsh Areas:

- Sub-irrigated areas do not automatically qualify as AFV's

Sprinkler irrigation Assessment:

- Only where it simulates or makes more efficient traditional flood irrigation

Artificial sub-irrigation:

- Not distinguished from natural sub-irrigation

**DISCUSSION**

As stated above, the area adjacent to the west of the permit area but not within the permit area displays characteristics that fit two different parts of the AVF definition demanding the construction of two different AVF boundaries. That is, when a definition of limiting AVF to the "unconsolidated stream-laid (alluvial) deposits" is applied, a rather small AVF boundary is created and is referred to here as the "True AVF" as can be seen on Map 32, AVF Evaluation. In contrast, when the definition of ability to be watered by "flood irrigation" is used and the limit of "unconsolidated stream-laid deposits" is ignored, a larger AFV boundary is the result, referred to as the "Quasi-AFV" (Map 32).

There are alluvial deposits adjacent to Mud Creek and Miller Creek that fit the "classical definition of AVF"; where alluvial material, transported by these streams, is deposited in the channels and along the banks and flood planes. The areas occupied by these deposits are relatively small and located in near proximity (tens to hundreds of feet) to the present stream channels, forming sinuous ribbon deposits of alluvial material. The AVF boundary drawn using the limit of "unconsolidated stream-laid deposits" is a sinuous ribbon shadowing the streams and is referred to as the "True AVF (Map 32)"

Geologically, Pleasant Valley is a "graben" in a series of north-south "horsts" and "grabens" that characterize the structural geology and thus the geomorphology of the Eastern Wasatch Plateau. The floor of Pleasant Valley is much broader and flatter than would have ever been created by the fluvial processes associated with Mud Creek. As a consequence the Quasi AVF is largely defined by the "Pleasant Valley Graben," and not the action of Mud Creek. The west and east boundaries of the Pleasant Valley Graben are formed by large (~600 ft. throw) normal faults formed several millions of years in the past. Since the last major movement on the "Pleasant Valley Graben – Boundary Faults" "detritus" from the valley walls have been carried into the valley floor by flood stage sheet wash and in many cases have formed alluvial fans that

are elevated above the flat lying portion of the graben formed valley floor. This study determined that multiple Alluvial Fans extend from the hillsides (walls of Pleasant Valley) into Pleasant Valley. These fans of non-AVF material form prominences or protrusions toward the center of the valley from the valley walls. Note the consequential alluvial fans juxtaposed to the mouth of nearly all the small drainages along the valley wall. It is just such an alluvial fan that the small triangular portion of the permit area occupies immediately west of highway 96, (Map 32). These "alluvial fans" do not fit the true definition of AVF because they are generally poorly sorted storm deposits.

Note the very small alluvial fan immediately opposite the culvert that passes under highway 96 within the permit boundary near NW corner and shown on (Map 32). This fan appears to have been formed after the highway was constructed when the culvert began carrying runoff , diverted south to the culvert, from the drainage immediately north of the culvert and will continue to do so.

The geology of Pleasant Valley, described above, has created a rather large flat lying area that contains many of the AVF criteria when the criteria weighs the "flood irrigation assessment" heavily in the determination and ignores the "alluvial material assessment." Map 32 shows two different AVF boundaries, a "True AVG" and a "Quasi-AVF". The boundary of the smaller (True AVF) is supported by less direct data than the larger (Quasi-AVF). However, in spite of imprecise boundary locations, the True-AVF boundary is definitely in the ball park as being an order of magnitude smaller than the Quasi-AVF boundary. Both AVF boundaries fall outside the permit boundary, but just barely in the case of the Quasi-AVF boundary.

As the operator we have used our discretion and chosen a study area that includes Pleasant Valley adjacent to the permit area but have not included Miller Creek as it is removed from the present permit area. In future, when the need to expand the Permit Boundary arises, Miller Creek may be included in an AVF assessment.

Map 32 is constructed at a scale of 1:4800 or 1"on the map = 400'on the ground. The AVF study was conducted by Gregory Hunt a qualified geologist who also has substantial experience interpreting geomorphology within the Eastern Wasatch Plateau.

The AVF's so determined are applicable to underground mining at Kinney No. 2 Mine only to the extent that the AVF'S are adjacent to the mine permit area. Potential impacts to the AVF's will be discussed at the end of this section. Because any impacts to the AVF would come from ground and surface water originating within the phreatic zone of influence of the underground mining and the surface facilities, the area within the AVF is limited. This area is shown on Map 32, AVF Evaluation Map, and is labeled "Zone of Ground Water Contribution to AVF From Mine Permit Boundary Area." As can be seen on the map, the solid colored areas zone is an area encompassed by Mud Creek on the west, south to a line projected from the southeastern corner of the permit boundary intersecting Mud Creek, and extending northward to a line originating at the northwest corner of the permit boundary and sweeping westward and northward slightly until it intercepts the high water mark of Scofield Reservoir. This Zone of Ground Water Contribution to the AVF From Mine Permit Boundary Area could be considered to be the phreatic zone of possible influence. The western boundary of Mud Creek is assumed to be the boundary because the ground water surface west of Mud Creek is likely shaped similarly to the ground water surface on the east side of the creek as determined in this application and shown on Map 32. Since water will not move upgradient, the creek is the low point and thus the western boundary of the zone of possible influence.

All available data were incorporated in this study, including:

- High Resolution ortho-rectified Aerial Photography

    - Registered to Kinney Coordinate System and imported into AutoCAD for precision drawing
- Soil Survey conducted as part of baseline data collection for this permit application. Please refer to (Chapter 2, Soils, and Exhibit 6, Soils Information) for the complete soil survey
- Digital topographic maps
- Geomorphic Characteristics of the valley fill material
- On the ground site visits as part of the larger data collection effort

Because determination of Floodplains is not part of the OSM criteria for determining AVF, a Floodplain study was not conducted. However, observations from site visits, and from soil samples show NO EVIDENCE that high water from a flood of Mud Creek has ever reached the permit area.

Channel Size, of Mud Creek, did not enter into the AVF study because it is so small relative to the existing "quasi AVF" due to the geologic control of Pleasant Valley.

A "Flood Irrigation Assessment" was completed in this study and became key to determining the lateral extent of the AVF in defining the larger AVF. The combination of that portion of the AVF that is presently being "flood irrigated" together with that portion of valley floor that could be "flood irrigated" largely defines the two AVFs.

An abandoned ditch can be seen and is labeled in the crossing the west side of the permit boundary. This ditch was last used approximately 25 years ago, and the diversion structure for the ditch has been destroyed therefore it is no longer functioning (Mike Erkkila, Mayor Scofield Town, Personal communication). The presence of the ditch does demonstrate that a portion of the Quasi AVF south and west of the permit boundary was at one time irrigated. Other portions of the Quasi AVF, west and north of the permit boundary, are being irrigated periodically at present.

An "Identification of Marsh Areas" was completed as part of this study. The area identified as Marsh on Map 32, AVF Evaluation Map, fits the classical definition of a Marsh, i.e., a marsh is a type of wetland that is subject to frequent or continuous flood. Typically the water is shallow and features grasses, rushes, reeds, sedges, and other herbaceous plants. The area was identified from aerial photographs, field evaluation of soil types, vegetation, and from the latest USDA SCS, Soil Survey of Carbon County, Utah, published June 1988.

A field study in the area previously called the "Marsh" will be conducted by Patrick Collins, PhD (Mt. Nebo Scientific) in the 2011 field season. The study will include a qualitative description of the plant communities within the area and the dominant species present. The plant communities will also be mapped in the field. Once the study is completed, a final report will be prepared that includes a vegetation map to an appropriate scale. The final report will be submitted to the Division for insertion to the Kinney No. 2 Mining and Reclamation Plan.

Field verifications of all plant communities shown or described in Chapter 9 will also be conducted during the 2011 field season by Patrick Collins. The current language and maps in this chapter will be updated and submitted to the Division for insertion to the Kinney No. 2 Mining and Reclamation Plan.

A "Sprinkler irrigation Assessment" was not conducted as part of this study because the key parameter of whether or not the land could be flood irrigated, regardless of whether sprinkling may be more efficient in some areas, it was more important in determining extent of AVF than

comparing the potential efficiency differences of sprinkling vs. flooding. Currenty there is no sprinkler irrigation being used in the AVF area.

A determination of the extent of potential "Artificial Sub-Irrigation" was not completed as a part of this study. For Soil Maping Unit 108 the SCS soils report does not indicate a water table depth, however, for Soil Mapping Unit 109 the SCS report indicates a fluctuating water table depth of 28 to 25 inches in spring and between depths of 35 and 45 inches during the drier season (page 77). Effective rooting depth for Soil Mapping Unit 108 is reported to be 60 inches or more for water-tolerant plants but is limited to 20 to 40 inches for non-water-tolerant plants (page 77). Effective rooting depth for Soil Mapping Unit 109 is reported to be 60 inches or more for water-tolerant plants but is limited to 18 to 24 inches for non-water-tolerant plants.

Evaluation of SCS Soil Survey of Carbon Area, Utah, Published June, 1988 (the most current survey as of August 2010).

As shown on Map 32, AVF Evaluation Map, there are two Soil Map Units according to the SCS Soil Survey, Unit 108, Silas loams, and Unit 109, Silas-Brycan loams. Soil Map Unit 109 comprises a very small area of 8.69 acres and Soil Map Unit 108 includes 220.45 acres.

**Soil Map Unit 109**

Unit 109 includes 8.69 acres within the Quasi AVF/AVF boundary shown on Map 32. This area is within property owned by Hilda Hammand, Carbon County Parcel 1B-483. Soil Map Unit 109 is described in the Soil Survey on page 77 as "This unit is 65 percent Silas loam, wet, 0 to 3 percent slopes; 20 percent Brycan loam, 3 to 8 percent slopes; and 15 percent other soils." The 8.69 acres lie on the eastern edge of the AVF area where the ground is sloping toward the east and Highway 96, and therefore fits in the 3 to 8 percent category of being Brycan loam. Further, the Soil Survey says, "…the Brycan soil is on alluvial fans adjacent to the narrow alluvial valleys." Further, the Soil Survey says, "The present vegetation in most areas is mainly silver sagebrush, bluegrasses, sedges, wiregrass, and scattered Colorado glue spruce." The 8.69 acres is above the grassy lower, flatter land is does exhibit the vegetation types mentioned, with a predominance of grasses, but does not contain and Colorado blue spruce.

On page 107 of the Soil Survey, it says, "The Brycan series consists of very deep, well drained, moderately slowly permeable soils on alluvial fans and in valleys. These soils formed in alluvium derived from shale and sandstone.

On page 131 of the Soil Survey it says, "The Silas series consists of very deep, somewhat poorly drained, moderately permeable soils on narrow alluvial valleys. These soils formed in alluvium derived from shale and sandstone."

**Use and Management of the Soil**

On page 93 of the Soil Survey Land Capabiltiy Classification is explained as follows, " Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops (5). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are use for crops, and the way they respond to management." Also, "Capability subclasses are soil groups within one class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example IIe. The letter e shows that the main limitiation is risk of erosion unless close-growing plant cover is maintained;

w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry."

The Capability Classification for Soil Map Unit 109 is VIw (page 78), which as can be seen on page 93 of the Soil Survey exhibits "…severe limitations that make them generally unsuitable for cultivation." And the subclass is w, meaning, "…that water in or on the soil interferes with plant growth or cultivation…."

**Productivity**

On page 94 of the Soil Survey, Total production is defined as "… the amount of vegetation that can be expected to grow annually on well managed land that is supporting the natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. … It is expressed in pounds per acre of air-dry vegetation for favourable, normal, and unfavourable years. In favorable years, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavourable year, growing conditions are well below average, generally because of low available soil moisture."

On Table 4, Rangeland and Woodland Understory Productivity and Characteristic Plant Communities, Soil Unit 109 is listed as producing 3,500 pounds per acre, dry weight in a favorable year, with 3,000 pounds per acre in a normal year and 2,500 pounds per acre in an unfavourable year.

As explained on page 94 (see above) the productivity is stated to be "…on well managed land that is supporting the natural plant community." Some shrubby species are present in the area that likely have been introduced with irrigation water, or have blown in or have been introduced by other natural processes. Whether the area has been well managed is debatable. Casual observations made over the past 25 years indicates that marginal management has been done in the area, with marginal effort to rotate grazing allotments, and irregular flood irrigation having been done. As can be seen on Map 32 an irrigation ditch called the East Branch Ditch terminates in the 8.69 acre area, and as stated before in this discussion, the Mayor of Scofield, Mike Erkkila stated that this ditch has not been used for approximately 25 years, and in fact the diversion has not been maintained, thus making the ditch unusable. According to Mayor Erkkila, a farmer attempted to run irrigation water down this ditch last year (2009) and could not get water to the fields due to poor maintenance.

Therefore, productivity of the 8.69 acre area could be expected to be approximately what the SCS Soils Survey shows on Table 4 (as stated above) at best, and at worst, much less. Since the SCS considers the production estimates to be from "well managed" land, and since the land within the 8.69 acres is not well managed as exemplified by the fact that the irrigation ditch has not been used in the past 25 years, it is likely that productivity from this soil unit is much less than the SCS estimates.

**Soil Map Unit 108**

Unit 108 includes a total of 220.45 acres which are owned by several individuals as shown on Map 32 within the Quasi AVF/AVF boundary. Soil Map Unit 108 is described in the Soil Survey on

page 76 as "This very deep, somewhat poorly drained soil is in narrow alluvial valleys. ··· It formed in alluvium derived dominantly from sandstone and shale of the Price River and Black Hawk Formations. Slopes are 0 to 3 percent, w00 to 200 feet long, and concave to convex. The present vegetation in most areas is mainly Kentucky bluegrass, wiregrass, carex, and arrowgrass. ··· average freeze-free period is 60 to 80 days."

On page 131 of the Soil Survey it says, "The Silas series consists of very deep, somewhat poorly drained, moderately permeable soils on narrow alluvial valleys. These soils formed in alluvium derived from shale and sandstone."

**Use and Management of the Soil**

On page 93 of the Soil Survey Land Capabiltiy Classification is explained as follows, " Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops (5). Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are use for crops, and the way they respond to management." Also, "Capability subclasses are soil groups within one class. They are designated by adding a small letter, e, w, s, or c, to the class numeral, for example IIe. The letter e shows that the main limitiation is risk of erosion unless close-growing plant cover is maintained; w shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry."

The Capability Classification for Soil Map Unit 108 is VIw (page 77), which as can be seen on page 93 of the Soil Survey exhibits "···severe limitations that make them generally unsuitable for cultivation." And the subclass is w, meaning, "···that water in or on the soil interferes with plant growth or cultivation···."

**Productivity**

On page 94 of the Soil Survey, Total production is defined as "··· the amount of vegetation that can be expected to grow annually on well managed land that is supporting the natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. ··· It is expressed in pounds per acre of air-dry vegetation for favourable, normal, and unfavourable years. In favorable years, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavourable year, growing conditions are well below average, generally because of low available soil moisture."

On Table 4, Rangeland and Woodland Understory Productivity and Characteristic Plant Communities, Soil Unit 109 is listed as producing 3,500 pounds per acre, dry weight in a favorable year, with 3,000 pounds per acre in a normal year and 2,500 pounds per acre in an unfavourable year.

As explained on page 94 (see above) the productivity is stated to be "···on well managed land that is supporting the natural plant community." Although no species identification has been conducted on the 8.69 acres, it is evident from casual observation that grasses make up the predominant vegetation community, either native, or planted many years ago. Some shrubby species are present in the area that likely have been introduced with irrigation water, or have

blown in or have been introduced by other natural processes. Whether the area has been well managed is debatable. Casual observations made over the past 25 years indicates that marginal management has been done in the area, with marginal effort to rotate grazing allotments in the area, and irregular flood irrigation having been done. As can be seen on Map 32 an irrigation ditch called the East Branch Ditch terminates in the 8.69 acre area, and as stated before in this discussion, the Mayor of Scofield, Mike Erkkila stated that this ditch has not been used for approximately 25 years, and in fact the diversion has not been maintained, thus making the ditch unusable. According to Mayor Erkkila, a farmer attempted to run irrigation water down this ditch last year and could not get water to the fields due to poor maintenance.

Therefore, productivity of the 161.8 acre area could be expected to be approximately what the SCS Soils Survey shows on Table 4 (as stated above) at best, and at worst, much less. Since the SCS considers the production estimates to be from "well managed" land, and since the land within the 8.69 acres is not well managed as exemplified by the fact that the irrigation ditch has not been used in the past 25 years, it is likely that productivity from this soil unit is much less than the SCS estimates.

**Livestock Capability**

According to Mr. Ron Patterson, Extension Agent Carbon County, Utah State University Cooperative Extension Service (personal communication 83/2010), the AVF area could be expected to accommodate 1 AMU (Animal Month Unit).

"The AUM is the amount of forage needed by an "animal unit" (AU) grazing for one month. The animal unit in turn is defined as one mature 1 000 pound cow and her suckling calf. It is assumed that such a cow nursing her calf will consume 26 pounds of dry matter (DM) per day as forage. That consumption, combined with a factor for tramping and waste of about 25%, results in an estimate of about 1000 pounds of dry matter (DM) from forage to supply one AU each month. This translates into 1108 lb of hay at 90% dry matter. Various other types of stock are assigned AUM equivalents based on size and consumption. For example, the fact sheet Grazing Tame Pastures Effectively (Agdex 130/53-1) suggests a mature bull is the equivalent of 1.3 AU, a yearling steer or heifer is 0.67 AU and a weaned calf is 0.5 AU. These are the equivalents suggested by the Society for Range Management."
http://www.thedairysite.com/articles/981/understanding-the-animal-unit-month-aum

Since the AVF is in a high mountain valley, with an average frost-free period of from 60 to 80 days per year, the livestock carrying capacity of the AVF is limited to the frost-free period plus an indeterminate period of time in the spring when the vegetation begins to sprout until some indeterminate time when snows cover the ground making grazing difficult or impossible. Grass-hay harvested and stored from the AVF would then be required for livestock feed, or feed from other sources provided. This time period when livestock could potentially be supported from the AVF is somewhere in the range of 6 to 7 months at best.

Animals other than cows would of course consume and/or demand varying amounts of resources, but since the area is in a high mountain valley with a relatively short growing season, carrying capacity of the AVF is restricted and marginal for high production of animals or fowls, and economically the area is limited in usefulness for large scale producers.

**R645-302-321.100 AVF Vegetation Studies**

Carbon ResourcesCoal Energy Group 3 has committed to have a botanist, Patrick Collins, PhD, (*Mt. Nebo Scientific*), conduct a qualitative assessment of the vegetation for the potential AVF

adjacent to the permit area that includes a description of the plant communities including dominate species and a map to appropriate scale showing the location of the communities in the referenced 8.69 acre area. The study will be conducted in the growing season of 2011. Once the field study is completed, a report of the findings will be written that includes a description of the AVF plant communities, dominant species and maps showing the plant communities present. The report will be submitted to the Division for insertion to the Kinney No. 2 Mining and Reclamation Plan.

A search is currently being conducted for appropriate IR aerial photography by ~~Carbon Resources~~Coal Energy Group 3. Depending on the availability, the following IR photographs will be used by Patrick Collins (*Mt. Nebo Scientific*) in conjunction with the aforementioned vegetation field study for the AVF analysis: (1) a series for photographs throughout the growing season covering the area, or (2) a late-spring/early summer and late-summer/early-fall combination, or (3) a growing season photograph (preferably late summer-early fall). If no existing appropriate color IR photographs are available, field studies that identify phreatophytes (plants that depend on ground water) will be used with standard color aerial photography for the AVF study. Once the aerial photography review and the field study are completed, a final report will be written and submitted to the Division for insertion the Kinney No. 2 Mining and Reclamation Plan.

**R645-302-322.100 Affect on AVF**

For the purposes of this discussion, the Quasi AVF and True AVF areas are considered the same and the acreages and other discussions below apply to both areas.

Limited areas downstream from the study area and west of the line labeled as Pastureland on Map 1A, Facilities Area Vegetation Map may be an AVF, however future mining activities will not change the status or condition of the geology, ground water, surface water, or soils in this possible area for the following reasons:

1. Mining will not interrupt or cause significant diminution of surface or ground water flows. Refer Chapter 7, Hydrology for a complete discussion of the Ground and Surface Water environment in the permit and general mine area, and specifically the discussion under R645-301-728, Probable Hydrologic Consequences Determination. To summarize, mining will be conducted above the regional ground water table, therefore no impacts to ground water that possibly feeds the AVF areas are possible. Surface runoff from the mining operation facilities are directed through the surface runoff control system and directed to Sediment Pond No. 1, which is an approved UPDES discharge point, with effluent limitations that protect downstream environmental values, and any possible AVF uses.
2. Irrigation water supplying the AVF area comes from Mud Creek at a diversion point well upstream of the proposed mine site. As can be seen on Map 32, AVF Evaluation Map, irrigation ditches supplying water to the AVF area are part of the Scofield Ditch system. The diversion point for this irrigation system is in the south half of Section 5, Township 13 South, Range 7 East on Mud Creek, some three quarters of a mile south of the most southerly point of the Kinney No. 2 Mine permit area the AVF area.
3. The only ditch supplying water to the AVF area that is near the proposed mine site has not been used for many years and appears not to be used due to maintenance neglect.
4. Surface runoff water from the proposed mine site will be diverted through sedimentation controls including the sedimentation pond, and alternative sediment controls including but not limited to silt fences, straw bales, and sediment traps.

5. Water quality discharges from the mine site are required to meet effluent standards that would prevent adverse impacts. Discharge from the sediment pond must meet NPDES requirements.
6. Runoff water from the mine site historically flows to the AVF area. The proposed mine operations will not stop this flow from reaching the area, other than a very small amount of water retained in the sedimentation pond.
7. Drill hole data, data from geotechnical drilling, and data from soils pits dug during soils investigations did not indicate any ground water in the shallow alluvium in the mine site area, with exception of Monitoring Wells CR-10-11 and CR-10-12, which are at the western edge of the permit area. These two monitoring wells are below surface impacts that could be contaminated by mining operations. Since the mine site is upgradient from the AVF area, it would be expected that the ground water would flow towards the AVF, and since little ground water was encountered, there is little risk of contamination from mining operations.

Water supply for use in the AVF area includes irrigation water from Mud Creek through irrigation ditches well upstream from the proposed mining operations. One irrigation ditch flows through the southwestern corner of the proposed mine permit area, and will be culverted through the operations area, thus preventing possible diminution of the irrigation water quality. It should be noted however that this irrigation ditch has not been used for many years as evidenced by the condition of the ditch and culvert crossing Highway 96 at the location of the proposed mine entrance road at Highway 96, and as discussed previously. The irrigation ditch is very overgrown with vegetation and has partially silted in from non-use over an extended period of time. The irrigation ditch culvert crossing Highway 96 is almost complete silted closed, thus evidencing non-use for an extended period of time. Surface runoff controls have been designed to collect all surface runoff from mining operations. The sedimentation pond will prevent siltation of the downstream environment. An oil/grease skimmer has been included in the pond outlet design to prevent any floating oil or grease from exiting the pond. The pond discharge will meet UPDES discharge requirements and thus adverse downstream impacts will be prevented. Relatively small areas at the topsoil stockpile and very small areas at the entrance road to the site from Highway 96 will be controlled by alternative sediment controls including, but not limited to silt fences, berms, straw bales, an/or sediment traps. These areas are very small and will not include mining operations that would create any significant discharge volumes containing harmful substances.

**Risk to AVF Area**

The information above demonstrates that there is negligible risk of material damage to quantity or quality of water flowing to the AVF area from the proposed mining operations at the Kinney No. 2 Mine. Historic mining by several mines in the area, and reclamation work completed by the Utah AML program have not adversely impacted the AVF area. New mining operations by ~~CR~~ CEG3 would provide runoff controls and other controls of air quality, and control of chemical contamination that were not considered or attempted by historic mining and reclamation by AML. In addition, reclamation completed at the end of the Kinney No. 2 Mine life would be conducted in a more comprehensive manner, with more controls, and with full vegetative cover and diversity requirements. Therefore, the Kinney No. 2 Mine will have negligible impact on the AVF area.

Monitoring of water discharges, and monitoring of air quality during mining operations will document any adverse impacts, and regulatory requirements will dictate that any negative impacts must be corrected.

~~CR~~ CEG3 therefore believes that there will be no negative impact to the AVF and request UDOGM make a finding of no significant impact.

# VALLEY

PASTURELAND

U.P. RAILROAD TRACKS

SAGEBRUSH/GRASS

SAMPLE AREA: PREVIOUSLY DISTURBED
RABBITBRUSH/GRASS

SAMPLE AREA: PROPOSED DISTURBED
AREA
SAGEBRUSH/GRASS

PERMIT BOUNDARY

EXISTING ELECTRIC
UTILITY LINE

Old UP # 2 Portal

Old UP # 1 Portals

Old Columbine # 2 Portal (Lower Seam)
(AKA Jones Mine)

Old Kinney Portals
(AKA Columbine # 1)

Old Kinney Portal

Old Blue Seam Portal

Old Blue Line (lower seam)
(Name?)

T12S, R7E SLB&M
T13S, R7E SLB&M

32
33
5
4

7800
8000
8400
8200

ASPEN

SAMPLE AREA: SAGEBRUSH/GRASS
REFERENCE AREA

96

## LEGEND

- PRE - MINING ROADS
- PRE-SMCRA DISTURBED AREA
- KINNEY MINE NO. 2 MINE DISTURBANCE
- VEGETATION COMMUNITY BOUNDARY LINE
- AVF AREA

N

0 100 200 300 ft

SCALE
Contour Interval 200 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft, using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Coal Energy Group 3

KINNEY NO. 2 MINE

MAP 1A
FACILITIES AREA
VEGETATION MAP

DRAWN BY: P.C., B.G. DATE: 11/07
APPROVED BY: P.C. DATE:

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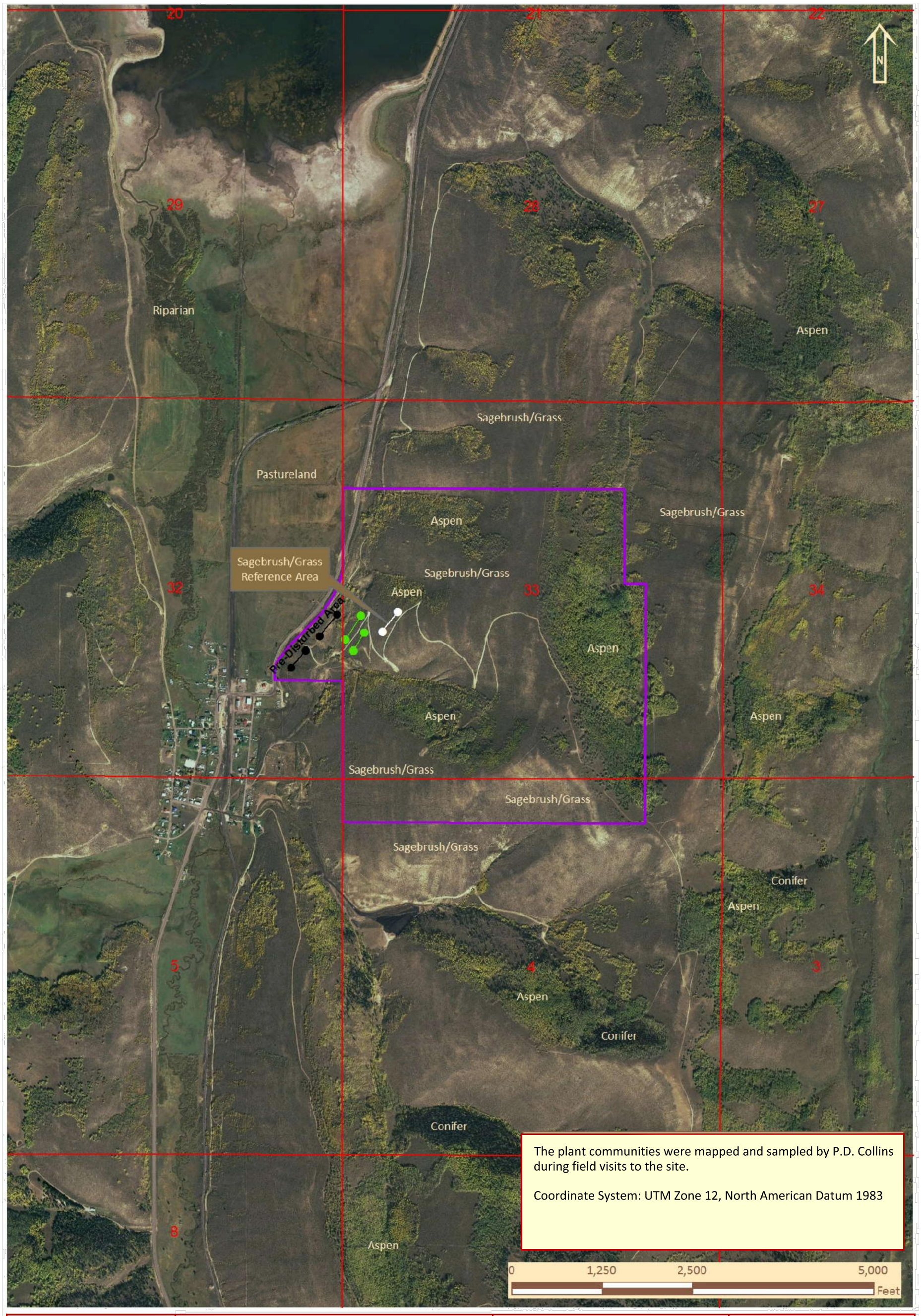
Springville, Utah 84663
Phone (801) 489-6937




The plant communities were mapped and sampled by P.D. Collins during field visits to the site.

Coordinate System: UTM Zone 12, North American Datum 1983

Map 1B
Vegetation
(Aerial View)

Scale: 1:15,000

Date: 11/08/2018

Legend
Sample Transect Lines (approx)

- Pre-Disturbed Area
- Proposed Disturbed Area
- Sagebrush/Grass Reference Area
- ProjectArea

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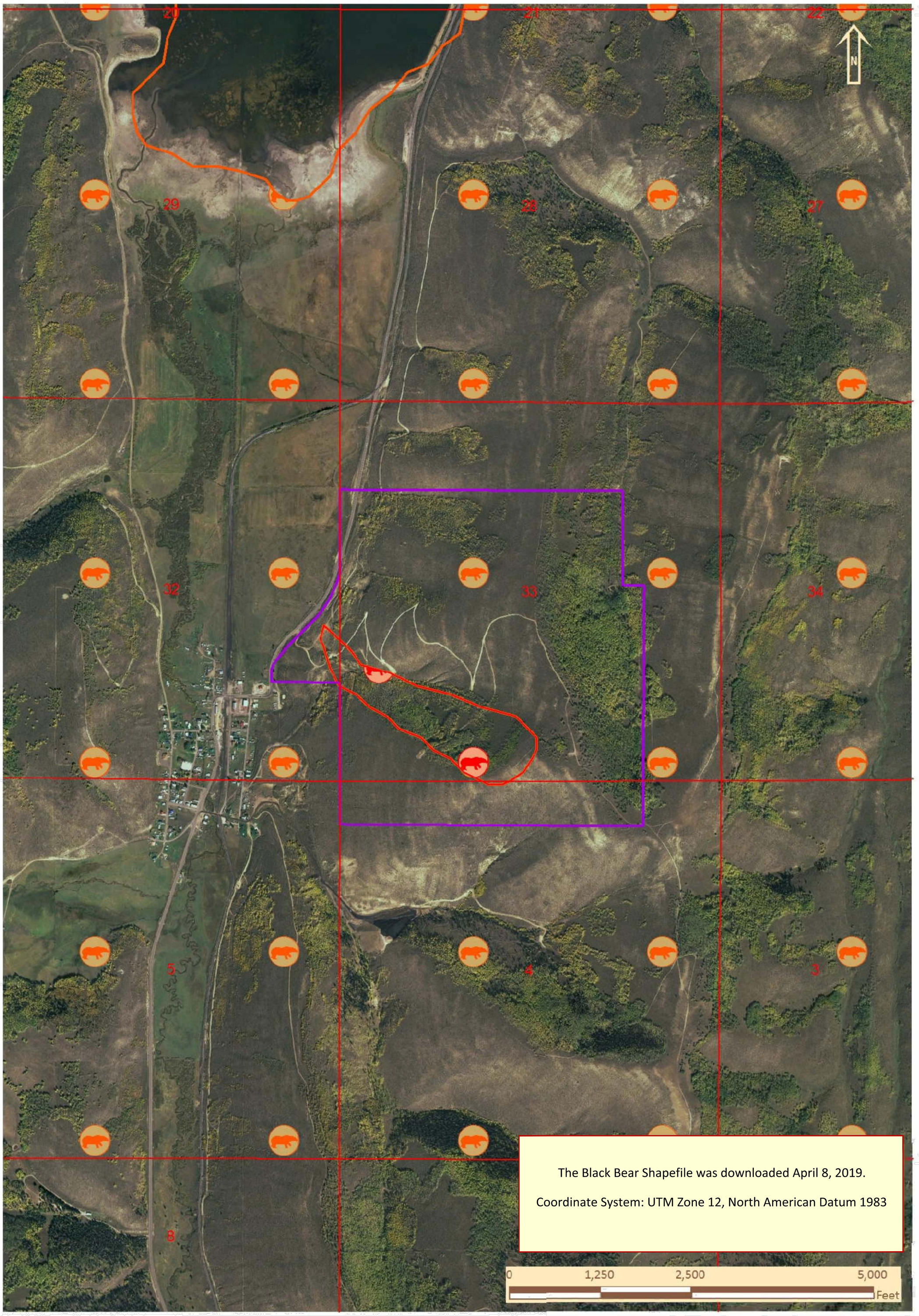
Maped by: P.D. Collins and J. Magrath

COAL ENERGY GROUP 3
Kinney No. 2 Mine

Sec. 32 & 33 T12S R7E,
Sec. 4 T13S R7E, SLB&M.
Carbon County, Utah




Map 2A
Black Bear
Habitat

Scale: 1:15,000

Date: 04/08/2019

Legend
Black Bear (UDWR, 2019)

- Crucial, Year-Long
- Substantial, Year-Long
- ProjectArea

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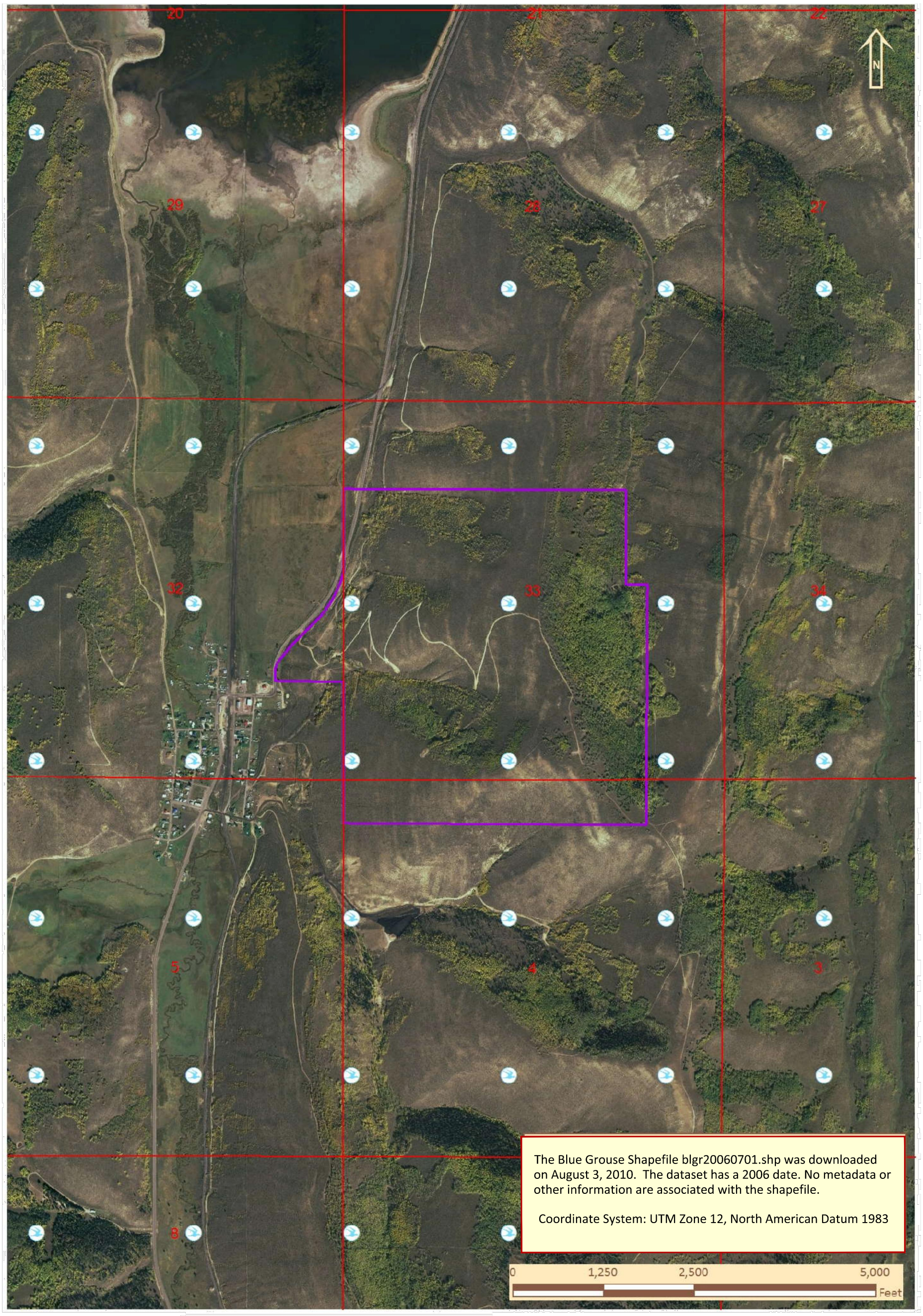
Carbon County, Utah

Coal Energy Group 3
CEG
Kinney Mine




Map 2B
Blue Grouse Habitat

Scale: 1:15,000

Date: 11/08/2018

Legend
Blue Grouse (UDWR, 2018)

Year-Long, Crucial

ProjectArea

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Kinney No. 2 Mine

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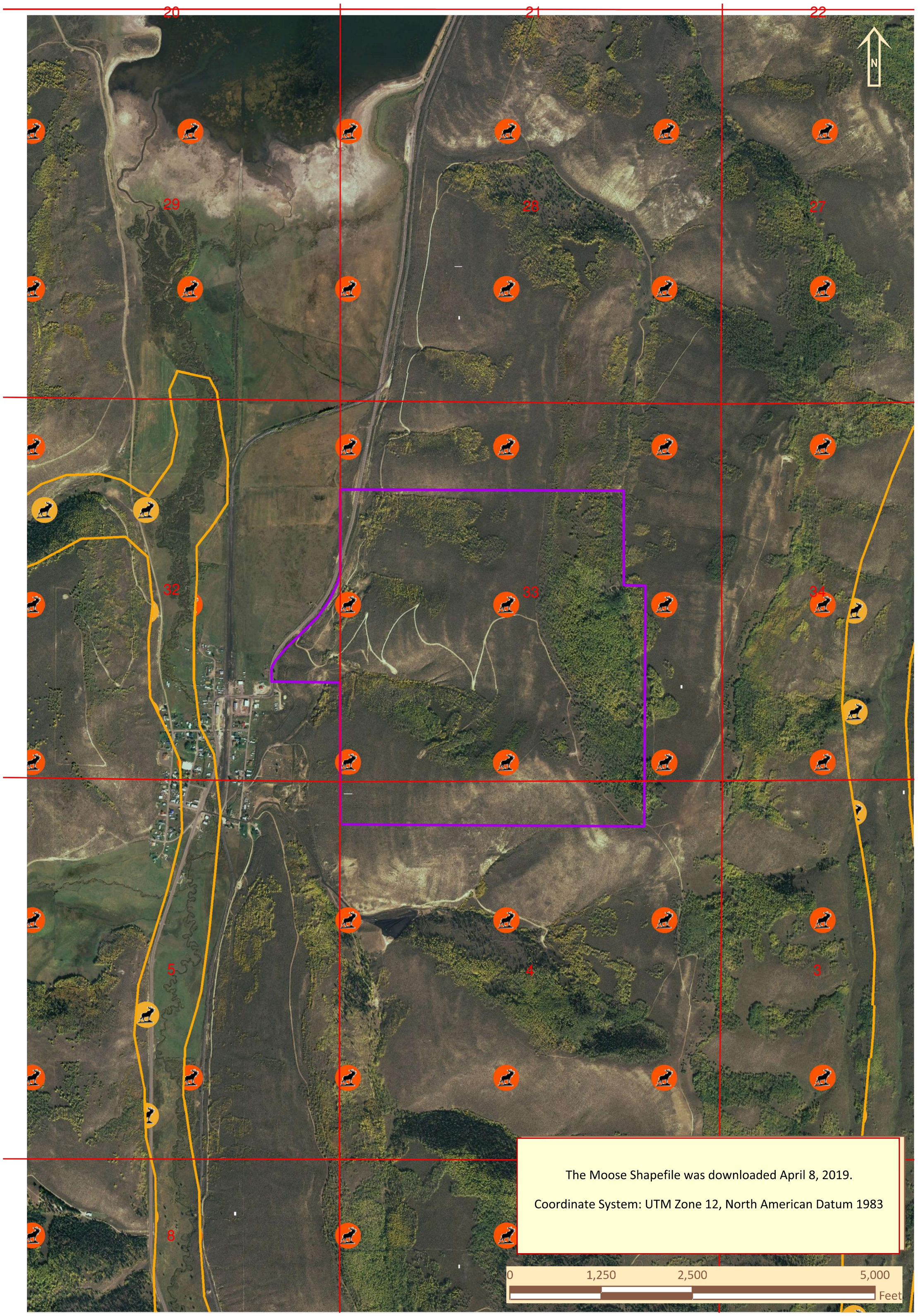
Sec. 4 T13S R7E, SLB&M.
Carbon County, Utah

Coal Energy Group 3
CEG
Kinney Mine




Map 2C
Moose Habitat

Scale: 1:15,000

Date: 04/08/2019

Legend
Moose (UDWR, 2019)

- Winter, Crucial
- Year-Long, Crucial
- ProjectArea

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Maped by: P.D. Collins and J. Magrath

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Kinney No. 2 Mine

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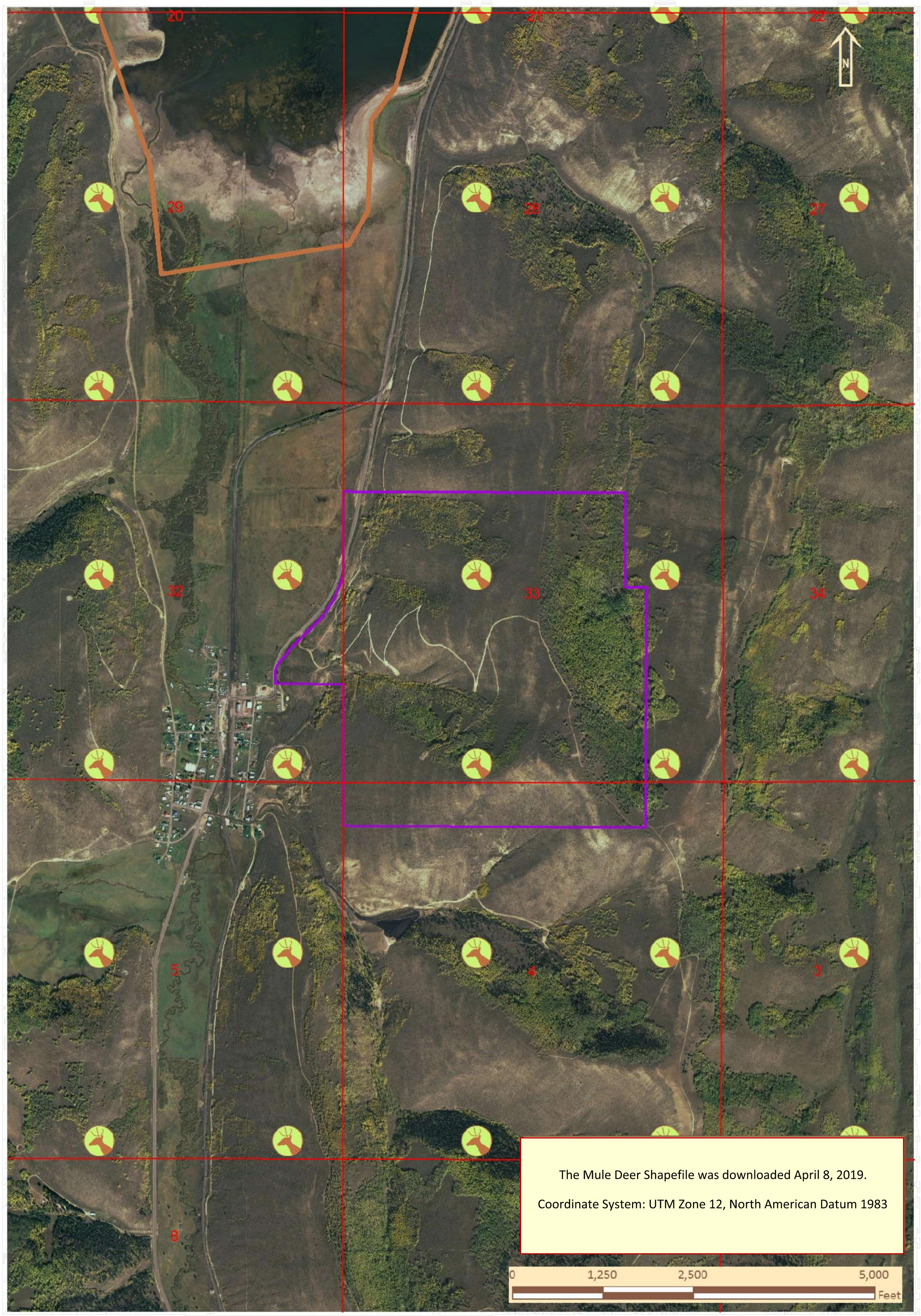
Sec. 4 T13S R7E, SLB&M.
Carbon County, Utah

Coal Energy Group 3
CEG
Kinney Mine




Map 2D
Mule Deer
Habitat

Scale: 1:15,000

Date: 04/08/2019

Legend
Mule Deer (UDWR, 2019)

Crucial, Summer

ProjectArea

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Kinney No. 2 Mine

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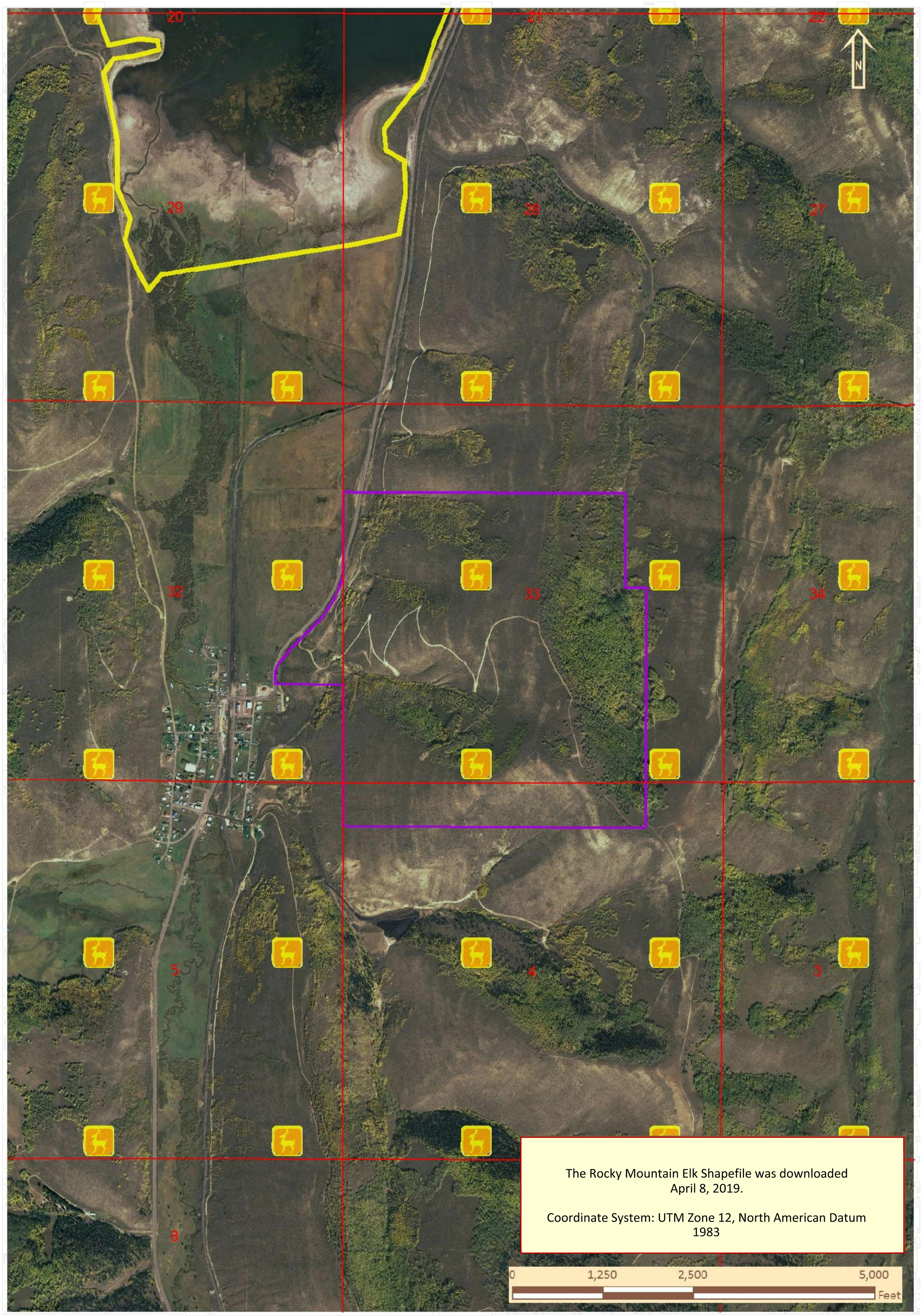
Sec. 4 T13S R7E, SLB&M.
Carbon County, Utah

Coal Energy Group 3
CEG
Kinney Mine




Map 2E
Rocky
Mountain Elk
Habitat

Scale: 1:15,000

Date: 04/08/2019

Legend
Rocky Mt. Elk (UDWR, 2019)

Crucial, Summer

ProjectArea

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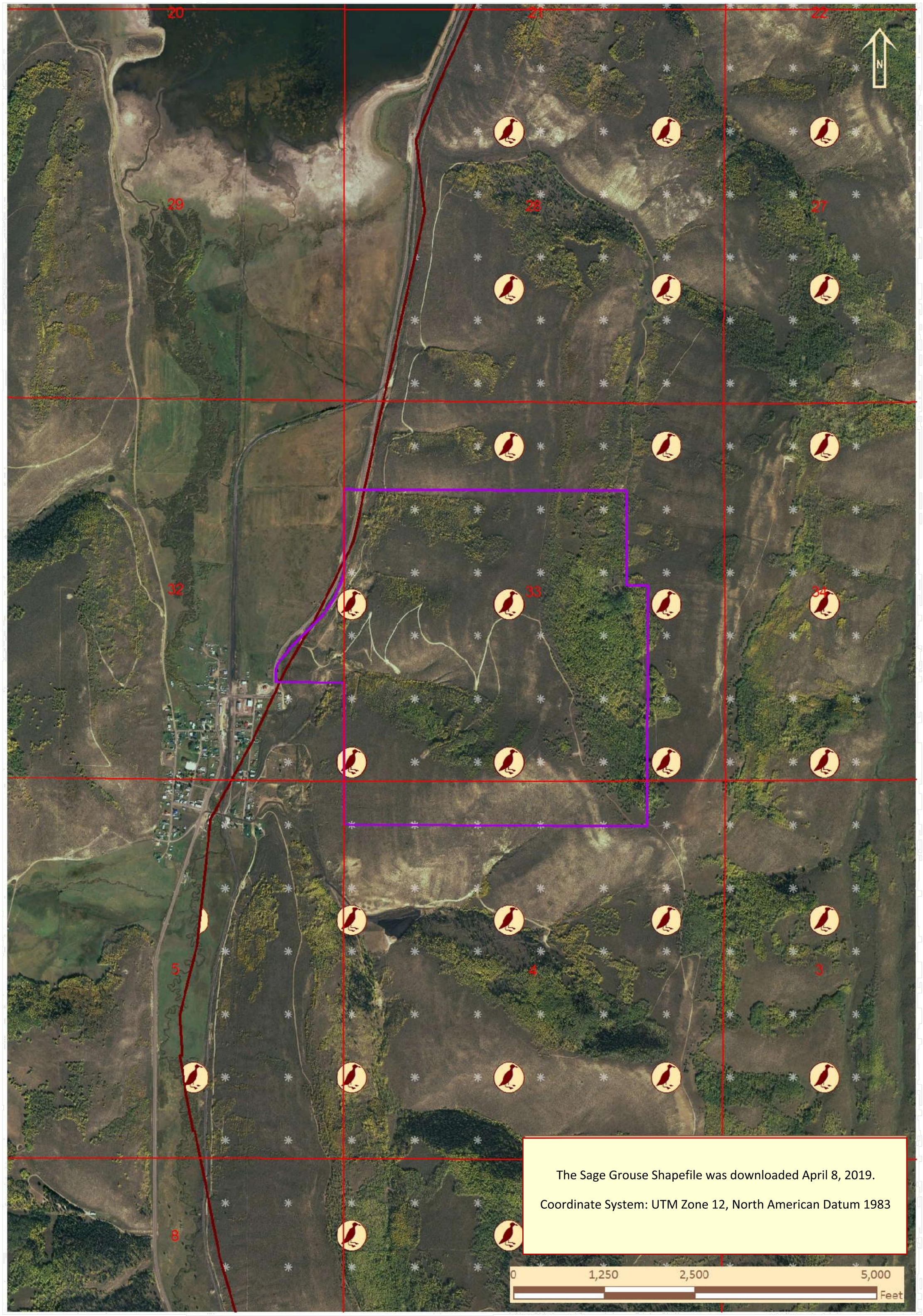
Coal Energy Group 3
CEG
Kinney Mine




Map 2F
Sage Grouse Habitat

Scale: 1:15,000

Date: 04/08/2019

Legend
Sage Grouse (UDWR, 2019)

- Summer
- Winter
- ProjectArea

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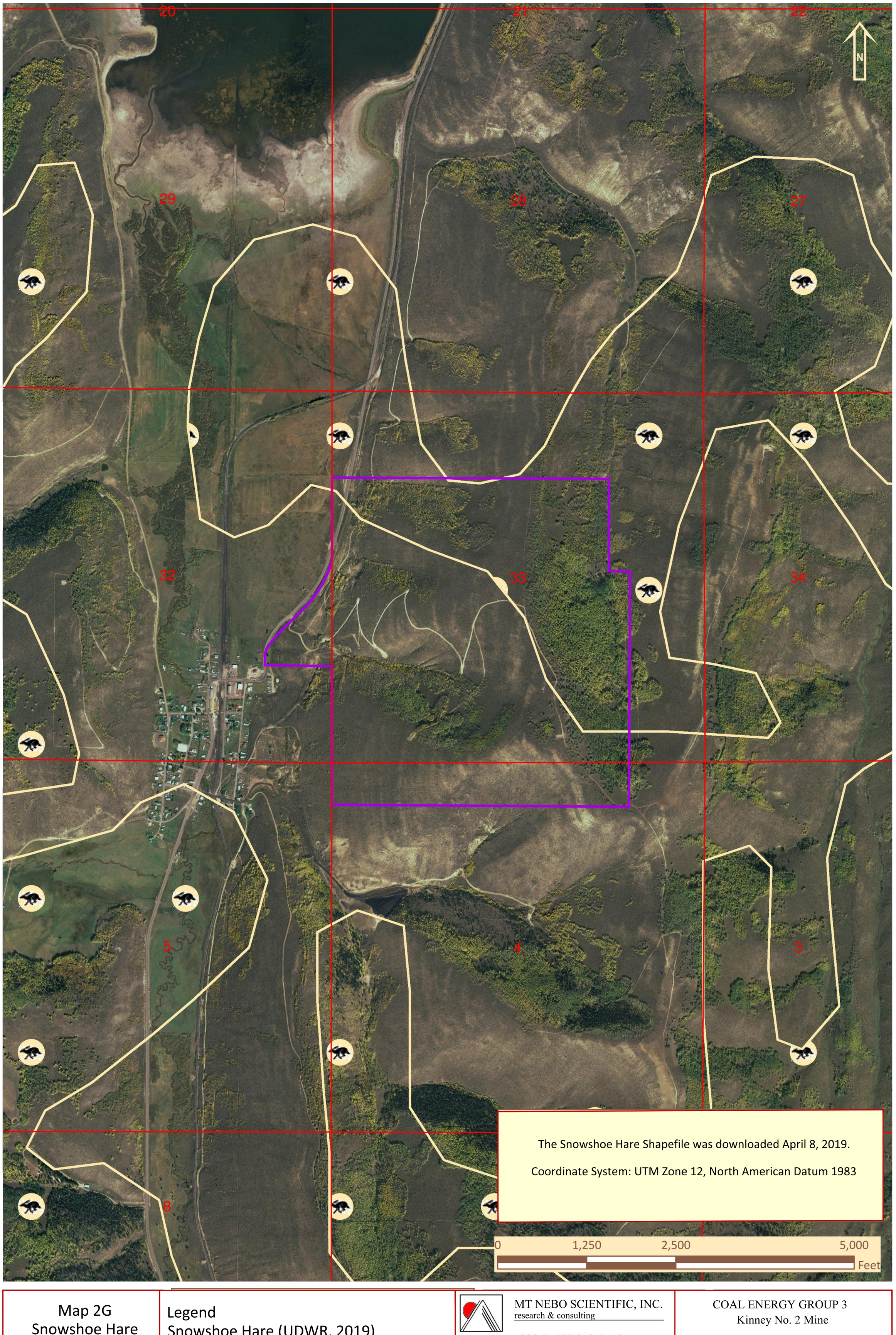
Sec. 4 T13S R7E, SLB&M.
Carbon County, Utah

Coal Energy Group 3
CEG
Kinney Mine




Map 2G
Snowshoe Hare Habitat

Scale: 1:15,000

Date: 04/08/2019

Legend
Snowshoe Hare (UDWR, 2019)

Year-Long, Crucial

ProjectArea

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Sec. 4 T13S R7E, SLB&M.
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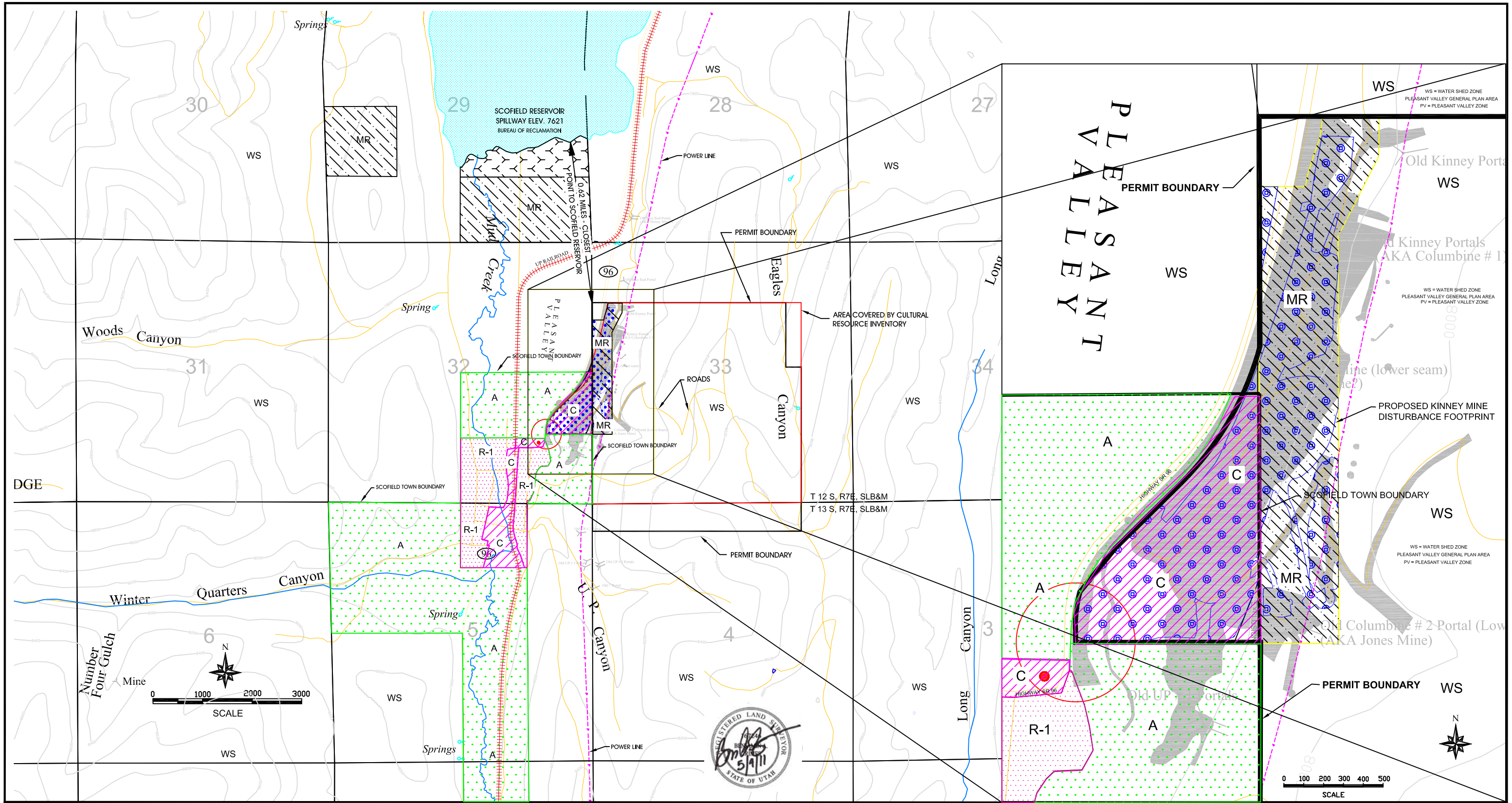
Coal Energy Group 3
CEG
Kinney Mine




## NOTES

1. PERMIT BOUNDARY AREA COVERED BY CULTURAL RESOURCE INVENTORY
2. CONTOUR INTERVAL 200 FT.
3. REFER TO PERMIT TEXT FOR ZONE DEFINITIONS.
4. THE ENTIRE MAP AREA IS INCLUDED IN THE CARBON COUNTY PLEASANT VALLEY GENERAL PLAN AREA. THE ENTIRE MAP IS INCLUDED IN THE CARBON COUNTY WATER SHED ZONE UNLESS SHOWN BY A HATCH PATTERN AS SHOWN IN THE LEGEND. SEE PERMIT TEXT, CHAPTER 4, R645-301-411.130.

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

## LEGISLATED ZONES

- WS — CARBON COUNTY (SEE NOTE 4) PLEASANT VALLEY GENERAL PLAN AREA WS = WATER SHED ZONE ALL OF MAP EXCEPT AS SHOWN IN THE LEGISLATED ZONES, LAND DESIGNATIONS AND LEGEND
- MR — CARBON COUNTY MR = MOUNTAIN RANGE ZONE ALLOWS COAL MINING OPERATIONS PRE-MININ LAND USES: WILDLIFE, GRAZING, RECREATION POST-MININ LAND USES: WILDLIFE, GRAZING, RECREATION
- C — SCOFIELD TOWN C = COMMERCIAL ZONE ALLOWS COAL MINING OPERATIONS PRE-MINING LAND USES: WILDLIFE, GRAZING, RECREATION POST-MINING LAND USES: WILDLIFE, GRAZING, RECREATION

## LAND DESIGNATIONS

- 300 FOOT RADIUS FROM PERMIT BOUNDARY WITH OCCUPIED DWELLING
- BLM PROPERTY
- KINNEY MINE PROPOSED DISTURBANCE FOOTPRINT
- PRE-SMCRA MINING DISTURBANCE
- BOR = BUREAU OF RECLAMATION PROPERTY & SCOFIELD RESERVOIR

## LEGEND

- A — A - SCOFIELD AGRICULTURAL ZONE
- R-1 — R-1 - SCOFIELD RESIDENTIAL ZONE
- WS — WS - WATER SHED ZONE ALL OF MAP EXCEPT AS SHOWN BELOW
- ROADS
- PERMIT BOUNDARY

REGISTERED LAND SURVEYOR — BRENT GARY RICHINS — 5/9/11 — STATE OF UTAH

| NO. | REVISION | DATE | BY | CHKD |
|---|---|---|---|---|
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | REVISED LEGEND AS PER J. HELFRICH | 4/11 | B.G. | G.H. |
| 1 | REVISED LAYOUT & ALND USE INFO. | 1/11 | B.G. | G.H. |

Carbon Resources LLC

KINNEY NO. 2 MINE

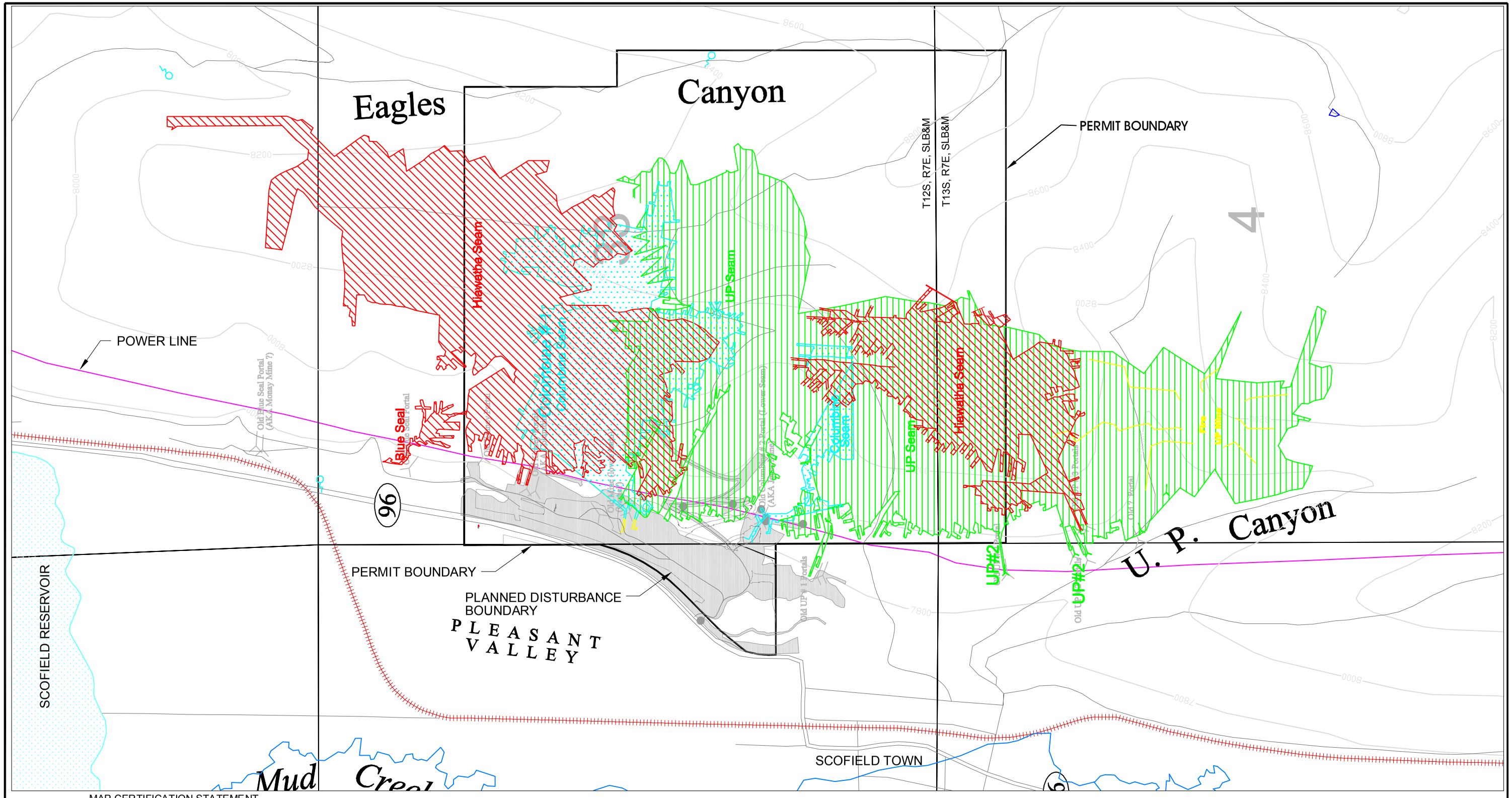
MAP 4
REGIONAL LAND USE
& ZONING MAP

DRAWN BY: B.G. DATE: 9/10
APPROVED BY: G.H. DATE: 9/10

Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:




## MAP CERTIFICATION STATEMENT

I, BENJAMIN A. GRIMES, BEING A REGISTERED PROFESSIONAL SURVEYOR ACCORDING TO THE LAWS OF THE STATE OF UTAH, DO STATE THAT THIS MAP HAS BEEN PREPARED UNDER MY DIRECTION, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND INFORMATION. THE LOCATION OF THE OLD MINE WORKINGS ON THIS MAP REPRESENT MINING AS OF THE DATE OF THIS SIGNING ACCORDING TO THE INFORMATION GIVEN TO ME, AND ACCORDING TO THE OLD MINE MAPS OBTAINED FROM THE STATE OF UTAH. I MAKE NO CERTIFICATION AS TO THE ACCURACY OF THE OLD MINE WORKINGS, OR TO THEIR ACCURACY OF LOCATION, EXTENT, OR CONFIGURATION. THE OLD MINE WORKNGS HAVE BEEN POSITIONED BASED ON THE INFORMATION CONTAINED ON EACH MINE MAP BASED ON THE POSITIONS OF THE MINES IN RELATIONSHIP TO THE SECTION LINES SHOWN ON THE MAPS. NO BASIS OF BERINGS WERE PRESENTED ON THE MAPS, NOR WERE THERE COORDINATES THAT GUIDED THEIR ACCURATE PLACEMENT. THE OLD MINE WORKINGS ARE POSITIONED FOR REFERENCE ONLY AND DO NOT NECESSARILY REPRESENT ACTUAL LOCATIONS HORIZONTALLY OR VERTICALLY.

REGISTERED LAND SURVEYOR 167246 BENJAMIN A. GRIMES STATE OF UTAH

BENJAMIN A. GRIMES P.L.S. NO. 167246

## LEGEND

- HIAWATHA SEAM
- COLUMBINE SEAM
- UP SEAM
- GROUND SURFACE CONTOUR
- PERENNIAL STREAM
- ROADS
- PRE-SMCRA DISTURBANCE AREA

N

0 500 1000 1500 2000 ft

SCALE

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

| NO. | REVISION | DATE | BY | CHKD |
|---|---|---|---|---|
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | | | | |

Carbon Resources LLC

KINNEY NO. 2 MINE

# MAP 5 PREVIOUS MINING ACTIVITY

DRAWN BY: G.H., B.G. DATE: 8/07

APPROVED BY: G.H. DATE:

Carbon Resources
Coal For Carbon County
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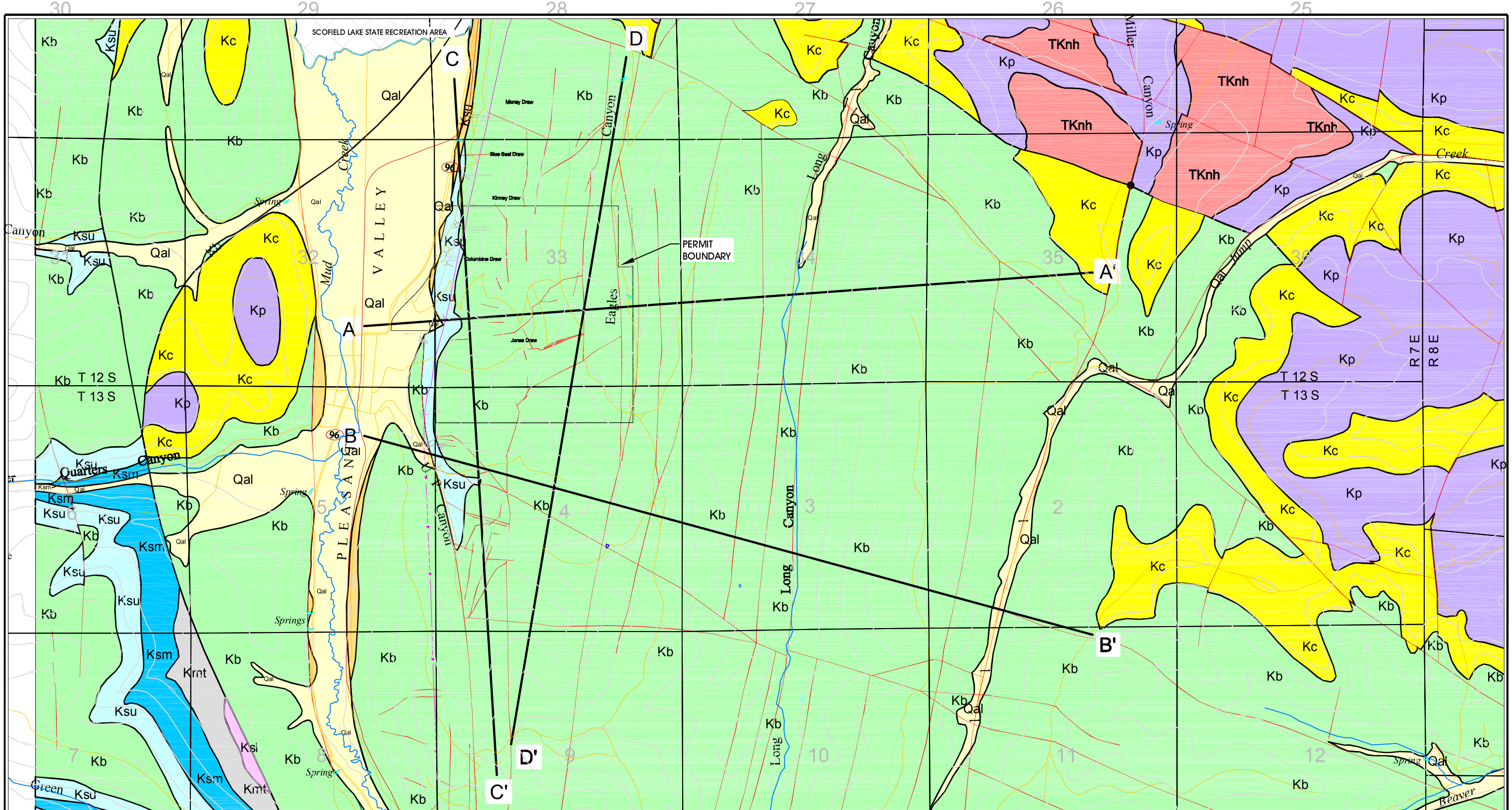
DWG. NAME:




N

0 1000 2000 3000 ft

SCALE

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

## LEGEND

- TKns = NORTH HORN FORMATION
- Kp = PRICE RIVER FORMATION
- Kc = CASTLE GATE SANDSTONE
- Ksu = STAR POINT SANDSTONE UPPER
- Ksm = STAR POINT SANDSTONE MIDDLE
- Kb = BLACKHAWK FORMATION
- Qal = ALLUVIUM
- FAULTS
- CROSS SECTION LOCATIONS SEE FIGURES 6,7,8 & 9

| NO. | REVISION | DATE | BY | CHKD |
|---|---|---|---|---|
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | | | | |

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 6

REGIONAL SURFACE GEOLOGY MAP

DRAWN BY: G.H., B.G. DATE: 8/07

APPROVED BY: G.H. DATE:

Carbon Resources
Coal For Carbon County

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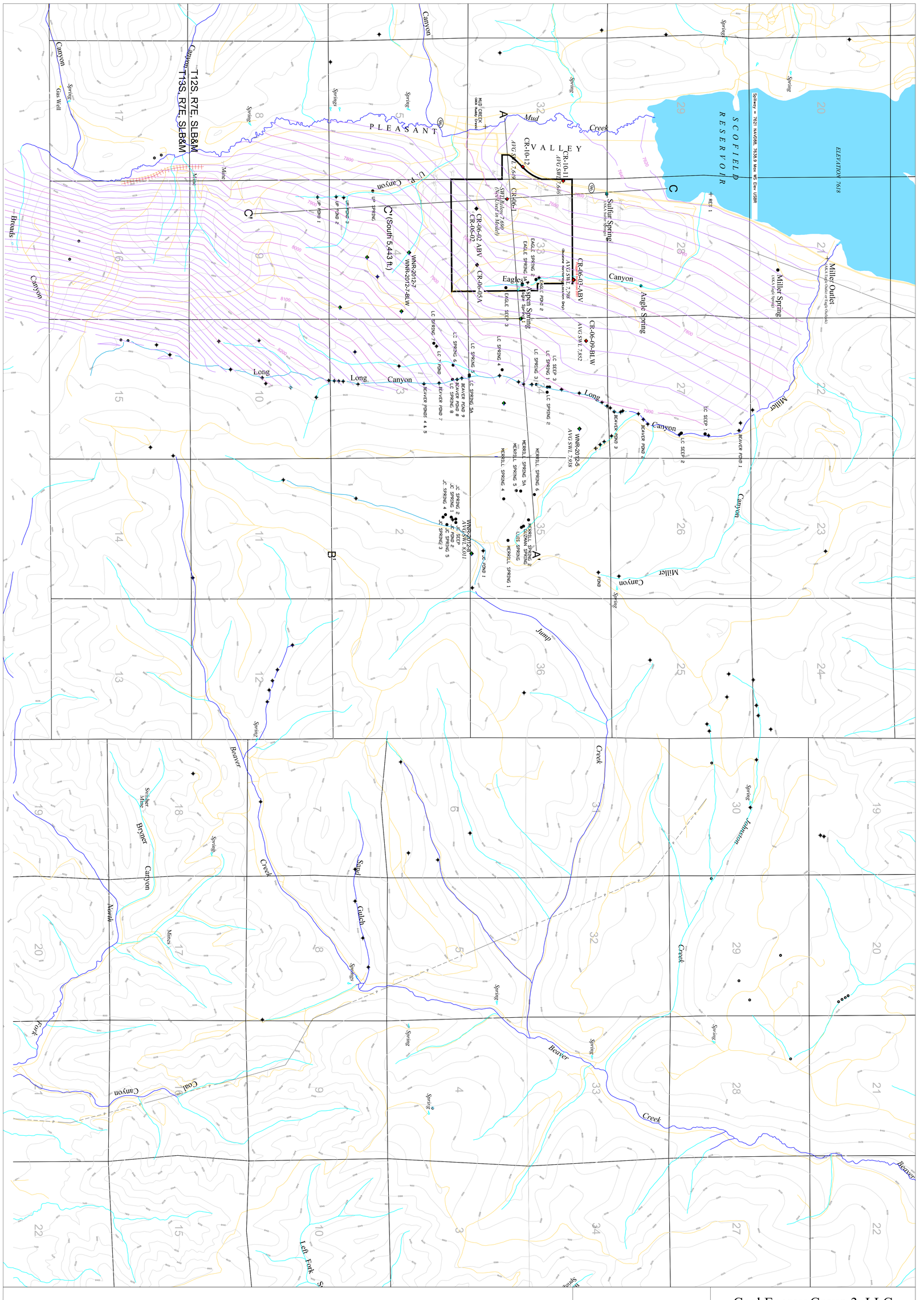
Sandia Park, NM 87047

DWG. NAME:




## LEGEND

- WATER MONITORING STATION GROUND WATER OR SURFACE WATER
- GROUND WATER SOURCE
- GROUND WATER WELL
- SURFACE WATER SOURCE (POND OR STREAM)
- PERENNIAL STREAM
- INTERMITTENT STREAM
- EPHEMERAL STREAM
- 7950 REGIONAL PIEZOMETRIC
- 8000 SURFACE ELEVATION
- SPRING
- A — A' X -SECTION LOCATION
- OLD MINE PORTAL
- ROADS
- RAILROAD
- ELECTRICAL LINES
- SCOFIELD TOWN BOUNDARY
- PERMIT BOUNDARY
- CR-06-03, CR-06-09, CR-10-11, CR-10-12 MONITOR WELLS PROVIDING DATA TO PIEZOMETRIC SURFACE

N

0 1000 2000 3000 ft.

SCALE

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft, using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Coal Energy Group 3, LLC

KINNEY NO. 2 MINE

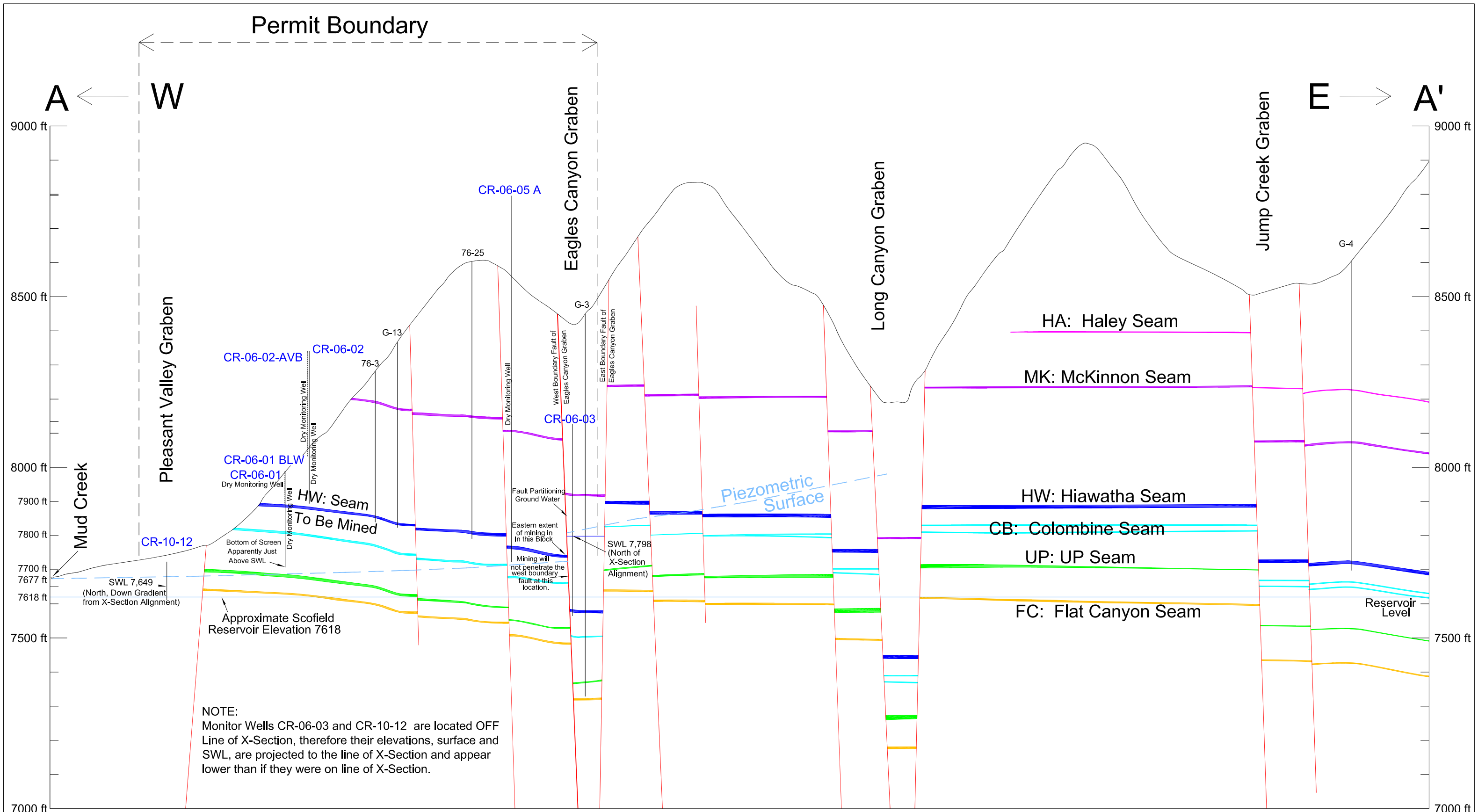
# MAP 7
## REGIONAL HYDROLOGY

DRAWN BY: R.P, G.H., B.G. DATE: 12/07

APPROVED BY: G.H. DATE: 12/07

Coal Energy Group 3 CEG Kinney Mine

6602 Ilex Circle
Naples, FL 34109




E 36,269
N 73,734

End Point Coordinates of this X-Section are in KCS (Kinney Coordinate System). They are projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a CF (Combined Factor) of 1.0047927. To project back, add 7,000,000 to Northing and 1,7000,000 to Easting, then divide by the CF.

Map Location of this X-Section can be found on Map 7 (Regional Hydrology) and on Map 8 (Works-Wells-Springs-Faults)

Revised: 18 Feb 2011

0 1000 2000 ft

4X vertical exaggeration

E 52,549
N 74,929

LEGEND

CR-06-05A — Drill Hole Providing Geologic Data and Completed as Ground Water Monitor Well

76-3 — Drill Hole Providing Geologic Data

FAULT

Kinney # 2 Mine

MAP 7A

W-E X-Section A-A'

DRAWN BY: GLH DATE: 9-15-10

APPROVED BY: GLH DATE: 9-15-10

Carbon Resources — A Unit For Co2Bon County

P.O. Box 954
Sandia Park, NM 87047

FILE: MAP 7A X-Sec A-A

C ← N

S → C'

Permit Boundary

CR-06-05A
(Off Line of Section
2,425 ft. East)

DRY WELL Off Line of Section

CR-06-02
(Off Line of Section
312 ft. East)

DRY WELL

MK: McKinnon Seam

76-1

1,159 ft. West)

CR-06-1-BLW

Bottom of "DRY"
Well Screen
Elev. 7,901

Seam to be Mined

Hiawatha

Dry Well

Bottom of "DRY"
Well Screen
Elev. 7,800.4

CB: Colombine Seam

HW: Hiawatha Seam

76-23

76-9-1

S-6

8500 ft

8000 ft

7900 ft

7800 ft

7700 ft

7620 ft

7500 ft

Scofield Reservoir

Pleasant Valley Graben

Sulfur Spring

G-14

CR-10-11

SWL 7,646

CR-10-12

SWL 7,649

Bottom of "DRY" Well Screen
Elevation 7,697

UP: UP Seam

FC: Flat Canyon Seam

Piezometric Surface

Piezometric Surface

Approximate Reservoir Level

Pleasant Valley Graben
East Boundary Fault
(Oblique Crossing)

UP North Saddle Fault

UP South Saddle Fault

NOTE:
Monitor Wells CR-10-11 & 12 are located 530 ft. and 1,159 ft. reapectivley West of Line of X- Section which places both wells inside the Pleasant Valley Graben. Projections of the wells back to the line of section gives a misleading appearance of not being in the Pleasant Valley Graben. Monitor Wells CR-06-02 & 5A are also located off Line of X-Section and are projected onto the Line of Section.

E 38,902
N 79,793

End Point Coordinates of this X-Section are in KCS (Kinney Coordinate System). They are projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a CF (Combined Factor) of 1.0047927. To project back, add 7,000,000 to Northing and 1,7000,000 to Easting, then divide by the CF.

0 1000 2000 ft

4X vertical exaggeration

E 39,854
N 64,256

Map Location of this X-Section can be found on Map 7 (Regional Hydrology) and on Map 8 (Works-Wells-Springs-Faults)

Revised: 18 Feb 2011

LEGEND

CR-06-01-BLW — Drill Hole Providing Geologic Data and Completed as Ground Water Monitor Well

76-1 — Drill Hole Providing Geologic Data

FAULT

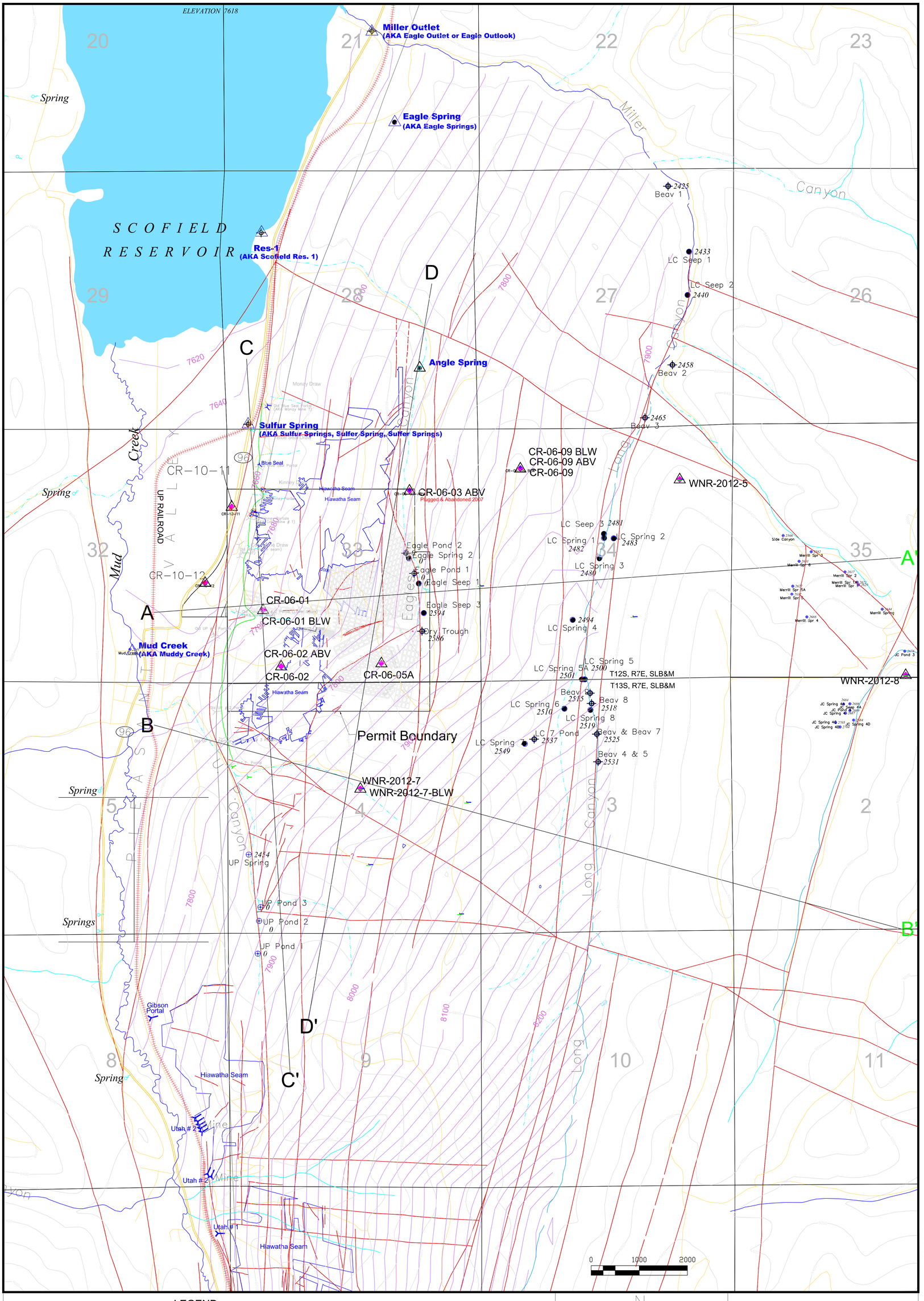
Kinney # 2 Mine

MAP 7B
N-S X-Section C-C'

DRAWN BY: GLH DATE: 9-15-10
APPROVED BY: GLH DATE: 9-15-10

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

FILE: MAP 7B N-S X-Section




## LEGEND

- WATER MONITORING STATION (GROUND WATER OR SURFACE WATER)
- GROUND WATER SOURCE
- Lc Spring 4 (SPRINGS & SEEPS)
- GROUNDWATER (MONITOR WELL)
- SURFACE WATER SOURCE (POND OR STREAM)
- PERENNIAL STREAM
- INTERMITTENT STREAM
- EPHEMERAL STREAM
- A — A' X -SECTION LINE
- OLD MINE PORTAL
- ROADS
- RAILROAD
- ELECTRICAL LINES
- SCOFIELD TOWN BOUNDARY
- PERMIT BOUNDARY
- FAULTS
- 7950 REGIONAL PIEZOMETRIC SURFACE ELEVATION
- 8000 GROUND SURFACE ELEVATION
- HIAWATHA OUTCROP LINE
- OUTLINE - OLD HIAWATHA SEAM WORKS
- PROPOSED KINNEY NO. 2 MINE WORKS

N

Contour Interval 200 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft, using a Combined Factor (CF) of 1.00479027. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Coal Energy Group 3, LLC

KINNEY NO. 2 MINE

# MAP 8

## Works-Wells-Springs-Faults

| | |
|---|---|
| DRAWN BY: R.P, G.H., B.G. | DATE: 12/07 |
| APPROVED BY: G.H. | DATE: 12/07 |

Coal Energy Group 3 CEG Kinney Mine

6602 Ilex Circle
Naples, FL 34109

RESERVOIR 1
BEAVER POND 1
LC SEEP 1
LC SEEP 2
Canyon
Miller Canyon
Canyon
Creek
MUD VALLEY
PLEASANT
U.P. Canyon
Eagles Canyon
Long Canyon
Long Canyon
Long Canyon
96
96
28
27
26
33
34
35
5
3
2
8
9
10
11
CR-10-11 / 7646
CR-10-12 / 7649
CR-06-03 ABV / 7798
Well Plugged and Abandoned 2007
CR-06-09 ABV / 7977
CR-06-09 BLW / 7861
CR-06-09 / 7851
WNR-2012-5 / 7926
CR-06-01 / DRY
CR-06-01 BLW / DRY
CR-06-02 ABV / DRY
CR-06-02 / DRY
CR-06-05A / DRY
PERMIT BOUNDARY
T12S, R7E
T13S, R7E
WNR-2012-8 / 8003
JC SEEP
JC POND 2
JC SPRING 5
JC POND 1
MERRILL SPRING 2
GUZMAN SPRING
LUIS SPRING
MERRILL SPRING 1
WNR-2012-7 / DRY
WNR-2012-7-BLW / DRY
UP SPRING
UP POND 3
UP POND 2
UP POND 1
Old Blue Seal Portal
Old Kinney Portal
Old Kinney Portals (AKA Columbine # 1)
Old Mine (lower seam) (Gamet)
Old UP # 1 Portals
Old UP # 2 Portal
Old UP # 3 Portals
Old # 3 Portal
Old Blue Seal Portal (AKA Monay Mine ?)
Old Columbine Portals (AKA Jo...)

GROUND WATER MONITORING STATION
7709 WATER ELEVATION ABOVE HIAWATHA SEAM
7861 WATER ELEVATION NEAR HIAWATHA SEAM
7798 WATER ELEVATION BELOW HIAWATHA SEAM

0 1000 2000

# LEGEND

- WATER MONITORING STATION GROUND WATER OR SURFACE WATER
- GROUND WATER SOURCE
- GROUND WATER WELL
- SURFACE WATER SOURCE (POND OR STREAM)
- PERENNIAL STREAM
- INTERMITTENT STREAM
- EPHEMERAL STREAM
- 8000 SURFACE ELEVATION
- ROADS
- RAILROAD
- ELECTRICAL LINES
- SCOFIELD TOWN BOUNDARY
- PERMIT BOUNDARY

N

Contour Interval 200 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Coal Energy Group 3, LLC

KINNEY NO. 2 MINE

# MAP 9
## Ground Water Level Data

DRAWN BY: R.P, G.H., B.G. DATE: 12/07
APPROVED BY: G.H. DATE: 12/07

Coal Energy Group 3 CEG Kinney Mine

6602 Ilex Circle
Naples, FL 34109

Miller Outlet
(AKA Eagle Outlook or Eagle Outlet)

Miller Spring
(AKA Eagle Spring)

Res-1

SCOFIELD
RESERVOIR

Angle Spring

Sulfur Spring
(AKA Sulfer Springs)

CR-10-11

CR-06-03-AEV

CR-10-12

Mud Creek
(AKA Muddy Creek)

WNR-2012-5

WNR-2012-8

SCOFIELD
TOWN

T12S, R7E, SLB&M
T13S, R7E, SLB&M

Miller Canyon

Eagles Canyon

Long Canyon

Mud Creek

PLEASANT VALLEY

Spring

Springs

20 21 22 23
29 28 27 26
32 33 34 35

88 301 304 307 315 335 377 399 429 589 272

96

Old UP # 1 Portals
Old UP # 2 Portals
Old UP # 3 Portals
Old Columbine # 2 Portal (Lower Seam) (AKA Jones Mine)
Old Columbine Seal Portal (AKA Kinney Mine 7)
Old Columbine Seal Portal
Old Kinney Portals (AKA Columbine # 1)
Old Mine (lower seam)

LEGEND

Water Monitor Site

TDS
Cl $HCO_3$ $SO_4$
Na+K Ca Mg
MEQ/L
4 2 0 2 4

SCALE: 1:24,000 or 1" = 2,000'
Contour Interval 200 ft
0 2,000 ft

N

Kinney # 2 Mine

Map 10
REGIONAL WATER QUALITY

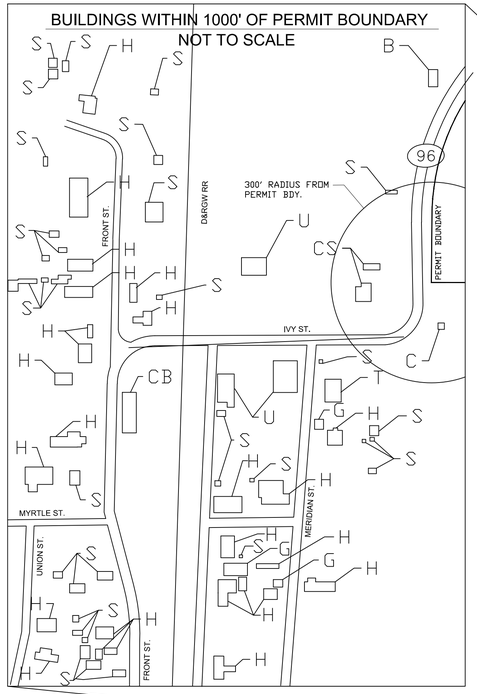
DRAWN BY: GLH DATE: 9-1-2010
APPROVED BY: BG DATE: 9-15-2010

CEC
Cedar Creek Corp
Kinney Mine

6602 Ilex Circle
Naples, FL 34109

This map is in the Kinney Coordinate System (NCS). It was projected from State Plane NAD27 Utah Central zone 4302 using the following parameters: 1,504,627.2 False Easting, 1,000,000 False Northing, 39°20'0" Latitude of Origin, -111°30'0" Central Meridian, 1.0 Scale Factor at Central Meridian, 38°45'0" Standard Parallel 1, 39°48'0" Standard Parallel 2, 37°0'0" Latitude of Origin, -109°30'0" Central Meridian, 0.0 Meridional Scale Factor at Central Meridian, 7,000,000 False Northing and 1,700,000 False Easting. Scale factor is 1.0.

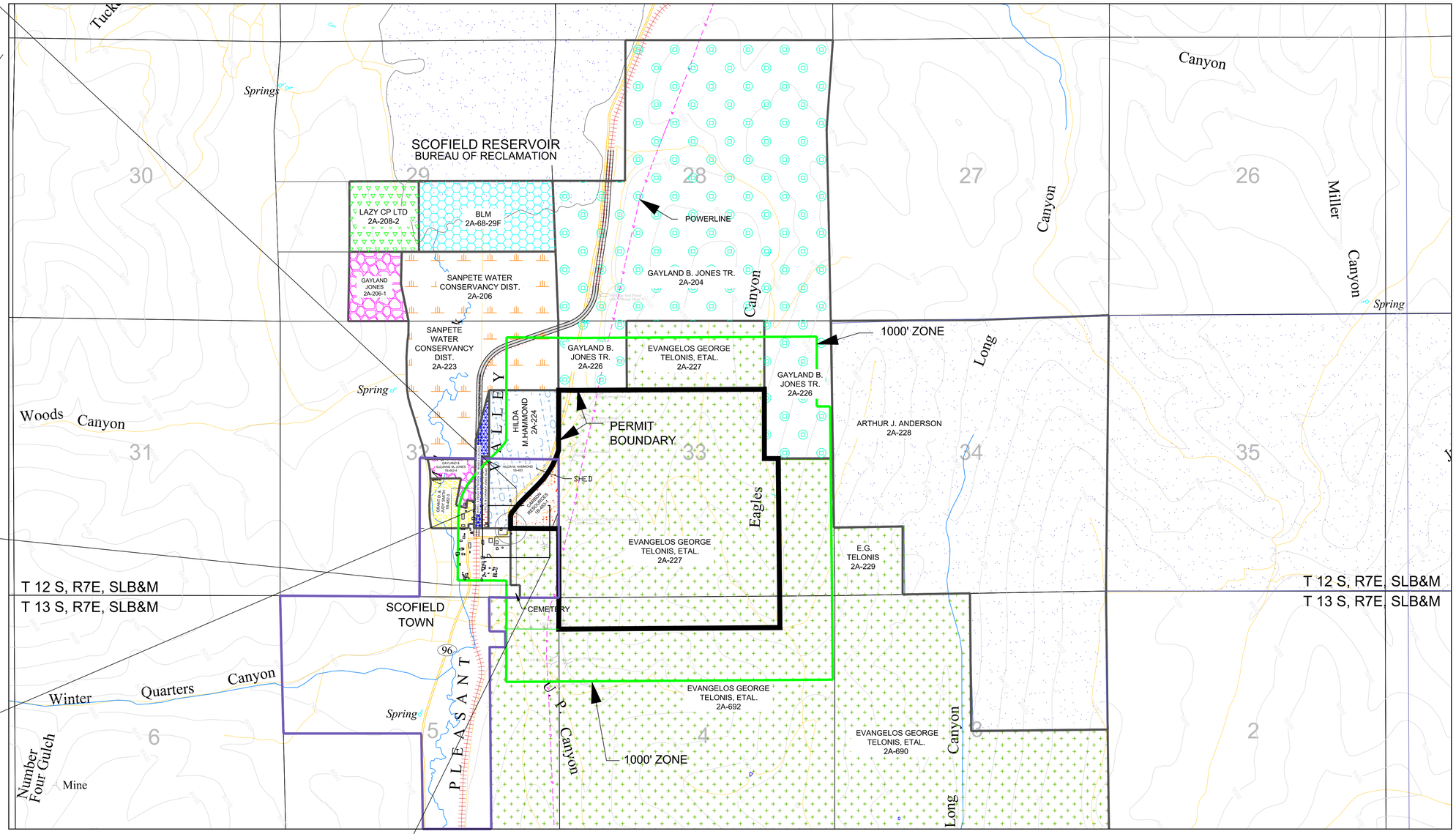
## BUILDINGS WITHIN 1000' OF PERMIT BOUNDARY
NOT TO SCALE




NOTE:
ONLY PERMANENT STRUCTURES ARE SHOWN

### KEY TO BUILDING USES

| | |
|---|---|
| H | HOUSE |
| S | SHED |
| G | GARAGE |
| B | BARN |
| U | UDOT BUILDING |
| T | SCOFIELD TOWN BUILDING |
| C | CAMPGROUND OFFICE |
| CS | CONVENIENCE STORE |
| CB | COMMERCIAL BUILDING |



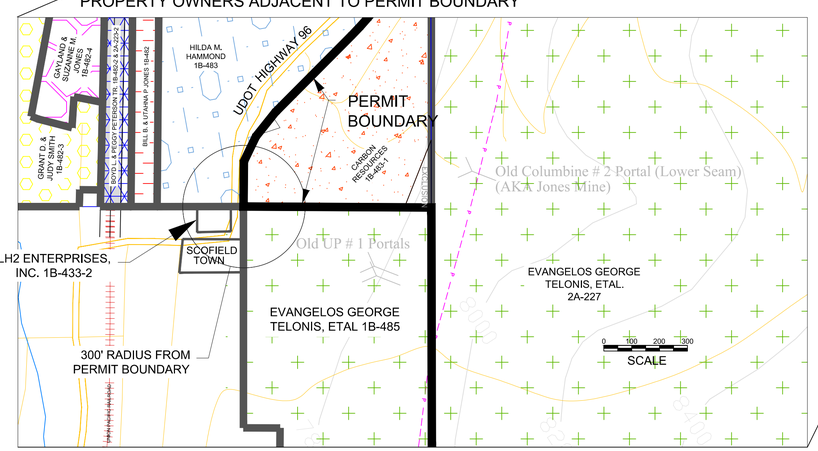

N

0 1000 2000 3000 ft

SCALE
Contour Interval 20 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

## PROPERTY OWNERS ADJACENT TO PERMIT BOUNDARY




## LEGEND

ADJACENT PROPERTY OWNERS BOUNDARY LINES
WITH PROPERTY OWNER'S NAME AND TAX ID NUMBER
FROM CARBON COUNTY RECORDERS OFFICE
LINE COLORS VARY & SHADING COLORS VARY
INDICATING PROPERTY OWNERSHIP

OLD MINE PORTAL
ROADS
RAILROAD
ELECTRICAL LINES
SCOFIELD TOWN BOUNDARY
PERMIT BOUNDARY
1000 FOOT ZONE AROUND PERMIT BOUNDARY

PERENNIAL STREAM
INTERMITTENT STREAM
EPHEMERAL STREAM
SURFACE ELEVATION

| NO. | REVISION | DATE | BY | CHKD |
|---|---|---|---|---|
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | UPDATED PARCEL OWNERSHIP & COMPANY INFO | 4/18/19 | A.C. | K.N. |
| 1 | REMOVED SCOFIELD STATE RECREATION AREA | 1/25/11 | B.G. | G.H. |

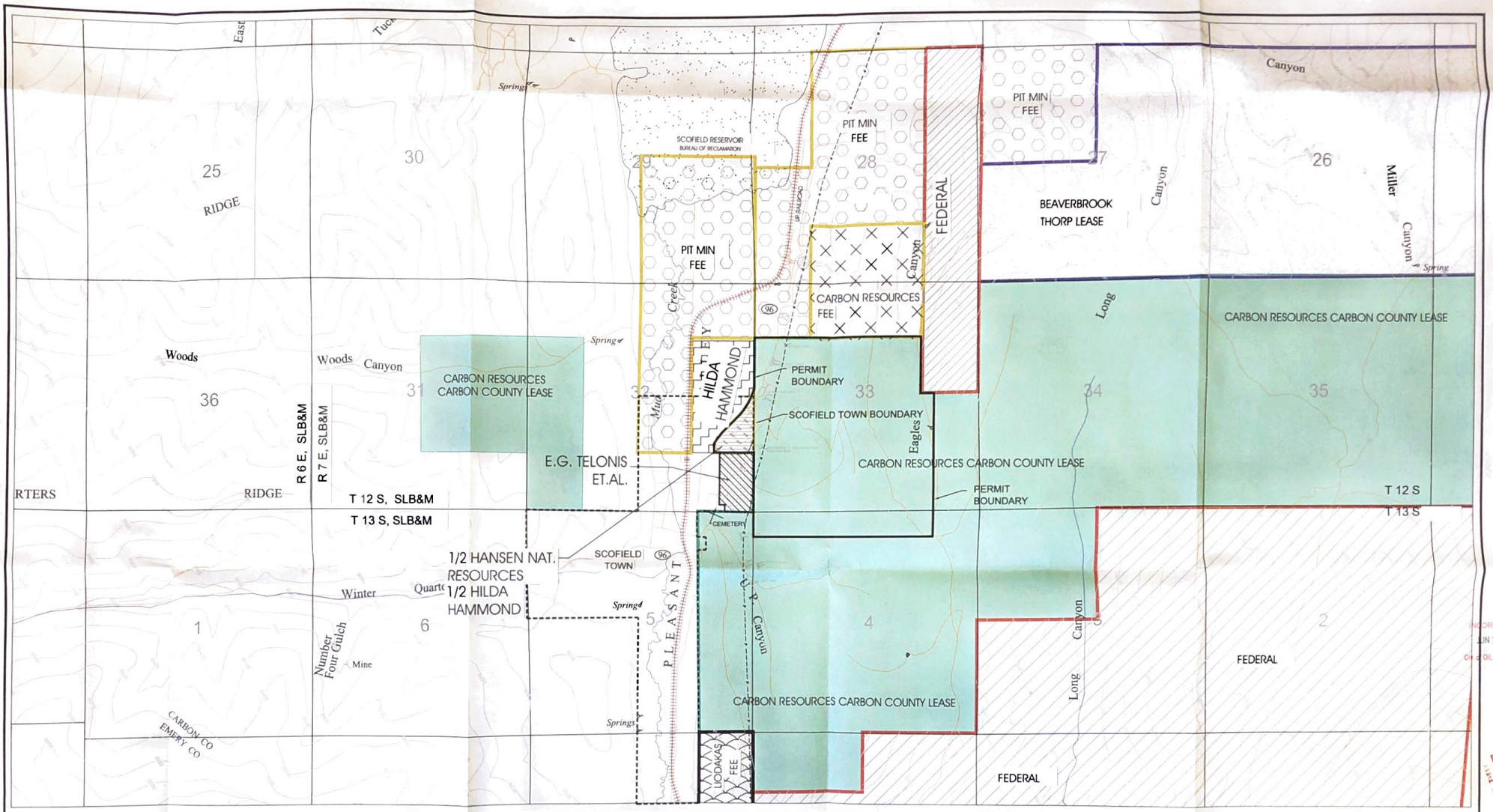
Coal Energy Group 3, LLC

# MAP 11
# REGIONAL SURFACE OWNERSHIP MAP

DRAWN BY: B.G. DATE: 8/07
APPROVED BY: G.H. DATE: 2/08


Coal Energy Group 3 CEG Kinney Mine
6602 Ilex Circle
Naples, Florida 34109


DWG. NAME: KINNEY MAP 11




N

0 1000 2000 3000 ft

SCALE

Contour Interval 200 ft

This map is in the Kinney Coordinate System (N.C.S.); it was projected from State Plane NAD83 to a vertical datum of 6,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

LEGEND

- POWERLINES
- SCOFIELD TOWN BOUNDARY
- PIT MIN FEE
- HILDA HAMMOND
- EVANGELOS **GEORGE** TELONES ET. AL.
- 1/2 HANSEN **NAT.** RESOURCES, 1/2 HILDA HAMMOND
- CARBON **RESOURCES** - CARBON COUNTY LEASE
- FEDERAL UNLEASED
- BEAVERBROOK THORP LEASE
- CARBON **RESOURCES** FEE
- LIODAKIS FEE
- ROADS

| NO. | REVISION | DATE | BY | CHKD |
|---|---|---|---|---|
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | MOVED SCOFIELD RES. LABEL | 1/25/11 | B.G. | G.H. |

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 12

REGIONAL COAL OWNERSHIP MAP

DRAWN BY: B.G. DATE: 8/07

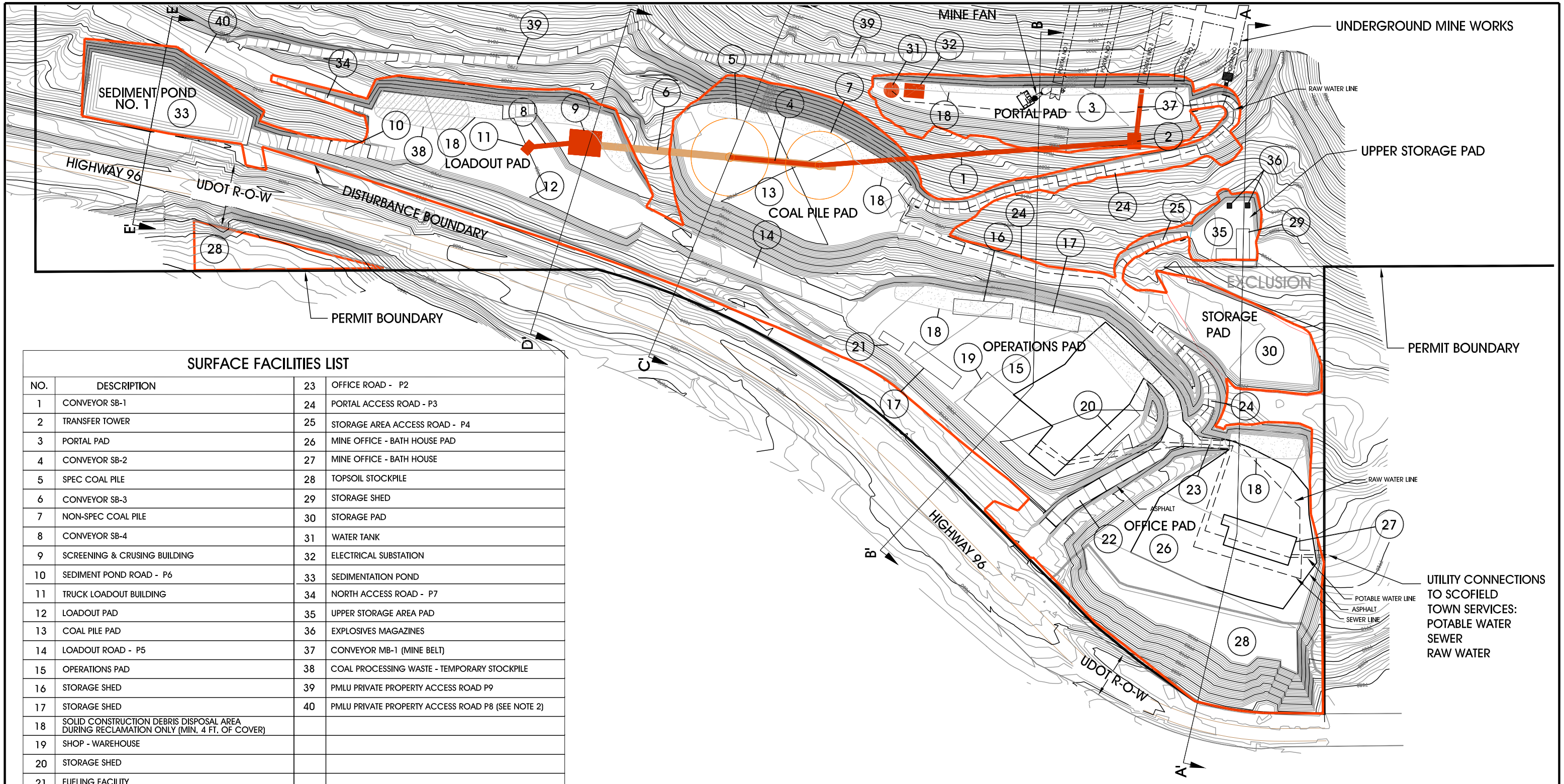
APPROVED BY: G.H. DATE:

Carbon Resources P.O. Box 954 Sadia Park, NM 87047

REGISTERED LAND SURVEYOR BENJAMIN A. STATE OF UTAH

RECEIVED JUN 28 2011 DIV OF OIL, GAS & MIN

INCORPORATED JUN 3 0 2011 Div. of Oil, Gas & Mining




## SURFACE FACILITIES LIST

| NO. | DESCRIPTION | NO. | DESCRIPTION |
|---|---|---|---|
| 1 | CONVEYOR SB-1 | 23 | OFFICE ROAD - P2 |
| 2 | TRANSFER TOWER | 24 | PORTAL ACCESS ROAD - P3 |
| 3 | PORTAL PAD | 25 | STORAGE AREA ACCESS ROAD - P4 |
| 4 | CONVEYOR SB-2 | 26 | MINE OFFICE - BATH HOUSE PAD |
| 5 | SPEC COAL PILE | 27 | MINE OFFICE - BATH HOUSE |
| 6 | CONVEYOR SB-3 | 28 | TOPSOIL STOCKPILE |
| 7 | NON-SPEC COAL PILE | 29 | STORAGE SHED |
| 8 | CONVEYOR SB-4 | 30 | STORAGE PAD |
| 9 | SCREENING & CRUSING BUILDING | 31 | WATER TANK |
| 10 | SEDIMENT POND ROAD - P6 | 32 | ELECTRICAL SUBSTATION |
| 11 | TRUCK LOADOUT BUILDING | 33 | SEDIMENTATION POND |
| 12 | LOADOUT PAD | 34 | NORTH ACCESS ROAD - P7 |
| 13 | COAL PILE PAD | 35 | UPPER STORAGE AREA PAD |
| 14 | LOADOUT ROAD - P5 | 36 | EXPLOSIVES MAGAZINES |
| 15 | OPERATIONS PAD | 37 | CONVEYOR MB-1 (MINE BELT) |
| 16 | STORAGE SHED | 38 | COAL PROCESSING WASTE - TEMPORARY STOCKPILE |
| 17 | STORAGE SHED | 39 | PMLU PRIVATE PROPERTY ACCESS ROAD P9 |
| 18 | SOLID CONSTRUCTION DEBRIS DISPOSAL AREA DURING RECLAMATION ONLY (MIN. 4 FT. OF COVER) | 40 | PMLU PRIVATE PROPERTY ACCESS ROAD P8 (SEE NOTE 2) |
| 19 | SHOP - WAREHOUSE | | |
| 20 | STORAGE SHED | | |
| 21 | FUELING FACILITY | | |
| 22 | MAIN ACCESS ROAD - P1 | | |

REGISTERED LAND SURVEYOR
GLEN A. BIRCHELL
5/9/11
STATE OF UTAH

## LEGEND

A — A' CROSS SECTION LOCATION (MAPS 16 - 19)

DISTURBED AREA BOUNDARY

PERMIT BOUNDARY

NOTES:

1. FOR CROSS SECTIONS REFER TO MAPS 16 THRU 19
2. SEE MAP 29A FOR ALL OF POST MINE LAND USE ROAD P8

N

0 100 200 300 ft.

SCALE

Contour Interval 2 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then dMde by the CF.

| NO. | REVISION | DATE | BY | CHKD |
|---|---|---|---|---|
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | ADDED ROADS P8 & P9 CALL OUTS | 3-5-11 | B.G. | G.H. |

Carbon Resources LLC

KINNEY NO. 2 MINE

# MAP 13
# SURFACE FACILITIES

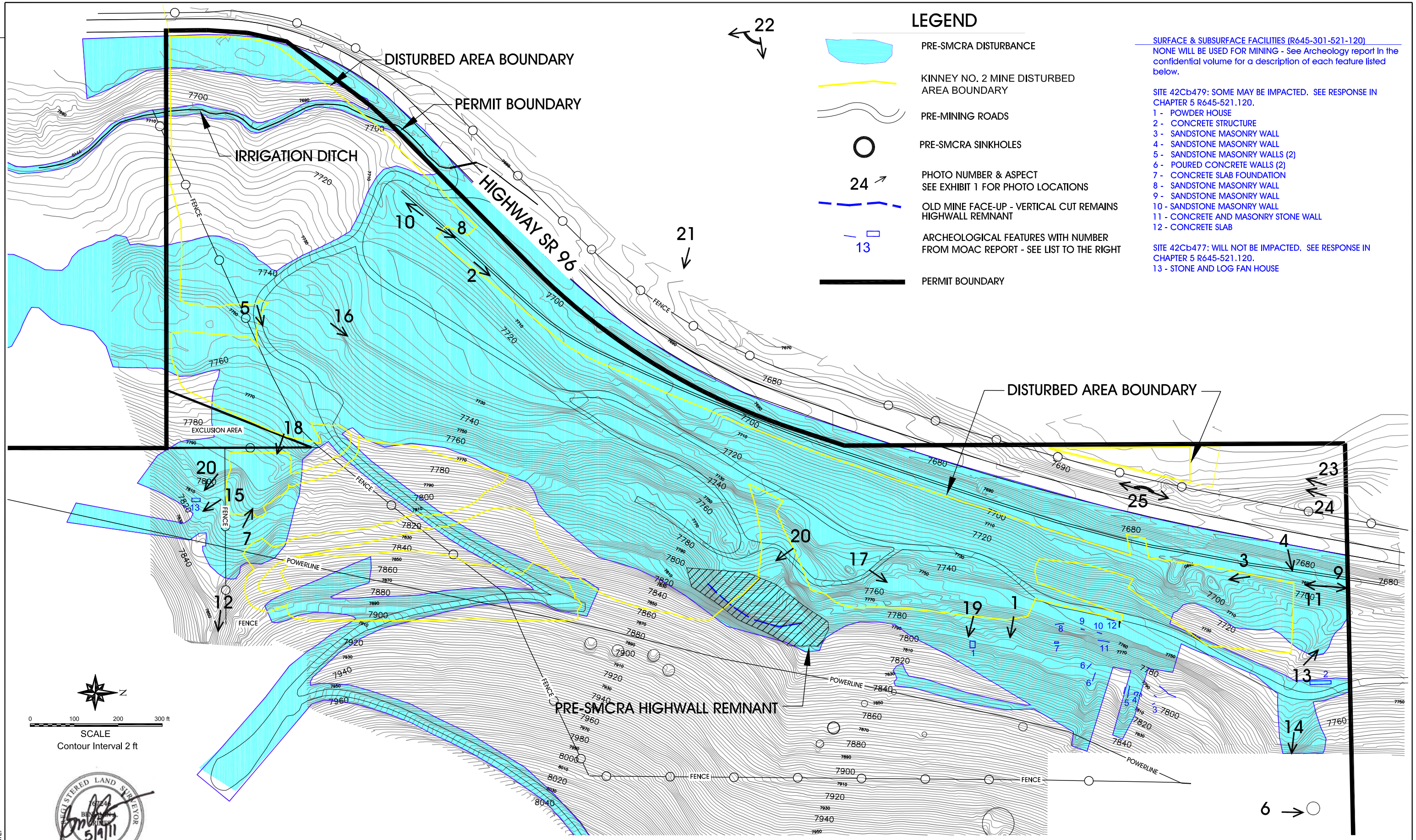
DRAWN BY: G.H., B.G. DATE: 9/28/10

APPROVED BY: G.H. DATE: 9/28/10

Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

DWG. NAME: MAP 13




## LEGEND

- PRE-SMCRA DISTURBANCE
- KINNEY NO. 2 MINE DISTURBED AREA BOUNDARY
- PRE-MINING ROADS
- PRE-SMCRA SINKHOLES
- 24 — PHOTO NUMBER & ASPECT SEE EXHIBIT 1 FOR PHOTO LOCATIONS
- OLD MINE FACE-UP - VERTICAL CUT REMAINS HIGHWALL REMNANT
- 13 — ARCHEOLOGICAL FEATURES WITH NUMBER FROM MOAC REPORT - SEE LIST TO THE RIGHT
- PERMIT BOUNDARY

SURFACE & SUBSURFACE FACILITIES (R645-301-521-120)

NONE WILL BE USED FOR MINING - See Archeology report In the confidential volume for a description of each feature listed below.

SITE 42Cb479: SOME MAY BE IMPACTED. SEE RESPONSE IN CHAPTER 5 R645-521.120.
1 - POWDER HOUSE
2 - CONCRETE STRUCTURE
3 - SANDSTONE MASONRY WALL
4 - SANDSTONE MASONRY WALL
5 - SANDSTONE MASONRY WALLS (2)
6 - POURED CONCRETE WALLS (2)
7 - CONCRETE SLAB FOUNDATION
8 - SANDSTONE MASONRY WALL
9 - SANDSTONE MASONRY WALL
10 - SANDSTONE MASONRY WALL
11 - CONCRETE AND MASONRY STONE WALL
12 - CONCRETE SLAB

SITE 42Cb477: WILL NOT BE IMPACTED. SEE RESPONSE IN CHAPTER 5 R645-521.120.
13 - STONE AND LOG FAN HOUSE

REGISTERED LAND SURVEYOR — JAMES A. BIRD — 161248 — STATE OF UTAH — 5/4/11

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 6,000 ft, using a Combined Factor (CF) of 1.0047027. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then dMde by the CF.

FILE NAME:
FILE DATE:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DESIGNED . B.G. | 3 | | | | | | SCALE |
| DRAFTED .J.B. , B.G. | 2 | 4/26/11 | REMOVED AERIAL PHOTO & CHANGED DISTURBED AREA BOUNDARY LINE COLOR | | | | AS SHOWN |
| CHECKED . G.H. | 1 | 1/25/11 | DARKENED DISTURBED BOOUNDARY LINE & PRE-SMCRA DISTURBANCE LINE | B.G. | G.H. | | |
| DATE 9/28/10 | NO. | DATE | REVISIONS | BY | APVD. | | |

Carbon Resources — Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

KINNEY NO. 2 MINE
MINE SURFACE FACILITIES AREA
PRE-MINING TOPOGRAPHY

MAP 14

3/04

96

Old Blue Seal Portal

Permit Application Boundary

Old Kinney Portal

Old Works

Hiawatha Seam

Old Works

Old Kinney Portals
(AKA Columbine # 1)

Hiawatha Seam

Old Works

33

Old Mine (lower seam)
(Name?)

SR 96

Eagles Canyon Graben

2012
N13E Panel A 124,478 coal tons

2012
N13E Panel B 162,319 coal tons

Eagles

2011
S102E Portal Mains 200,653 coal tons

Old Columbine # 1 Portal (Lower Seam)
(AKA Jones Mine)

Old UP # 1 Portals

Advance drilling and concrete injection to fill old works within barrier zone

2011 FC1 - Rock Dev.
30,000 Rock tons ~ 21K cu yd.

BARRIER

2011
S79W Mains A 77,490 coal Tons

2011
N11W Panel A 165,344 coal tons

32 | 33 T 12 S, R 7 E SLB&M

5 | 4 T 13 S, R 7 E SLB&M

Old Works
Hiawatha Seam

Old UP # 2 Portal

Permit Application Boundary

0 200 400 600 ft

Old UP # 2 Portals

Old UP # 3 Portals

LEGEND

2009 2010 Old Works Hiawatha Reserve Block

Development Rock Backfill Areas

NOTE: NO PILLAR EXTRACTION PLANNED - FIRST MINING ONLY

N

0 166 333 500 ft

Contour Interval 200 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047027. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

REVISED 3-10-11 PLACED EAGLES CANYON GRABEN IN THE PROPER LOCATION

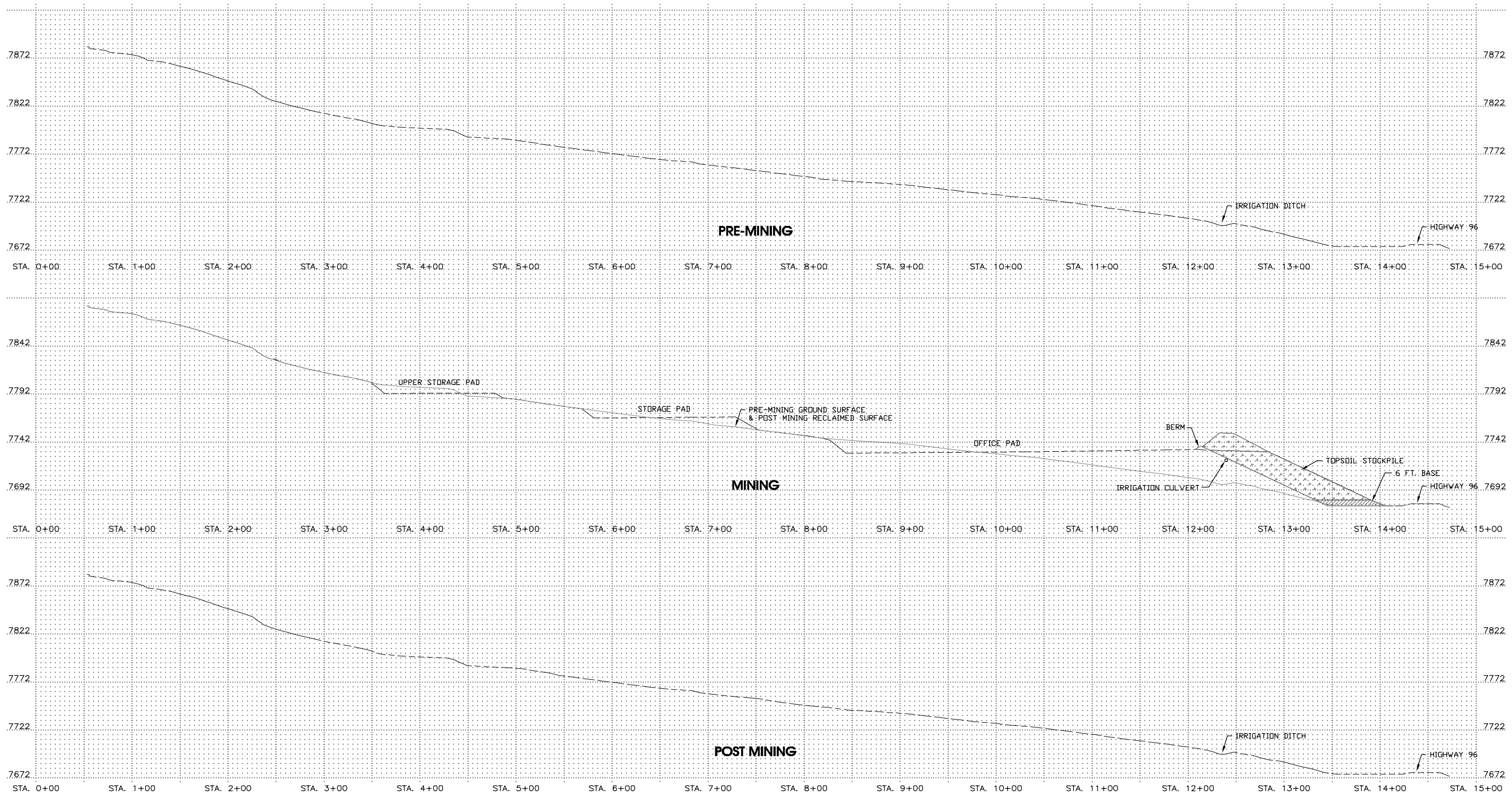
Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 15
MINE PLAN LAYOUT AND PRODUCTION SCHEDULE

| | |
|---|---|
| DRAWN BY: R.P. | DATE: 1/11 |
| APPROVED BY: G.H. | DATE: 1/11 |

P.O. Box 954
Sandia Park, NM 87047




REGISTERED LAND SURVEYOR
167246
BENJAMIN A. GRIMES
STATE OF UTAH

**NOTES:**
1. **SEE MAP 13 FOR CROSS SECTION LOCATIONS**

**SCALE AS SHOWN**

# SECTION A-A'

| NO. | REVISION | DATE | BY | CHKD |
|---|---|---|---|---|
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | | | | |

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 16
MINE SURFACE FACILITIES AREA
PRE-MINING, MINING & POST MINING
CROSS SECTIONS

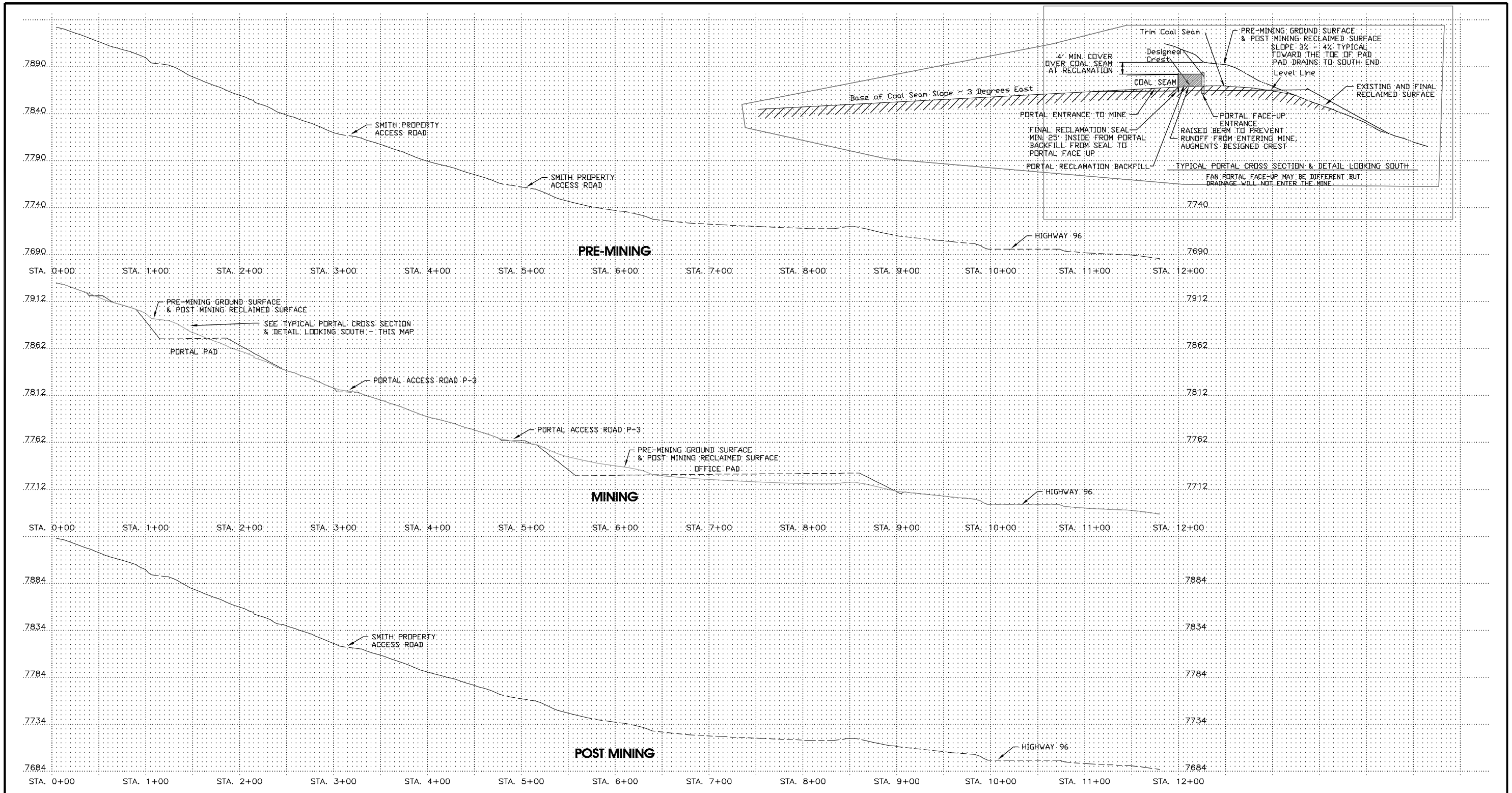
DRAWN BY: **J.B, B.G.** DATE: **9/28/10**

APPROVED BY: **G.H** DATE: **9/28/10**

Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:




**NOTES:**

1. **SEE MAP 13 FOR CROSS SECTION LOCATIONS.**
2. **ALL COAL SEAMS WILL HAVE A MINIMUM OF 4 FEET OF COVER PLACED ON THEM FOR FINAL RECLAMATION.**

**SCALE AS SHOWN**

# SECTION B-B'

| NO. | REVISION | DATE | BY | CHKD |
|---|---|---|---|---|
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | **ADDED PORTAL BACKFILL NOTE** | **3/3/11** | **B.G.** | **G.H.** |

Carbon Resources LLC

KINNEY NO. 2 MINE

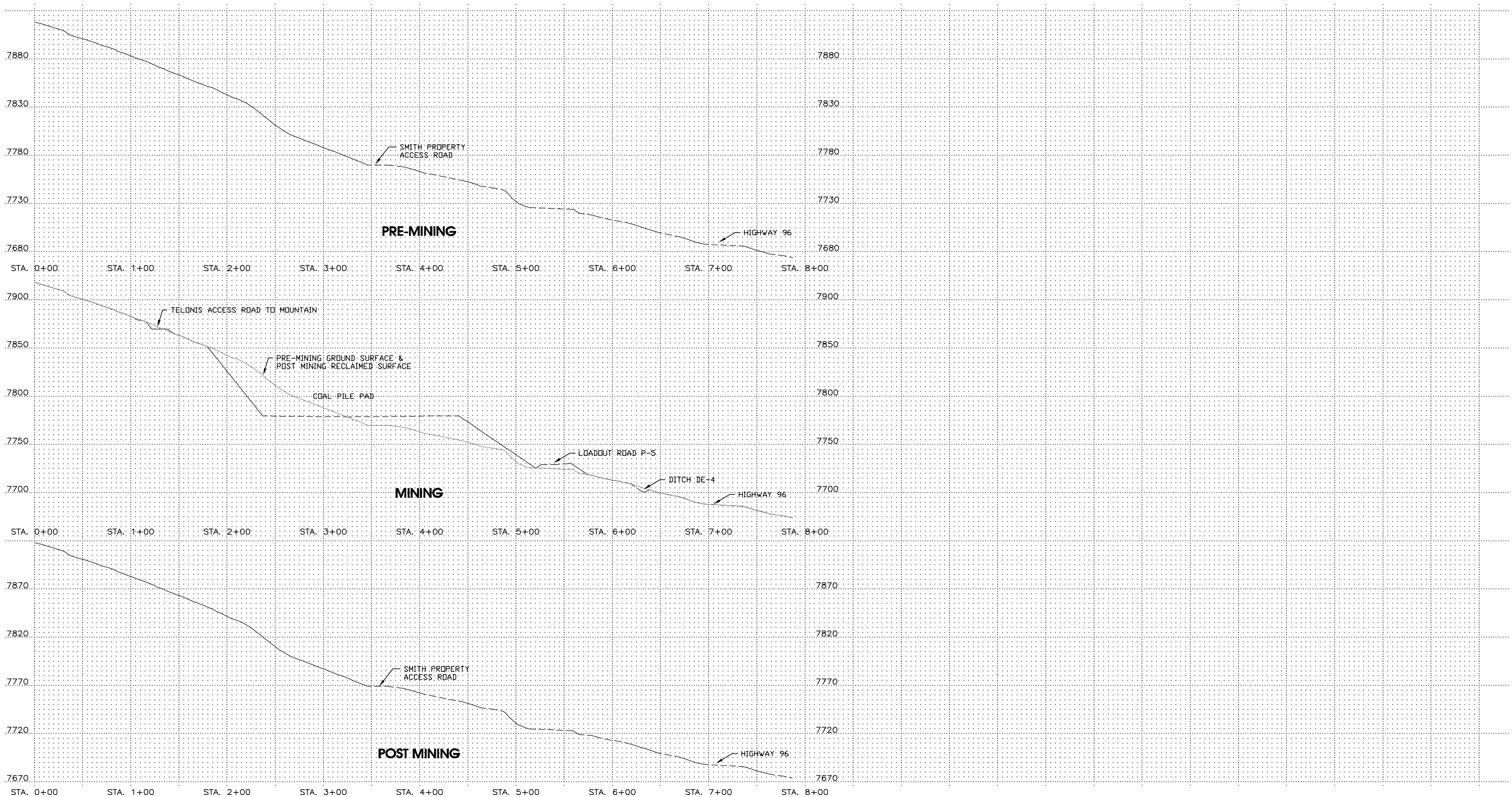
MAP 17
MINE SURFACE FACILITIES AREA
PRE-MINING, MINING & POST MINING
CROSS SECTIONS

DRAWN BY: **J.B, B.G.** DATE: **9/28/10**

APPROVED BY: **G.H** DATE: **9/28/10**

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:




**NOTES:**
1. **SEE MAP 13 FOR CROSS SECTION LOCATIONS**

**SCALE AS SHOWN**

# SECTION C-C'

| NO. | REVISION | DATE | BY | CHKD |
|---|---|---|---|---|
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | | | | |

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 18
MINE SURFACE FACILITIES AREA
PRE-MINING, MINING & POST MINING
CROSS SECTIONS

DRAWN BY: **J.B, B.G.** DATE: **9/28/10**

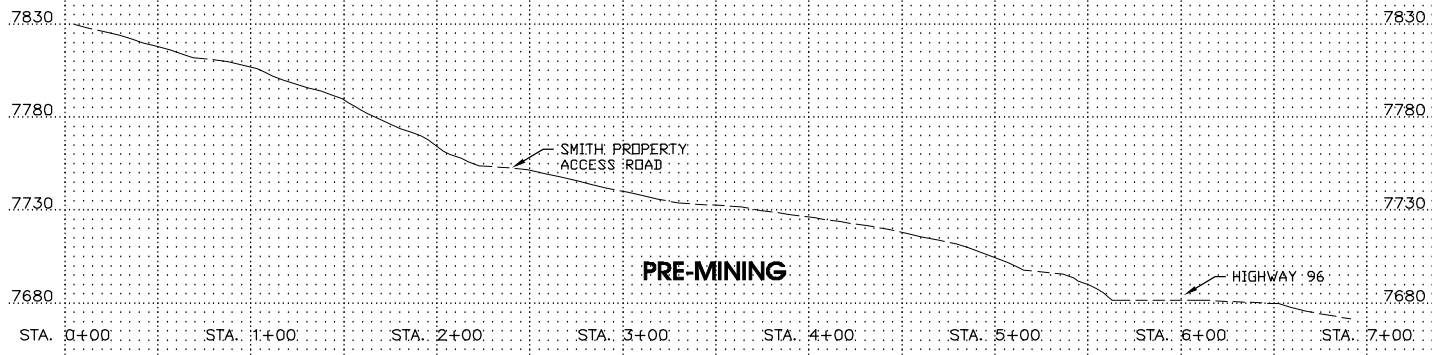
APPROVED BY: **G.H** DATE: **9/28/10**

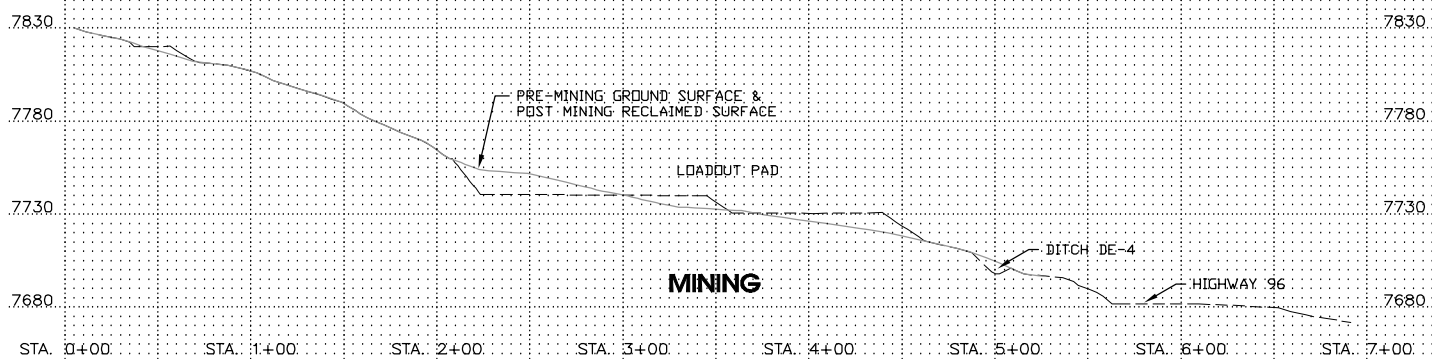
Carbon Resources
Coal For Carbon County

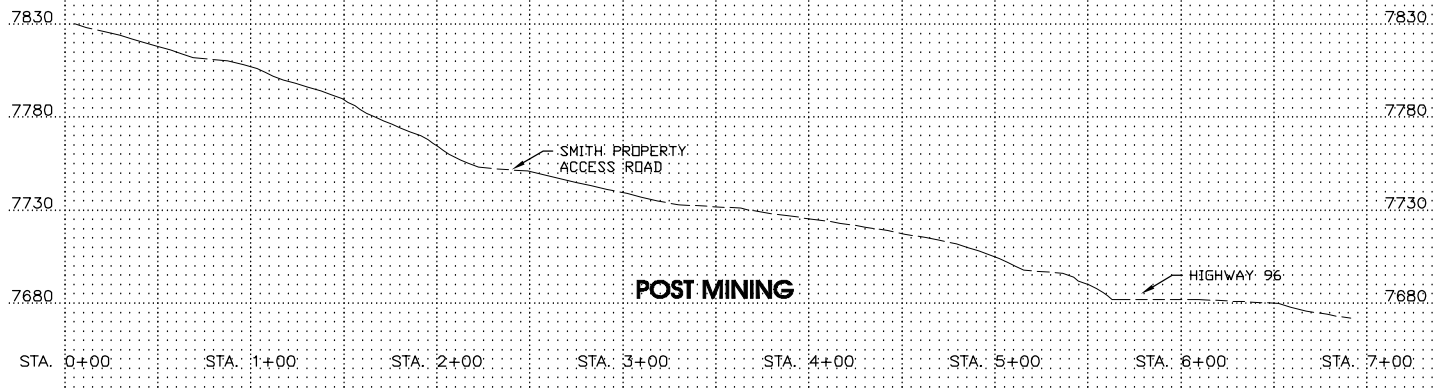
P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:

# SECTION D-D'

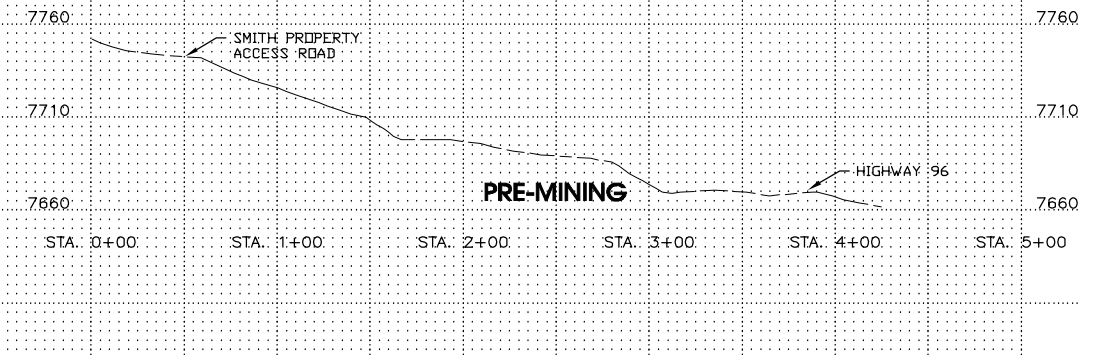


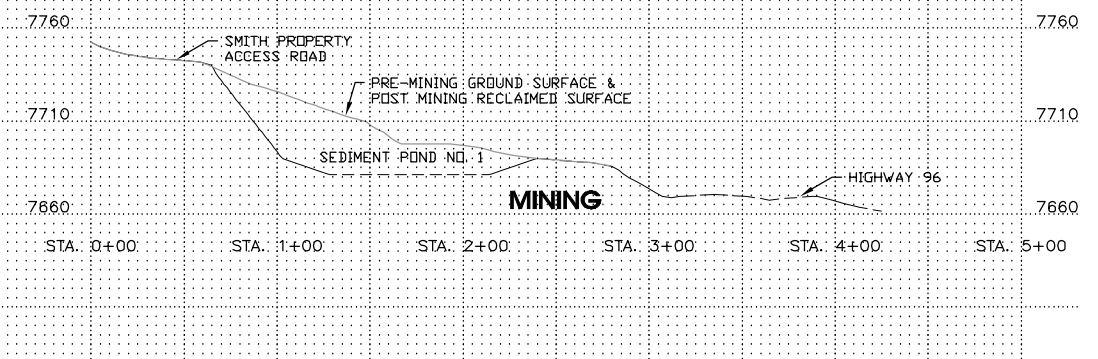



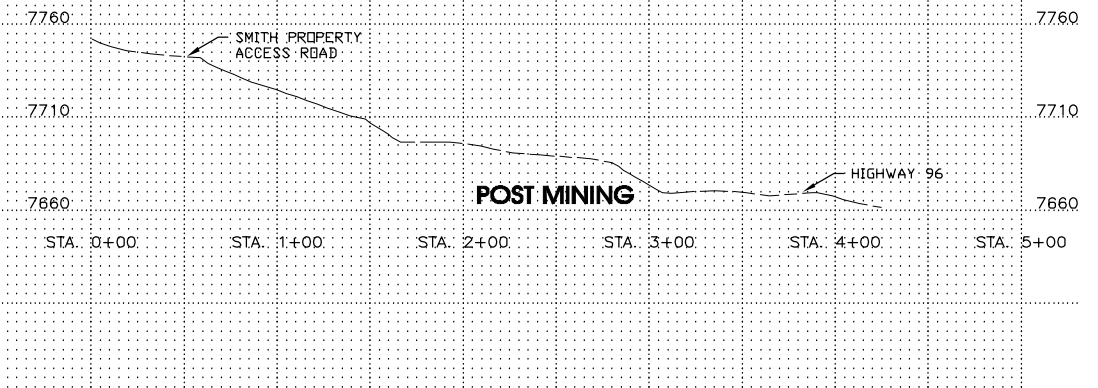




SECTION D-D'

# SECTION E-E'




SECTION E-E'

**NOTES:**
1. **SEE MAP 13 FOR CROSS SECTION LOCATIONS**

**SCALE AS SHOWN**

# SECTION D-D' & SECTION E-E'

| NO. | REVISION | DATE | BY | CHKD |
|---|---|---|---|---|
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | | | | |

Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 19
MINE SURFACE FACILITIES AREA
PRE-MINING, MINING & POST MINING
CROSS SECTIONS

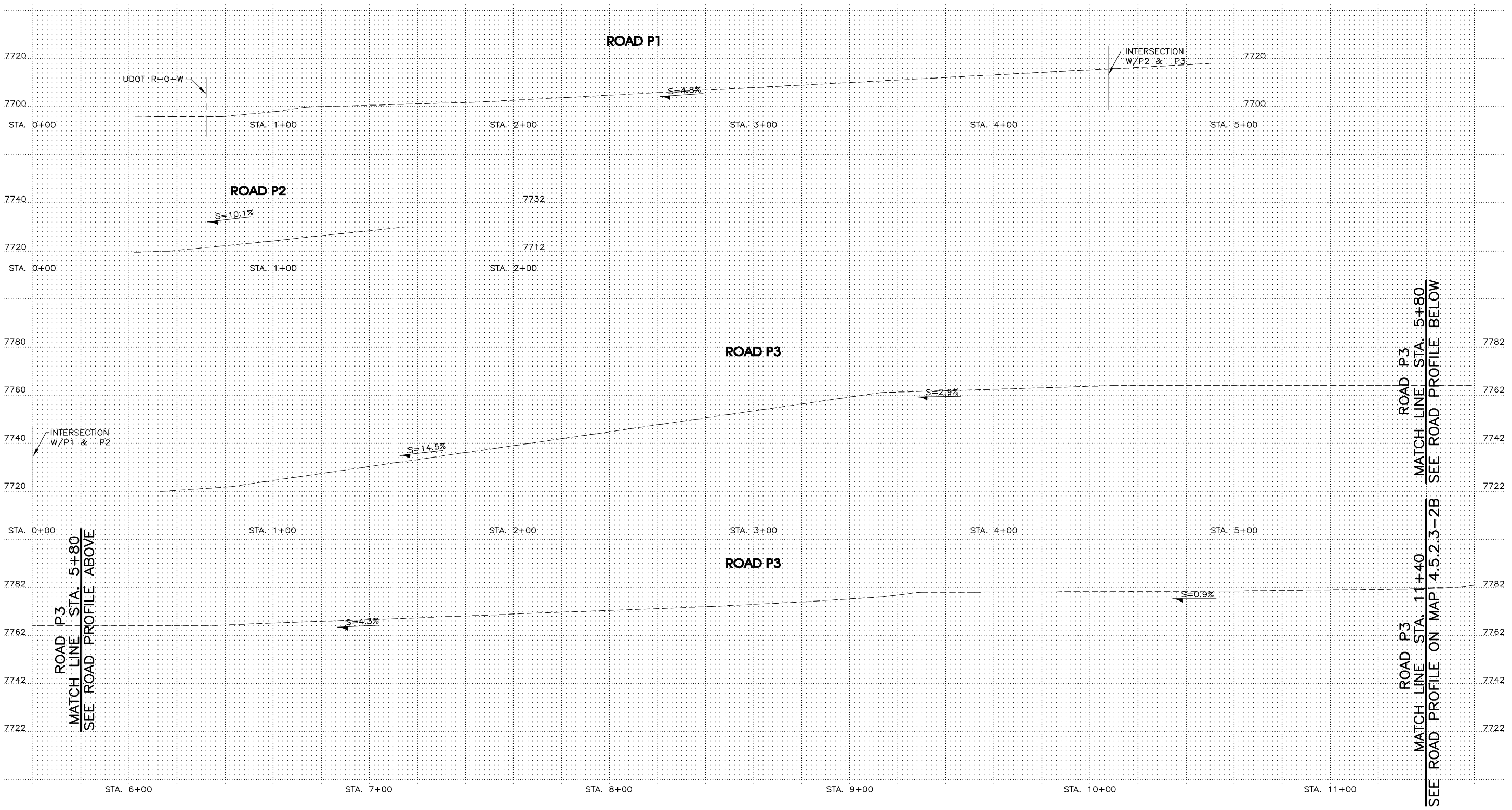
DRAWN BY: **J.B, B.G.** DATE: **2/08**

APPROVED BY: **G.H** DATE: **2/08**

Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:




REGISTERED LAND SURVEYOR
167246
BENJAMIN A. GRAVES
3/28/11
STATE OF UTAH

NOTES:

1. PROFILES ARE AT CENTERLINE OF ROAD.
2. SEE MAP 13 FOR ROAD LOCATIONS.

SCALE AS SHOWN

# ROADS P1, P2 & P3

| NO. | REVISION | DATE | BY | CHKD |
|---|---|---|---|---|
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | CERTIFIED | 3/5/11 | B.G. | G.H. |

Carbon Resources LLC

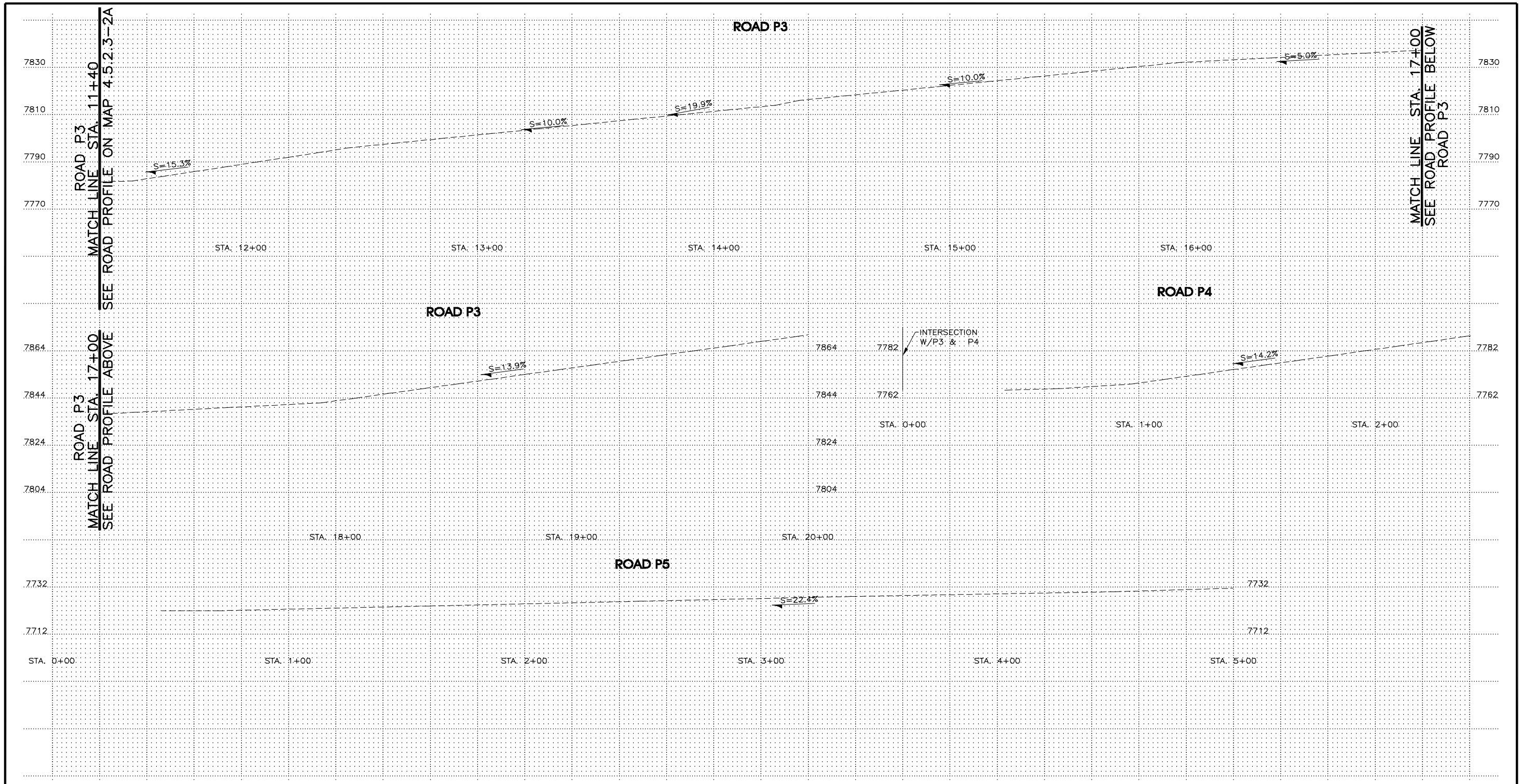
KINNEY NO. 2 MINE
MAP 20
MINE SURFACE FACILITIES
ROAD PROFILES

DRAWN BY: JDB, BAG DATE: 9/28/10
APPROVED BY: G.H. DATE: 9/28/10

Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:




REGISTERED LAND SURVEYOR
167246
BENJAMIN A. GRIMES
STATE OF UTAH
2/28/11

**NOTES:**

1. PROFILES ARE AT CENTERLINE OF ROAD.
2. SEE MAP 13 FOR ROAD LOCATIONS.

SCALE AS SHOWN

# ROADS P3, P4 & P5

| NO. | REVISION | DATE | BY | CHKD |
|---|---|---|---|---|
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | CERTIFIED | 3/5/11 | B.G. | G.H. |

Carbon Resources LLC

KINNEY NO. 2 MINE
MAP 21
MINE SURFACE FACILITIES
ROAD PROFILES

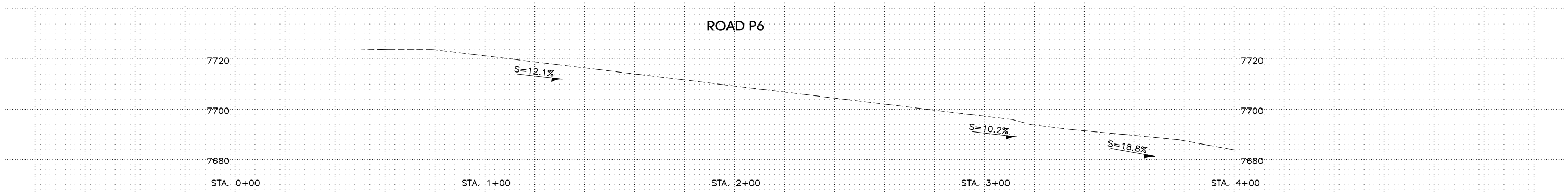
DRAWN BY: JDB, BAG DATE: 1/2008
APPROVED BY: G.H. DATE:

Carbon Resources
Coal For Carbon County

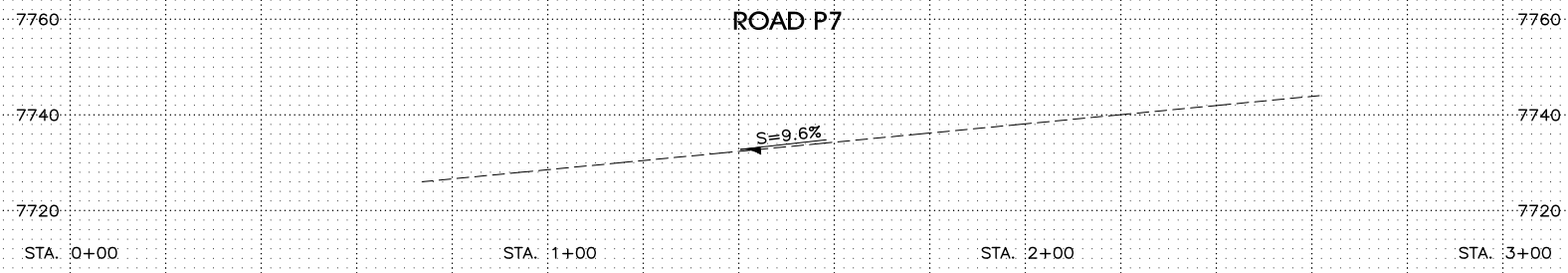
P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:

## ROAD P6



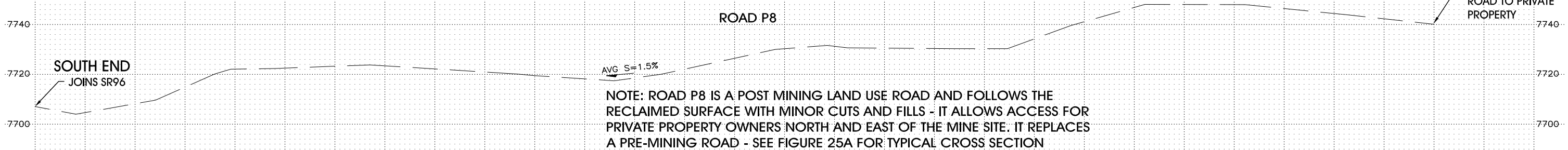

## ROAD P7




## ROAD P8

SOUTH END
JOINS SR96

NORTH END
JOINS EXISTING ROAD TO PRIVATE PROPERTY

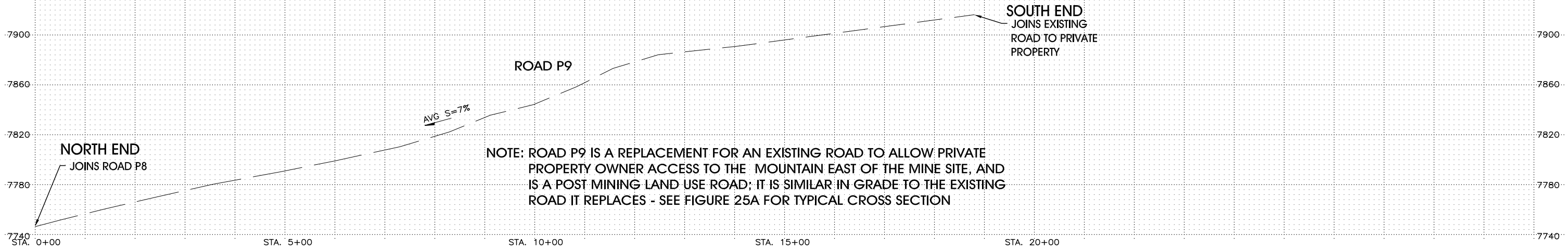



NOTE: ROAD P8 IS A POST MINING LAND USE ROAD AND FOLLOWS THE RECLAIMED SURFACE WITH MINOR CUTS AND FILLS - IT ALLOWS ACCESS FOR PRIVATE PROPERTY OWNERS NORTH AND EAST OF THE MINE SITE. IT REPLACES A PRE-MINING ROAD - SEE FIGURE 25A FOR TYPICAL CROSS SECTION

## ROAD P9

SOUTH END
JOINS EXISTING ROAD TO PRIVATE PROPERTY

NORTH END
JOINS ROAD P8




NOTE: ROAD P9 IS A REPLACEMENT FOR AN EXISTING ROAD TO ALLOW PRIVATE PROPERTY OWNER ACCESS TO THE MOUNTAIN EAST OF THE MINE SITE, AND IS A POST MINING LAND USE ROAD; IT IS SIMILAR IN GRADE TO THE EXISTING ROAD IT REPLACES - SEE FIGURE 25A FOR TYPICAL CROSS SECTION

REGISTERED LAND SURVEYOR
167246
BENJAMIN A. GRIMES
2/28/11
STATE OF UTAH

NOTES:

1. PROFILES ARE AT CENTERLINE OF ROAD.
2. SEE MAPS 13 & 29A FOR ROAD LOCATIONS.

SCALE AS SHOWN

# ROADS P6, P7, P8 & P9

| NO. | REVISION | DATE | BY | CHKD |
|---|---|---|---|---|
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | ADDED ROADS P8 & P9 | 4/23/11 | B.G. | G.H. |
| 1 | CERTIFIED | 3/5/11 | B.G. | G.H. |

Carbon Resources LLC

KINNEY NO. 2 MINE

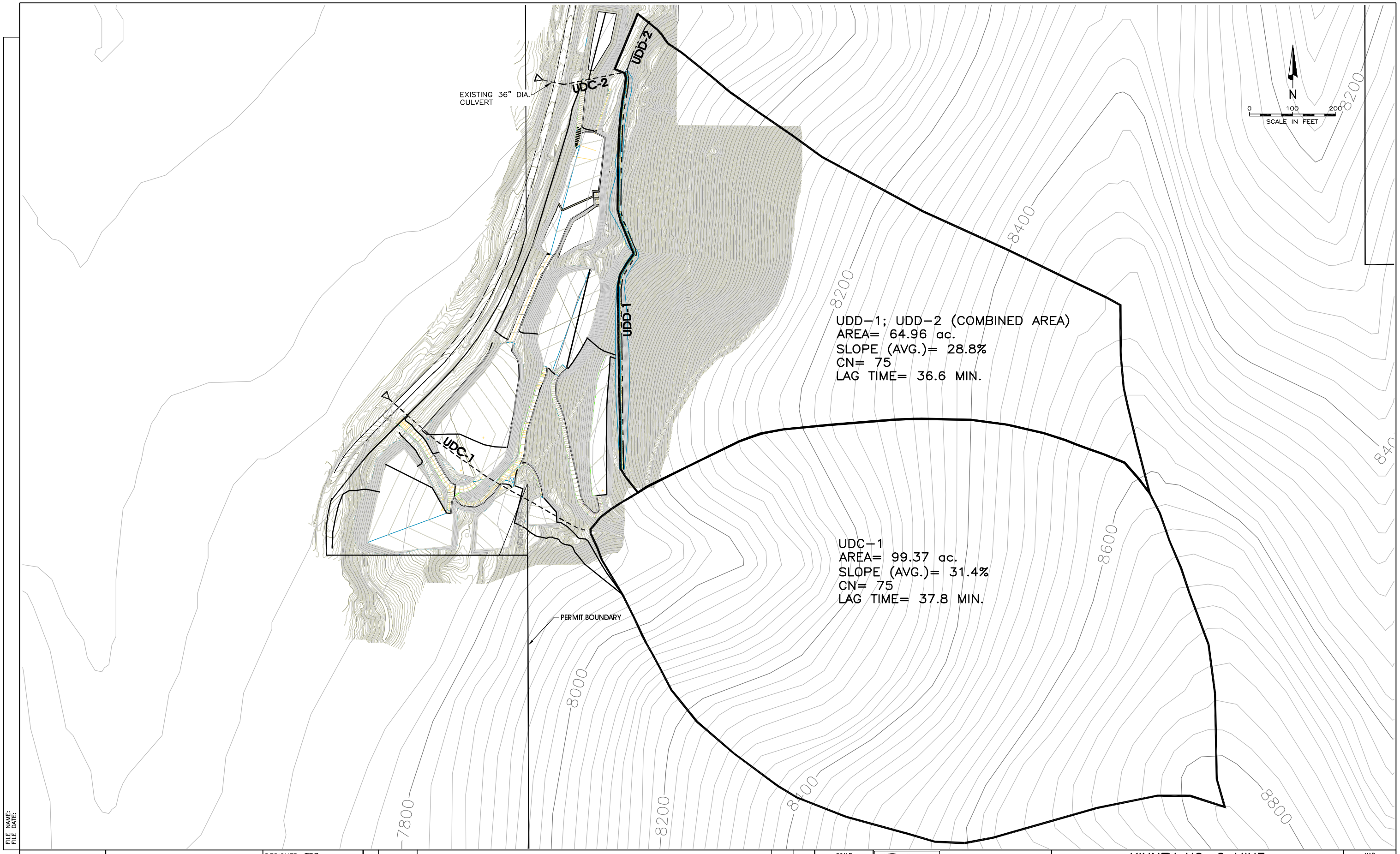
MAP 22
MINE SURFACE FACILITIES
ROAD PROFILES

DRAWN BY: JDB, BAG DATE: 1/2008
APPROVED BY: G.H. DATE:

Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

DWG. NAME:




FILE NAME:
FILE DATE:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DESIGNED .TDS | 3 | | | | | | |
| DRAFTED .JDB | 2 | | | | | | |
| CHECKED .GH | 1 | | | | | | |
| DATE . | NO. | DATE | REVISIONS | | BY | APVD. | |

SCALE: AS SHOWN

Carbon Resources
Coal For Carbon Country

P.O. Box 954
Sandia Park, NM 87047

# KINNEY NO. 2 MINE
## DRAINAGE AND SEDIMENT CONTROL PLAN
## UNDISTURBED DRAINAGE AREAS

MAP 23

3/04

N

0 50 100
SCALE IN FEET

UDD-2
UDD-1
SEDIMENT POND 1
UDC-2
DC-4
DC-3
DC-2
CC-1
DC-5
DC-6
CP-1
CP-2
PAD C
DC-1
CB-2
CB-1
4' X 4' SURFACE INLET BOX
4' X 4' SURFACE INLET BOX
4' X 4' SURFACE INLET BOX
4' X 4' SURFACE INLET BOX
PAD A
DA-1
PAD B
CD-1
CD-2
DE-2
DE-4
CE-1
DD-1
DD-2
CD-1
DD-3
UDC-1
PAD G
EXCLUSION
DE-1
CD-2
PAD D
PAD E
DE-3
DE-2
CF-1
DE-1
DF-4
DF-3
DF-5
PAD F
CATTLE GUARD
(DITCH DF-5 FLOWS THROUGH)
6' X 6' JUNCTION BOX W/SURFACE GRATE FOR HIGHWAY RUNOFF
PERMIT BOUNDARY
TOPSOIL STOCKPILE AREA W/SILT FENCE
RIPRAP ENERGY DISSIPATION FAN (SEE DETAIL DESIGN IN EXHIBIT 16)
TOPSOIL STOCKPILE AREA W/SILT FENCE
EXISTING HIGHWAY DITCH
UDOT HIGHWAY R-O-W
RIPRAP ENERGY DISSIPATION FAN (SEE DETAIL DESIGN IN EXHIBIT 16)
AREA ENLARGED AT LEFT – TOPSOIL STOCKPILE & INTERSECTION AREA DRAINAGE DETAIL A
EXISTING CULVERT
IRRIGATION BYPASS CULVERT
TOPSOIL STOCKPILE & INTERSECTION - SEE DRAINAGE DETAIL A - THIS MAP
UDOT HIGHWAY R-O-W
EXISTING CULVERT
AREA ENLARGED AT LEFT – TOPSOIL STOCKPILE & INTERSECTION AREA DRAINAGE DETAIL A

CATTLE GUARD
DE-3
DF-4
UDC-1
DF-5
ALT C-1
ALT B-1
EXISTING IRRIGATION DITCH
SEDIMENT TRAPS
TOPSOIL STOCKPILE DRAINAGE DITCH
RIPRAP ENERGY DISSIPATION FAN (SEE DETAIL DESIGN IN EXHIBIT 16)
UNDISTURBED DRAINAGE – IRRIGATION CULVERT
EXISTING 24" DIA. CULVERT
BERM
IBC-1
EXISTING HIGHWAY DITCH
ALT A-1
TOPSOIL STOCKPILE DRAINAGE DITCH
SEDIMENT TRAP – TOPSOIL STOCKPILE W/SILT FENCE OUTLET
PAVEMENT EDGE
ALT A-2
TOPSOIL STOCKPILE DRAINAGE DITCH
UDOT R-O-W
BERM
EXISTING CULVERT
EXISTING HIGHWAY DITCH

## TOPSOIL STOCKPILE & INTERSECTION AREA
DRAINAGE DETAIL A
NTS

## LEGEND

- ALTERNATE SEDIMENT CONTROL AREA
- SEDIMENT TRAP
- CLEANOUT BOX W/BOLT DOWN LID
- DRAINAGE BOUNDRY
- SURFACE DRAINAGE
- DITCH
- CULVERT – ROAD
- CULVERT – UNDISTURBED DRAINAGE
- POND
- BERM
- INLET BOX

GENERAL NOTE:
PAD GRADING TO CONTROL AND DIRECT FLOW TO DITCH OR CULVERT

FILE NAME:
FILE DATE:

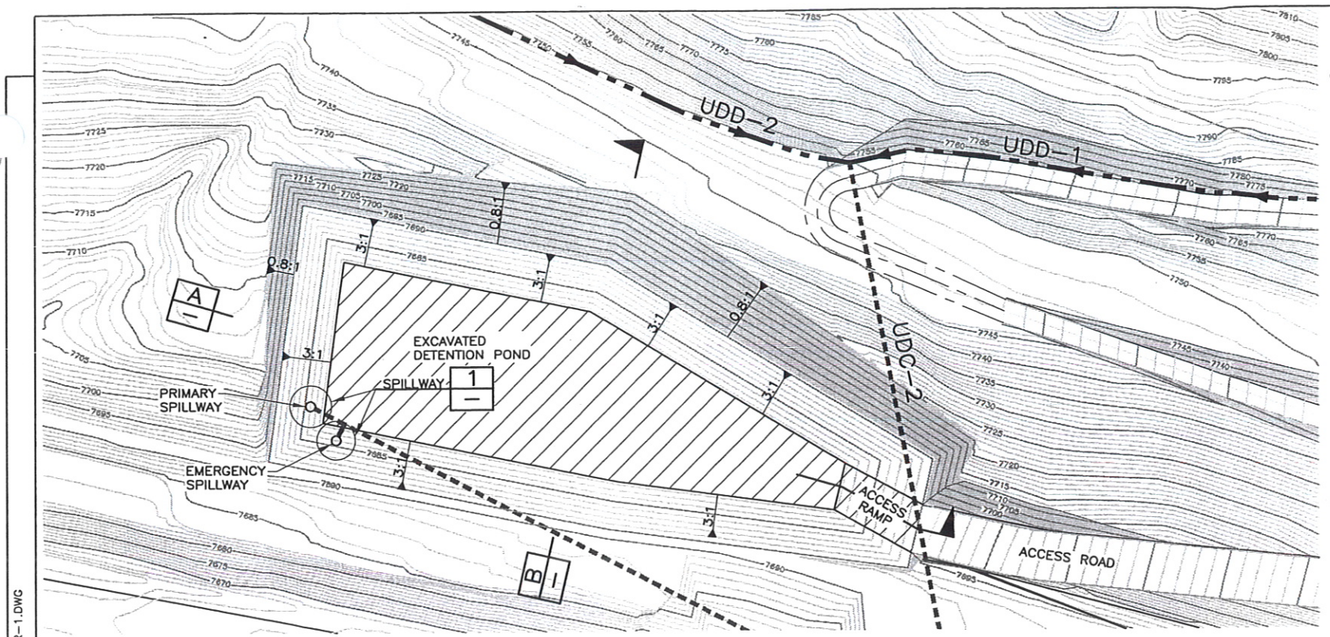
| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED TDS | 3 | | | | | |
| DRAFTED JDB | 2 | | | | | |
| CHECKED GH | 1 | | | | | |
| DATE AUGUST 2010 | NO. | DATE | REVISIONS | BY | APVD. | |

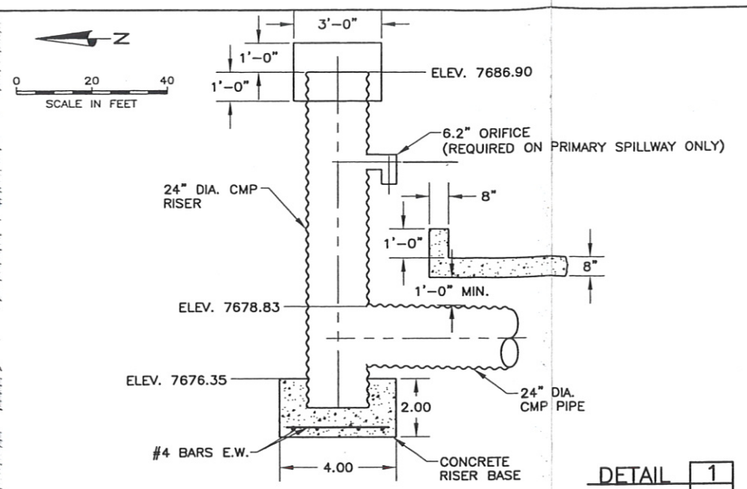
SCALE: AS SHOWN

# KINNEY NO. 2 MINE
# DRAINAGE AND SEDIMENT CONTROL PLAN
# DISTURBED DRAINAGE AREAS

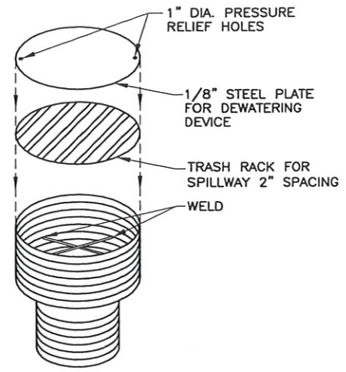
MAP 24

3/04

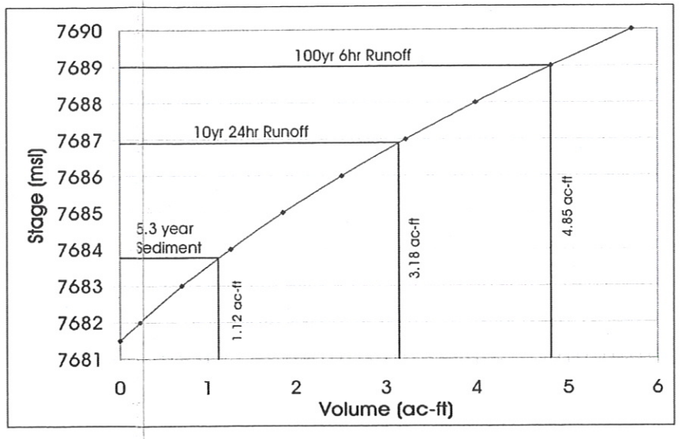


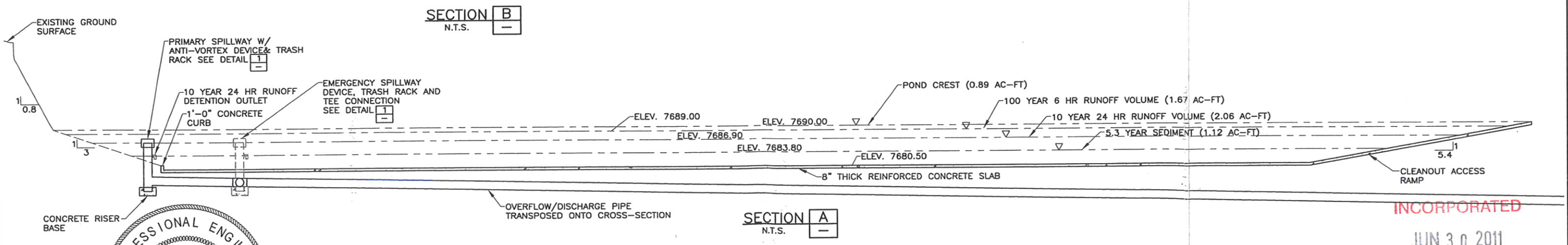




DETAIL 1 — N.T.S.




NOTES:
1. CYLINDER SHOULD BE WELDED TO THE TOP OF THE RISER.
2. SUPPORT BARS AND TRASH RACK ARE #6 REBAR.
3. TRASH RACK FOR SPILLWAY SHOULD BE WELDED TO CYLINDER.
4. PRIMARY AND EMERGENCY RISER DESIGNS ARE THE SAME.




SECTION B — N.T.S.




SECTION A — N.T.S.

INCORPORATED
JUN 30 2011
Div. of Oil, Gas & Mining

PROFESSIONAL ENGINEER
No. 171930 2302
DAVID J. HANSEN
STATE OF UTAH
8/5/10

HANSEN ALLEN & LUCE, Inc. ENGINEERS

| | | | | | |
|---|---|---|---|---|---|
| DESIGNED .TDS | 3 | | | | |
| DRAFTED .JDB | 2 | | | | |
| CHECKED .GH | 1 | | | | |
| DATE JANUARY 2008 | NO. | DATE | REVISIONS | BY | APVD. |

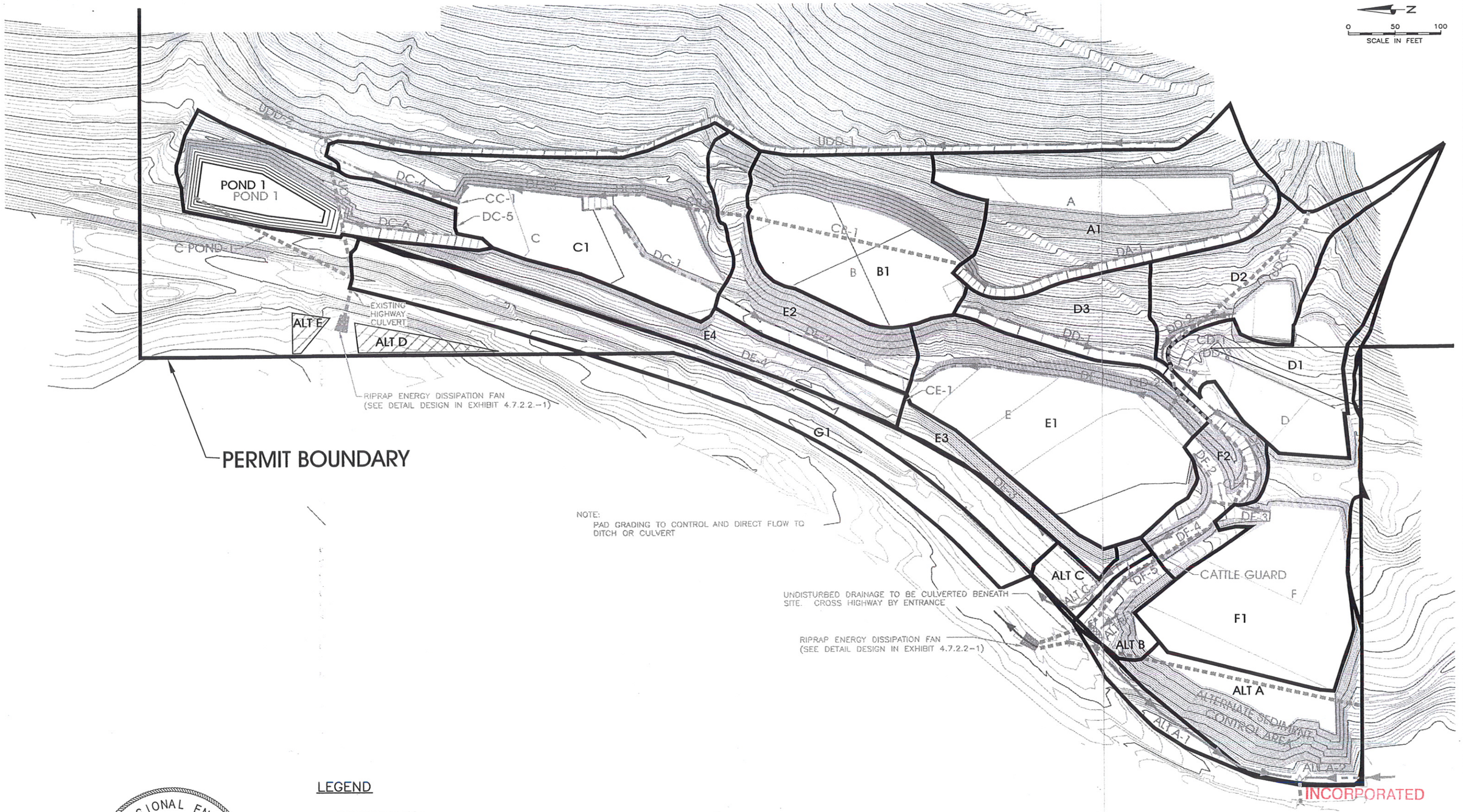
SCALE: AS SHOWN

KINNEY NO. 2 MINE
SEDIMENTATION POND 1
SECTIONS & DETAILS

MAP 25

FILE NAME: ...ECTS\308 - CARBON RESOURCES\01.600 - 2010 UPDATE RESPONSE\CAD\MAPS\MAP 4.7.2.1-3 ...ENT POND NO.1 - R-1.DWG
FILE DATE: 8.5.2010 08:11:53 (CAH)

3/04




LEGEND

- DRAINAGE BOUNDRY
- DITCH
- CULVERT – ROAD
- CULVERT – UNDISTURBED DRAINAGE
- POND
- BERM

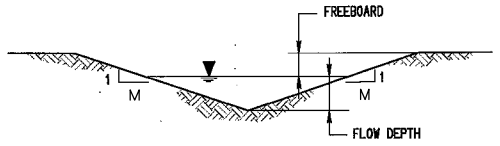
PROFESSIONAL ENGINEER
No. 171930-2202
STATE OF UTAH
DAVID L. HANSEN
8/5/2010

INCORPORATED
JUN 30 2011
Div. of Oil, Gas & Mining

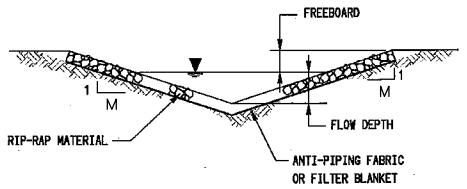
HANSEN ALLEN & LUCE, INC. ENGINEERS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DESIGNED .TDS | 3 | | | | | SCALE | KINNEY NO. 2 MINE<br>DRAINAGE AND SEDIMENT CONTROL PLAN<br>DISTURBED DRAINAGE SUB-BASINS |
| DRAFTED .JDB | 2 | | | | | AS SHOWN | MAP 26 |
| CHECKED GH | 1 | | | | | | |
| DATE AUGUST 2010 | NO. | DATE | REVISIONS | BY | APVD. | | |

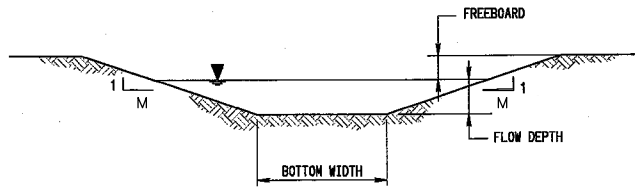
FILE NAME: J:\PROJECTS\308 - CARBON RESOURCES\01.600 - 2010 UPDATE RESPONSE\CAD\CADFILES AUGUST 2010\MAP 4.7.2.1-4 DIST. DRAINAGE SUBBASINS.DWG
FILE DATE: 8.5.2010 08:10:06 (GAH)
3704




TYPICAL TRIANGULAR CHANNEL SECTION

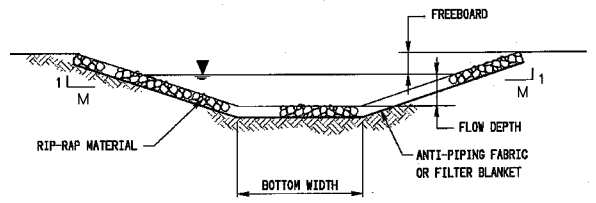



TYPICAL TRIANGULAR CHANNEL SECTION



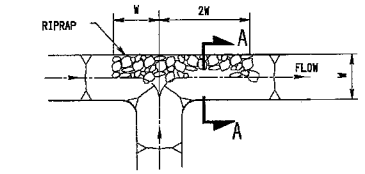

TYPICAL TRAPEZOIDAL CHANNEL SECTION

TYPICAL EARTHEN DRAINAGE STRUCTURE DETAIL

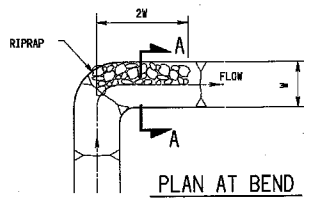



TYPICAL TRAPEZOIDAL CHANNEL SECTION

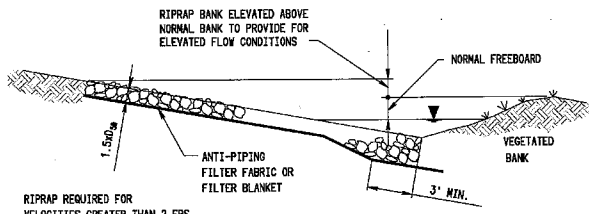
TYPICAL EARTHEN DRAINAGE WITH RIPRAP STRUCTURE DETAIL




PLAN AT "TEE" JUNCTION

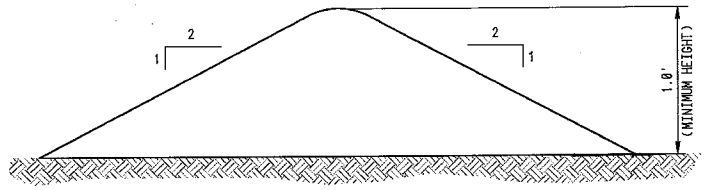



PLAN AT BEND




SECTION A-A

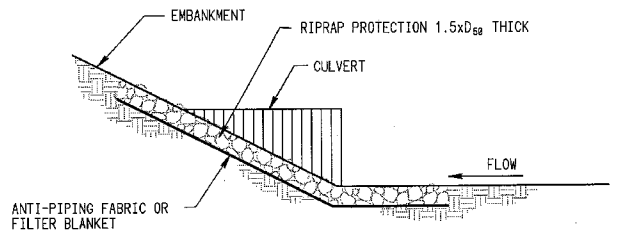
TYPICAL CHANNEL BANK RIPRAP DETAIL



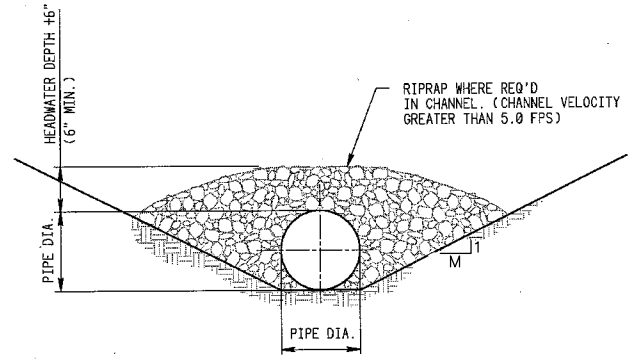

DRAINAGE BERM DETAIL

NOTE: EARTHEN BERM SHALL CONSIST OF ON SITE NATIVE SOILS. BERMS SHALL BE REGULARLY MAINTAINED.

TYPICAL EARTHEN BERM DETAIL

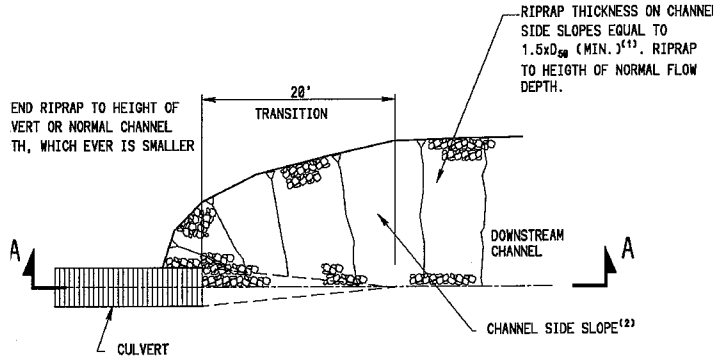



PROFILE VIEW



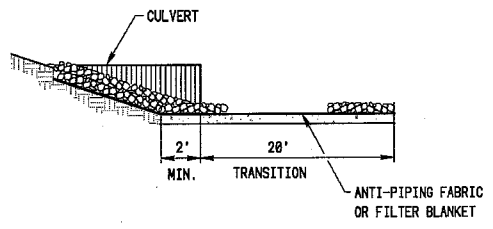

FRONT VIEW

TYPICAL RIPRAP HEAD WALL PROTECTION DETAIL




PLAN VIEW

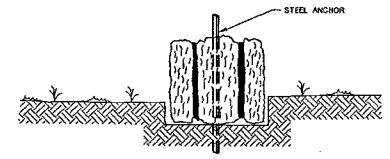
FOR VELOCITIES GREATER THAN 5 FPS (3)



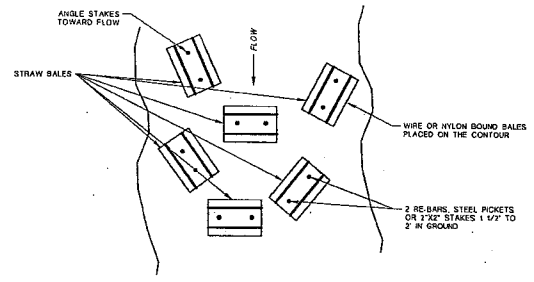

SECTION A-A

NOTES:
1. RIPRAP ON DOWNSTREAM CHANNEL ONLY APPLICABLE FOR LINED

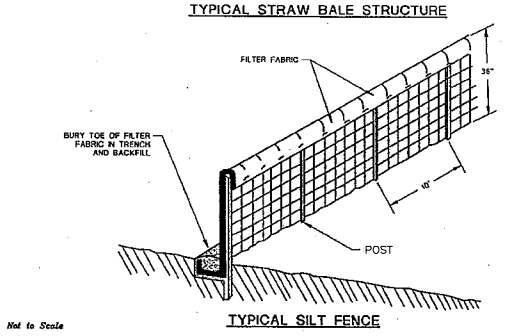
TYPICAL CULVERT OUTLET EROSION PROTECTION DETAIL




EMBEDDING DETAIL




TYPICAL STRAW BALE STRUCTURE




Not to Scale

TYPICAL SILT FENCE

TYPICAL SEDIMENT CONTROL DETAIL

FILE NAME:
FILE DATE:

3/04

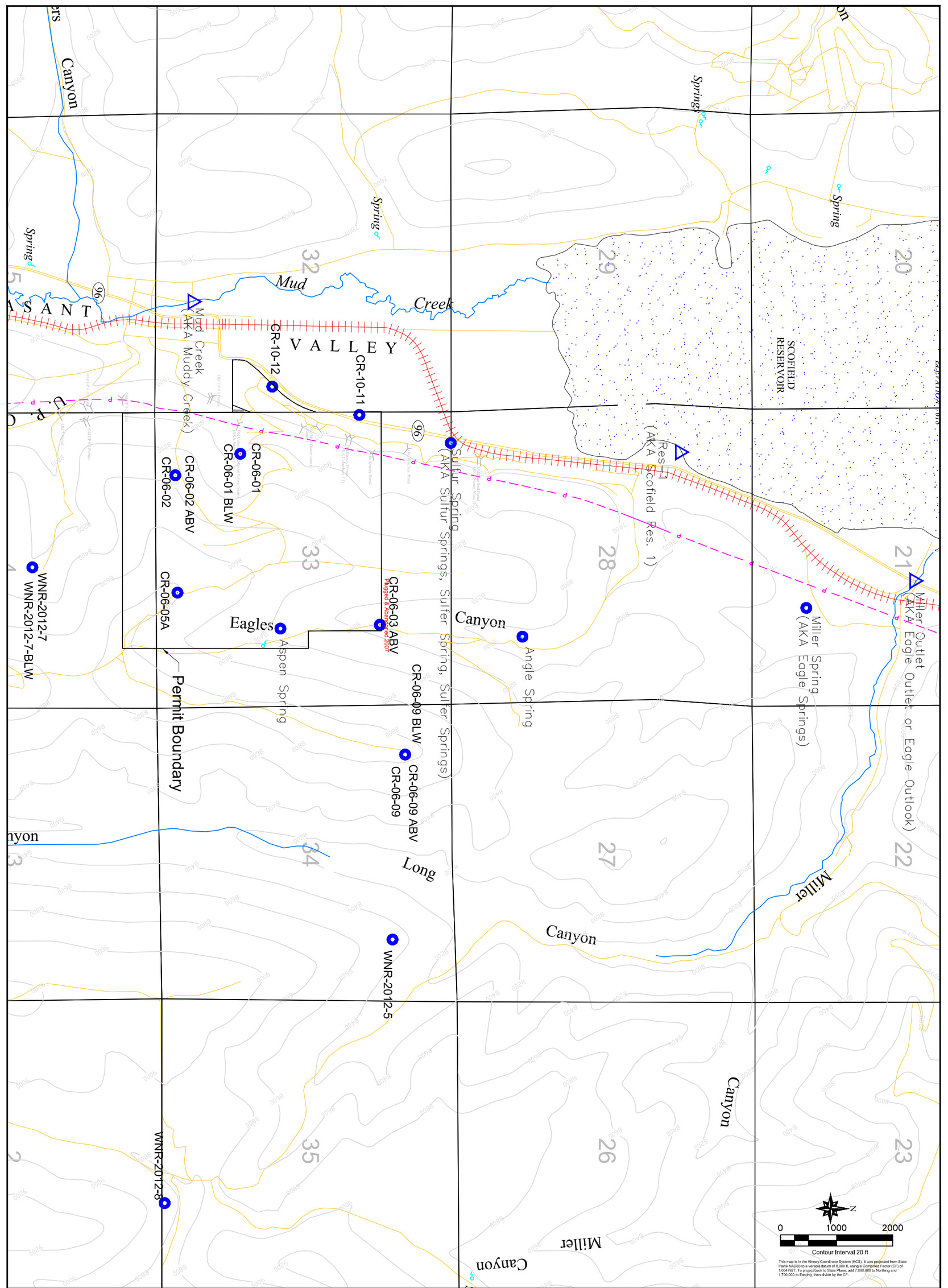
| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED . | 3 | | | | | SCALE NOT TO SCALE |
| DRAFTED JDB | 2 | | | | | |
| CHECKED . | 1 | | | | | |
| DATE . | NO. | DATE | REVISIONS | BY | APVD. | |

Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

# KINNEY NO. 2 MINE
# RUNOFF CONTROL DETAILS

MAP
27




LEGEND

- Mud Creek AKA Muddy Creek — Surface Water Monitoring Location
- CR-06-02 WNR-2012-05 — Ground Water Monitoring Location
- PERENNIAL STREAM
- INTERMITTENT STREAM
- EPHEMERAL STREAM
- 8000 SURFACE ELEVATION
- ROADS
- RAILROAD
- OLD MINE PORTAL
- ELECTRICAL LINES
- PERMIT BOUNDARY

Coal Energy Group 3, LLC

KINNEY NO. 2 MINE

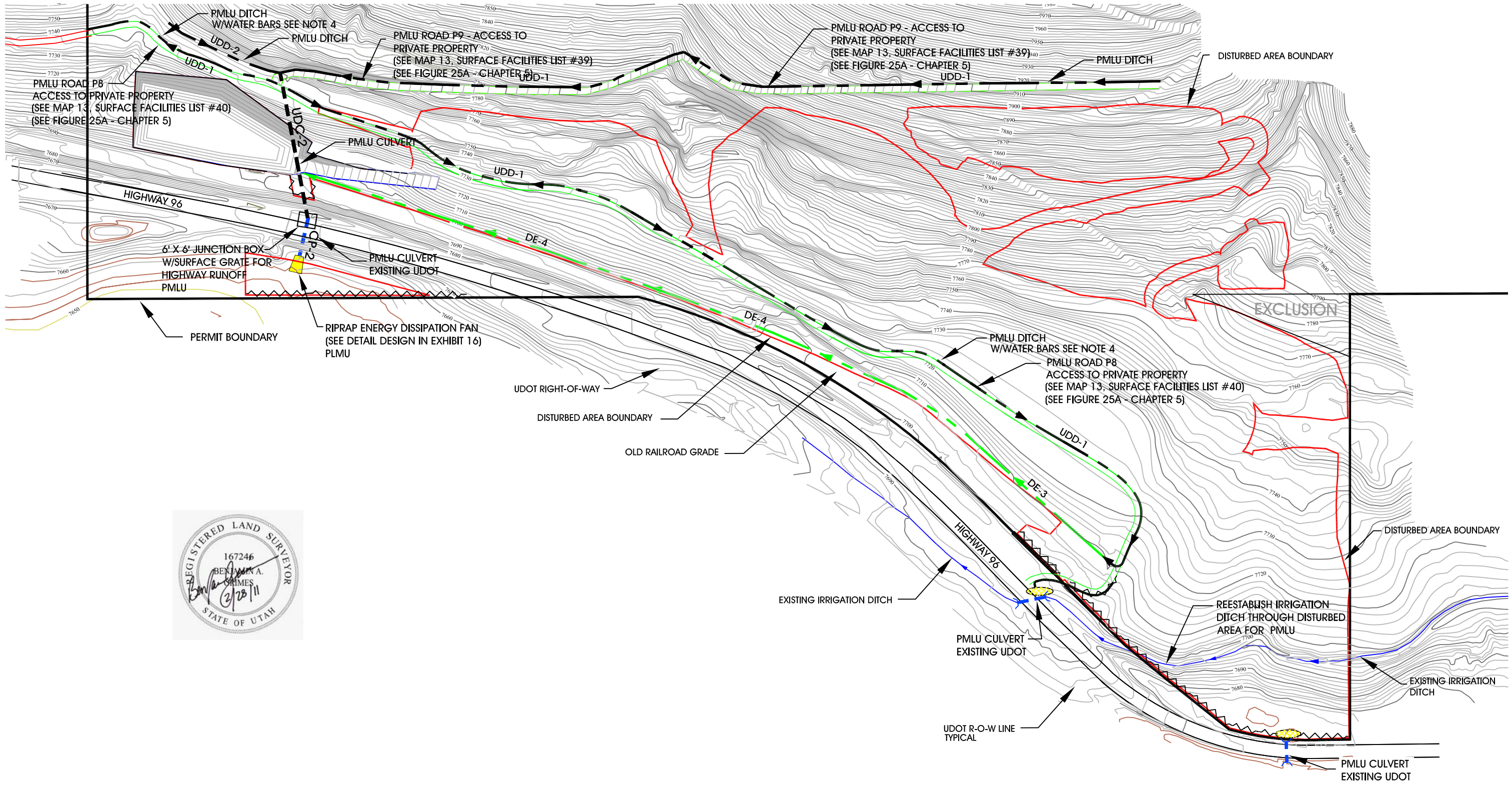
# MAP 28
## Surface & Ground Water Monitoring Sites

| | |
|---|---|
| DRAWN BY: GLH | DATE: 9/28/10 |
| APPROVED BY: GLH | DATE: 9/28/10 |

Coal Energy Group 3 CEG Kinney Mine

6602 Ilex Circle
Naples, FL 34109

FILE: Surf & GW Mon Loc 8-12-07




REGISTERED LAND SURVEYOR
167246
BENJAMIN A. GRIMES
2/28/11
STATE OF UTAH

NOTES:

1. ALTERNATIVE SEDIMENT CONTROLS TO BE REMOVED AT END OF BOND PERIOD EXCEPT WHERE LABELED PMLU.
2. SEDIMENT POND AND POND ACCESS ROAD TO BE REMOVED AT END OF PHASE 1 BOND PERIOD.
3. CONTOURS SHOWN INSIDE THE DISTRUBED AREA BOUNDARY INDICATE APROXIMAET ORIGINAL CONTOUR CONFIGURATION EXECPT FOR THE SEDIMENT POND AND IT'S ACCESS ROAD, WHICH WILL BE RECLAIMED AT THE END OF PHASE I BOND PERIOD.
4. ROAD P8 SHALL HAVE WATER BARS CONSTRUCTED AT 300 FOOT SPACING OR AS RECOMMENDED IN US FOREST SERVICE PUBLICATION NO.7700 – TRANSPORTATION SYSTEMS, 2500 – WATERSHED AND AIR MANAGEMENT, SEPT. 1998.

## LEGEND

- PMLU — POST MINING LAND USE WHERE APPLICABLE
- SEDIMENT TRAP
- CULVERT – UNDISTURBED DRAINAGE PMLU
- PRE–MINING CULVERTS
- ALTERNATIVE SEDIMENT CONTROL
- INLET BOX PMLU
- POST MINING IRRIGATION DITCHES
- DITCHES TO BE RECLAIMED WHEN SEDIMENT PONDS IS RECLAIMED
- POST MINING ROAD
- MINING DISTURBANCE BOUNDARY
- PERMIT BOUNDARY
- POST MINING LAND USE DITCHES

N

0 100 200 300 ft

SCALE
Contour Interval 2 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft, using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

REVISED 2/25/11 ADDED INTERIM DRAINAGE CONTROLS

# Carbon Resources LLC

KINNEY NO. 2 MINE
MAP 29
MINE SURFACE FACILITIES AREA
POST MINING TOPOGRAPHY
& INTERIM DRAINAGE CONTROL

| | | |
|---|---|---|
| DRAWN BY: | B.G. | DATE: 2/25/11 |
| APPROVED BY: | G.H. | DATE: 2/25/11 |

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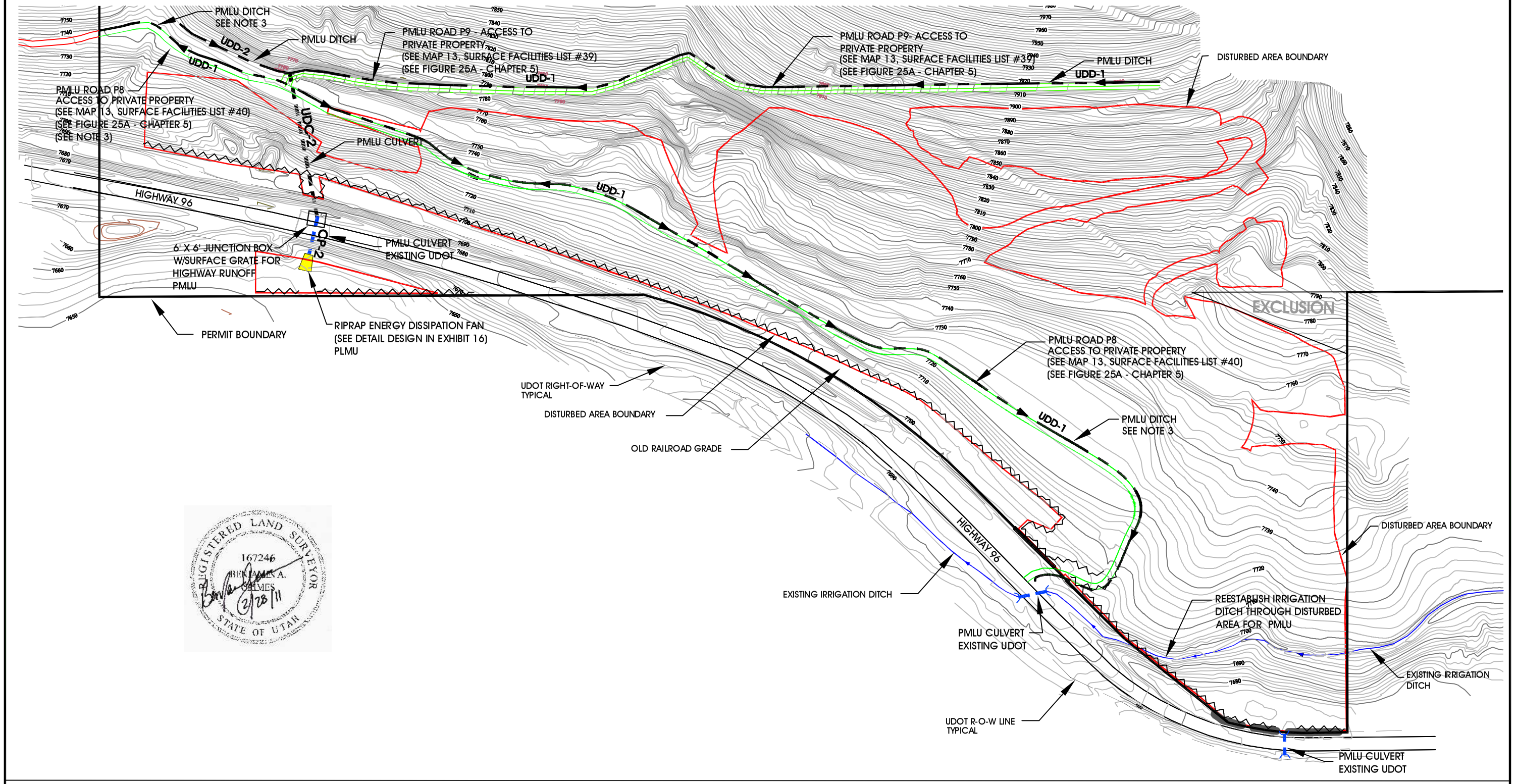
Coal For Carbon County
P.O. Box 954
Sandia Park , NM 87047

DWG. NAME:




REGISTERED LAND SURVEYOR
167246
BRIAN A. GRIMES
2/28/11
STATE OF UTAH

NOTES:

1. ALTERNATIVE SEDIMENT CONTROLS TO BE REMOVED AT END OF BOND PERIOD
2. THE CONTOURS SHOWN INSIDE THE DISTURBED AREA BOUNDARY REPRESENT THE GROUND SURFACE AS IT WILL BE RECLAIMED TO THE APPROXIMATE ORIGINAL CONTOUR.
3. ROAD P8 SHALL HAVE WATER BARS CONSTRUCTED AT 300 FOOT SPACING OR AS RECOMMENDED IN US FOREST SERVICE PUBLICATION NO.7700 – TRANSPORTATION SYSTEMS, 2500 – WATERSHED AND AIR MANAGEMENT, SEPT. 1998.

## LEGEND

- PMLU — POST MINING LAND USE WHERE APPLICABLE
- CULVERT – UNDISTURBED DRAINAGE PMLU
- INLET BOX PMLU
- PRE–MINING CULVERTS
- MINING DISTURBANCE BOUNDARY
- PERMIT BOUNDARY
- POST MINING LAND USE IRRIGATION DITCH
- ALTERNATE SEDIMENT CONTROLS
- POST MINING LAND USE ROADS
- POST MINING LAND USE DITCHES

N

0 100 200 300 ft

SCALE
Contour Interval 2 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

REVISED 4/23/2011 - ADDED NOTES TO PMLU ROADS

# Carbon Resources LLC

**KINNEY NO. 2 MINE**
MAP 29A

MINE SURFACE FACILITIES AREA
POST MINING TOPOGRAPHY

| | | | |
|---|---|---|---|
| **DRAWN BY:** | B.G. | **DATE:** | 2/25/11 |
| **APPROVED BY:** | G.H. | **DATE:** | 2/25/11 |


Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park , NM 87047


**DWG. NAME:**

91-4891/E1934
91-4891/E1934
91-4891/E1934
91-4891/E1934
SCOFIELD RESERVOIR
91-5069
a34946
91-5106
91-3401
91-3402
E164
91-4889
E1912
SCOFIELD TOWN
91-4909
E2567
91-5165
a34604
PERMIT BOUNDARY
GROUND WATER RIGHTS WITHIN 2 MILE RADIUS
T12S
T13S
R7E
R8E
Canyon
Miller
Johnston
Long
Eagles
Mud
Creek
Quarters
Jump
Green
Spring
RR TRACKS
PLEASANT VALLEY
U.P. Canyon
0 1000 2000 3000
SCALE

LEGEND

- CONTOUR LINES
- POWER LINES
- ROADS
- STREAMS
- RAILROAD TRACKS
- 91-4889 GROUND WATER RIGHTS
- a34606 GROUND WATER RIGHTS CHANGE POINT OF DIVERSION
- E2467 GROUND WATER RIGHTS EXCHANGE

| NO. | REVISION | DATE | BY | CHKD |
|---|---|---|---|---|
| 9 | | | | |
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | UPDATED WATER RIGHTS | 3-10-11 | B.G. | G.H. |

# Carbon Resources LLC

KINNEY NO. 2 MINE

MAP 30

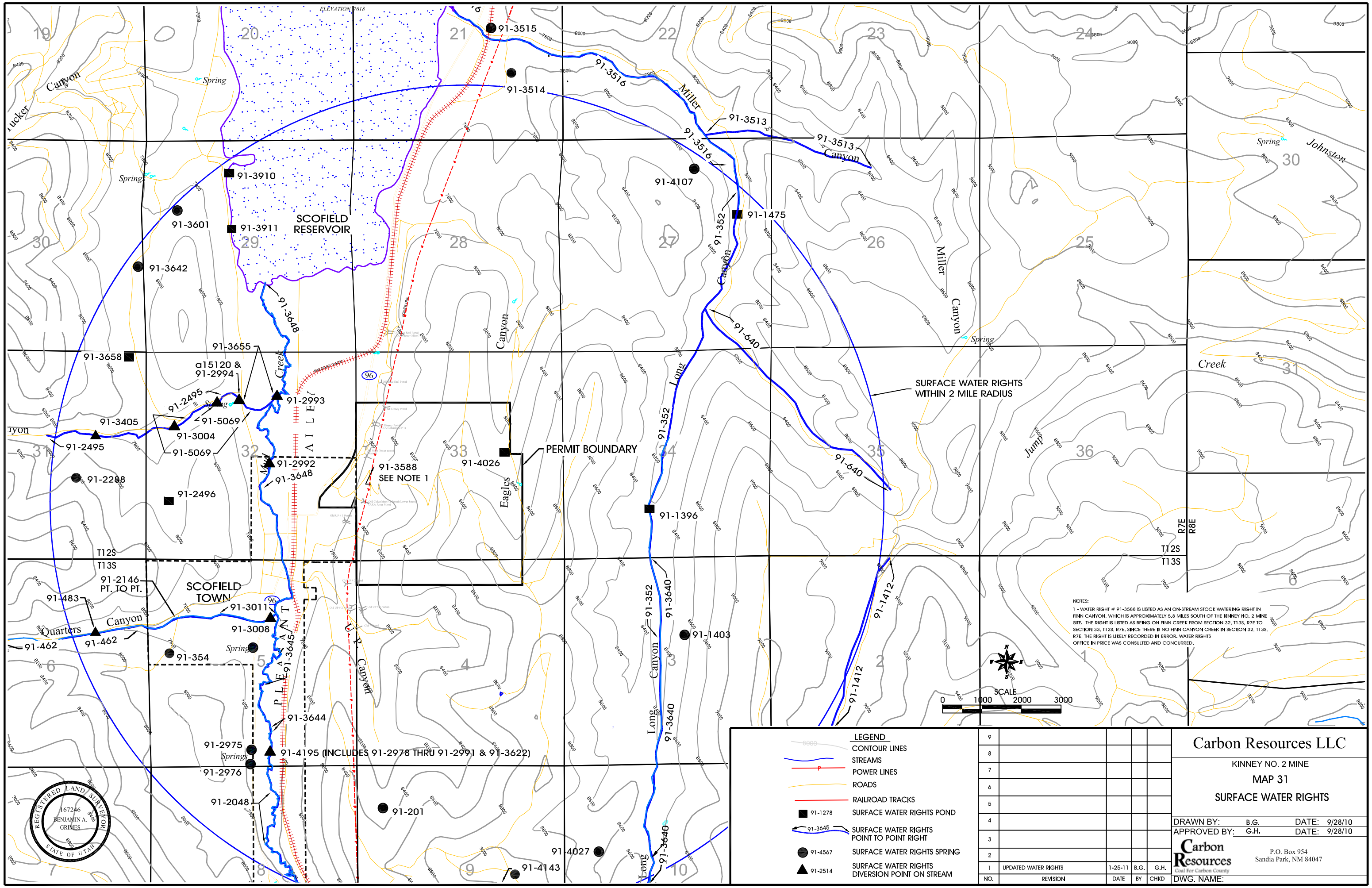
GROUND WATER RIGHTS

DRAWN BY: B.G. DATE: 9/28/10

APPROVED BY: G.H. DATE: 9/28/10

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 84047

DWG. NAME:




| NO. | REVISION | DATE | BY | CHKD |
|---|---|---|---|---|
| 9 | | | | |
| 8 | | | | |
| 7 | | | | |
| 6 | | | | |
| 5 | | | | |
| 4 | | | | |
| 3 | | | | |
| 2 | | | | |
| 1 | UPDATED WATER RIGHTS | 1-25-11 | B.G. | G.H. |

# Carbon Resources LLC

KINNEY NO. 2 MINE

## MAP 31

## SURFACE WATER RIGHTS

DRAWN BY: B.G. DATE: 9/28/10

APPROVED BY: G.H. DATE: 9/28/10


Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 84047


DWG. NAME:

TWO ADDITIONAL GROUND WATER MONITORING WELLS OFF MAP USED IN PIEZOMETRIC SURFACE DETERMINATION CR-06-03 & CR-06-09

PERMIT BOUNDARY

ZONE OF GROUNDWATER CONTRIBUTION TO AVF FROM MINE PERMIT BOUNDARY AREA

CR-10-11 AVG SWL 7,646

CR-06-1 ~SWL Below 7,690

CR-10-12 AVG SWL 7,649

CR-06-02 ABV CR-06-02

SULFUR SPRING

UNION PACIFIC RAILROAD

SCOFIELD RESERVOIR

SCOFIELD TOWN BOUNDARY

U. P. Canyon

VALLEY

PLEASANT

Creek

Mud

Spring

7600 7640 7660 7680 7700 7800 7900 7520

96 118 29 108 109 30 115 22 11

0 500 1000 2000

SCALE

NOTES:
1. AVF IS LOCATED ONLY WEST OF HIGHWAY 96 AND NORTH OF SCOFIELD TOWN.
2. SOIL MAP UNITS FROM UDSA SOIL CONSERVATION SERVICE SOIL SURVEY OF CARBON AREA, UTAH, PUBLISHED JUNE 1988 (MOST RECENT SOIL SURVEY).
3. IRRIGATION DITCH LOCATIONS FROM SCOFIELD MAYOR, MIKE ERKKILA & MAP OF SCOFIELD DITCH COMPANY MAP.
4. REFER TO CHAPTER 7 FOR HYDROLOGY INFORMATION AND PHC.

## LEGEND

- QUASI AVF AREA
- AVF AREA
- 118 SOIL MAP UNITS (USDA SCS)
- SCOFIELD DITCH COMPANY DITCHES
- 7600 GROUNDWATER SURFACE CONTOUR
- MARSH
- ◆CR-06-03 GROUND WATER MONITORING WELLS
- AVF BY PROPERTY OWNER
- QUASI AVF BY PROPERTY OWNER
- 8000 CONTOUR LINES
- POWER LINES
- ROADS
- STREAMS
- SCOFIELD RESERVOIR HIGH WATER LINE
- RAILROAD TRACKS

## KEY TO AVF AREAS ON FARMS

| Area No. | TRUE AVF AREA (ACRES) | QUASI AVF AREA (ACRES) | PROPERTY OWNER | CARBON COUNTY PARCEL NO. |
|---|---|---|---|---|
| 1 | 0.38 | - | GRANT D. & JUDY SMITH | 1B-482-3 |
| 2 | 1.52 | - | GAYLAND & SUZANNE M. JONES | 1B-482-4 |
| 3 | 45.39 | - | SANPETE WATER CONSERVANCY DIST. | 2A-206 & 2A-223 |
| 4 | - | 0.77 | GRANT D. & JUDY SMITH | 1B-482-3 |
| 5 | - | 6.37 | GAYLAND & SUZANNE M. JONES | 1B-482-4 |
| 6 | - | 0.94 | GRANT D. & JUDY SMITH | 1B-482-3 |
| 7 | - | 87.71 | SANPETE WATER CONSERVANCY DIST. | 2A-206 & 2A-223 |
| 8 | - | 54.84 | HILDA M. HAMMOND | 1B-483 & 2A-224 |
| 9 | - | 8.71 | BOYD L. & PEGGY PETERSON TR. | 1B-482-2 & 2A-223-2 |
| 10 | 11.81 | - | BLM | 2A-68-29F |
| 11 | - | 10.41 | BLM | 2A-68-29F |
| 12 | - | 4.04 | BILL B. & UTAHNA P. JONES | 1B-482 |
| 13 | - | 8.78 | GAYLAND B. JONES TR. | 2A-204 & 2A-226 |

FILE NAME:
FILE DATE:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DESIGNED | B.G. | 3 | | | | | |
| DRAFTED | B.G. | 2 | | | | | |
| CHECKED | G.H. | 1 | 4/22/19 | OWNERSHIP BOUNDARIES & ACREAGES UPDATE | | A.C. | L.J. |
| DATE | 9/30/10 | NO. | DATE | REVISIONS | | BY | APVD. |

SCALE AS SHOWN

Coal Energy Group 3 CEG Kinney Mine

6602 Ilex Circle
Naples, Florida 34109

KINNEY NO. 2 MINE
MAP 32
AVF EVALUATION MAP

MAP 32

3/04

## Planned Disturbance

| UNIT | ACRES | CUBIC YDS. |
|---|---|---|
| DA-1 | 0.59 | 1,180.3 |
| DA-2 | 0.24 | 469.5 |
| DA-3 | 12.78 | 25,371.7 |
| DA-4 | 0.45 | 889.9 |
| DA-5 | 0.07 | 147.3 |
| **Sub-Tot** | **14.10** | **28,058.7** |
| DB-1 | 0.02 | 43.1 |
| DB-2 | 0.99 | 1,969.5 |
| DB-3 | 0.04 | 79.3 |
| DB-4 | 2.84 | 5,643.3 |
| DB-5 | 1.95 | 3,875.0 |
| DB-6 | 0.39 | 773.5 |
| DB-7 | 0.01 | 17.5 |
| **Sub-Tot** | **6.24** | **12,401.1** |
| 1B-1 | 0.06 | 274.6 |
| 1B-2 | 0.22 | 1,023.0 |
| 1B-3 | 0.33 | 1,520.2 |
| **Sub-Tot** | **0.60** | **2,817.8** |
| 2A-1 | 0.66 | 3,147.9 |
| 2A-2 | 3.15 | 15,005.4 |
| 2A-3 | 0.11 | 528.9 |
| 2A-4 | 0.07 | 336.4 |
| 2A-5 | 0.02 | 82.4 |
| 2A-6 | 0.27 | 1,305.0 |
| 2A-7 | 0.06 | 279.8 |
| 2A-8 | 0.21 | 1,014.9 |
| **Sub-Tot** | **4.56** | **21,700.8** |
| 2B-1 | 0.05 | 84.0 |
| 2B-2 | 0.96 | 1,645.7 |
| 2B-3 | 0.23 | 393.1 |
| 2B-4 | 0.44 | 754.5 |
| **Sub-Tot** | **1.68** | **2,877.3** |
| 3AN | 0.08 | 242.8 |
| 3A S | 0.20 | 409.0 |
| 3A | 0.10 | 236.7 |
| **Sub-Tot** | **0.38** | **888.6** |
| **TOTAL** | **27.6** | **68,744.3** |

SOIL TYPES and Planned Disturbance Areas

- DA Disturbed Lands, 0-20% Slopes
- DB Disturbed Lands, 20-50% Slopes
- 2A Typic Arglixeroll-Typic Haploxeroll Complex,0-35% Slopes
- 1B Typic Argicryoll Consociaion, 35-70% Slopes
- 2B Typic Argixeroll Consociation, 35-70% Slopes
- 3A Cumulic Haplocryoll, 0-3% Slopes

LEGEND

- SP 2A1 — Soil Survey Sample Pit 2006 Field Work w/Lab Analysis
- 6 SP 07 — Soil Survey Sample Pit 2007 Field Work w/Lab Analysis
- WSF-2 — Soil Stability Sample Pit 2007 Field Work; Soil Horizion Data Only, NO /Lab Analysis
- 3-CP — Reclaimed Coal, Measurement & Sample Plt
- Reclaimed Coal Distribution Outline
- Permit Boundary (Portal Block)
- Averaged 30% Slope Break LIne Barbs Point Up-Hill

N

0 200 ft

SCALE: 1:2,400 or 1" = 200'

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Kinney # 2 Mine

Map 34
Top Soil to be DISTURBED

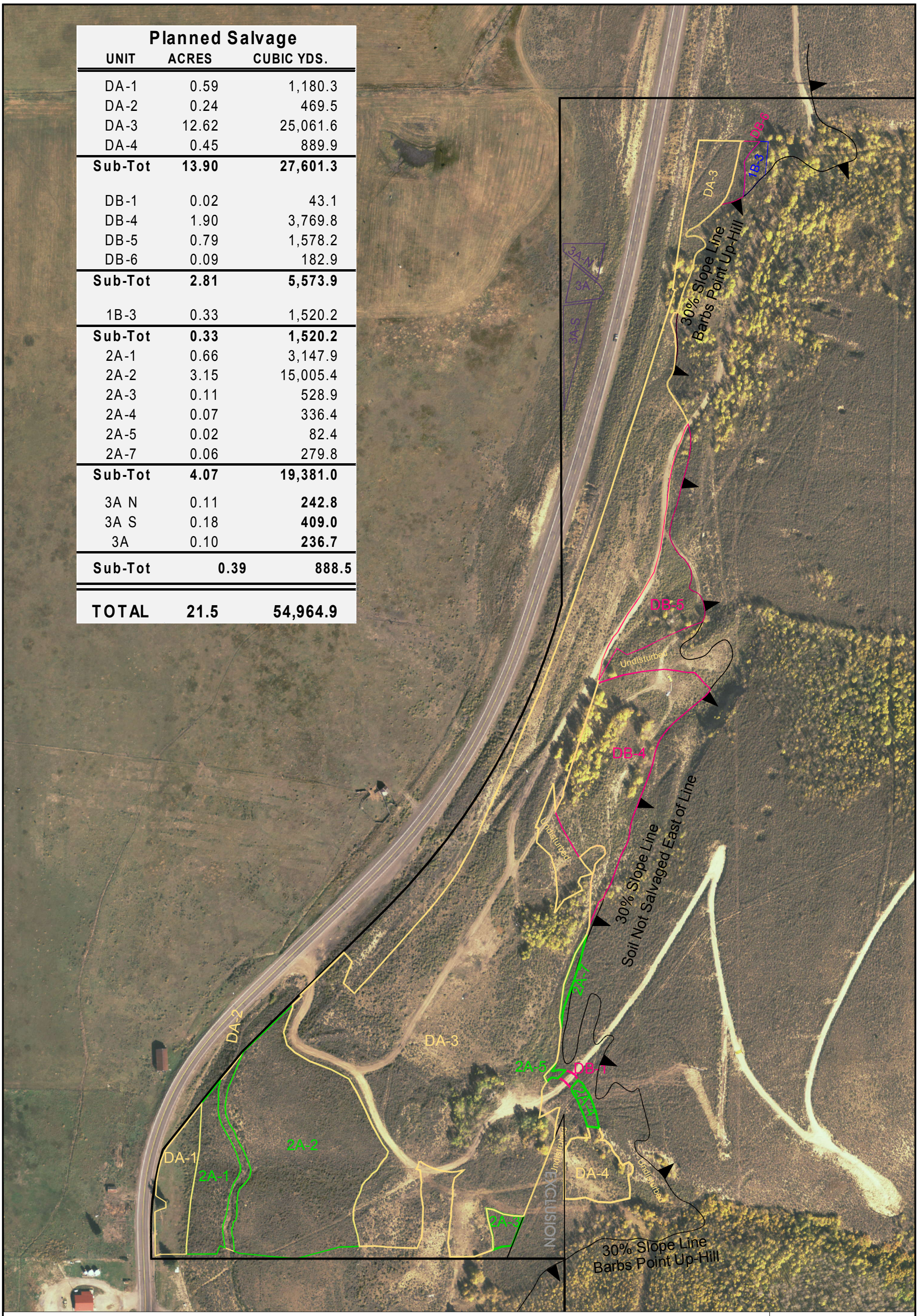
DRAWN BY: GLH DATE: 9-1-2010
APPROVED BY: BG DATE: 9-15-2010

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

File: Map 34 Disturbed TS

## Planned Salvage

| UNIT | ACRES | CUBIC YDS. |
|---|---|---|
| DA-1 | 0.59 | 1,180.3 |
| DA-2 | 0.24 | 469.5 |
| DA-3 | 12.62 | 25,061.6 |
| DA-4 | 0.45 | 889.9 |
| **Sub-Tot** | **13.90** | **27,601.3** |
| DB-1 | 0.02 | 43.1 |
| DB-4 | 1.90 | 3,769.8 |
| DB-5 | 0.79 | 1,578.2 |
| DB-6 | 0.09 | 182.9 |
| **Sub-Tot** | **2.81** | **5,573.9** |
| 1B-3 | 0.33 | 1,520.2 |
| **Sub-Tot** | **0.33** | **1,520.2** |
| 2A-1 | 0.66 | 3,147.9 |
| 2A-2 | 3.15 | 15,005.4 |
| 2A-3 | 0.11 | 528.9 |
| 2A-4 | 0.07 | 336.4 |
| 2A-5 | 0.02 | 82.4 |
| 2A-7 | 0.06 | 279.8 |
| **Sub-Tot** | **4.07** | **19,381.0** |
| 3A N | 0.11 | **242.8** |
| 3A S | 0.18 | **409.0** |
| 3A | 0.10 | **236.7** |
| **Sub-Tot** | **0.39** | **888.5** |
| **TOTAL** | **21.5** | **54,964.9** |




SOIL TYPES and
Planned Salvage Areas

DA Disturbed Lands, 0-20% Slopes
DB Disturbed Lands, 20-50% Slopes
1B Coarse-Loamy Typic Argicryoil Consociation
2A Typic Arglixeroll-Typic Haploxeroll Complex,0-35% Slopes
3A Cumulic Haplocryoll, 0-3% Slopes

LEGEND

Averaged 30% Slope Break Line
Barbs Point Up-Hill

Permit Boundary (Portal Block)

N

0 200ft

SCALE: 1:,400 or 1" = 200'

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Kinney # 2 Mine

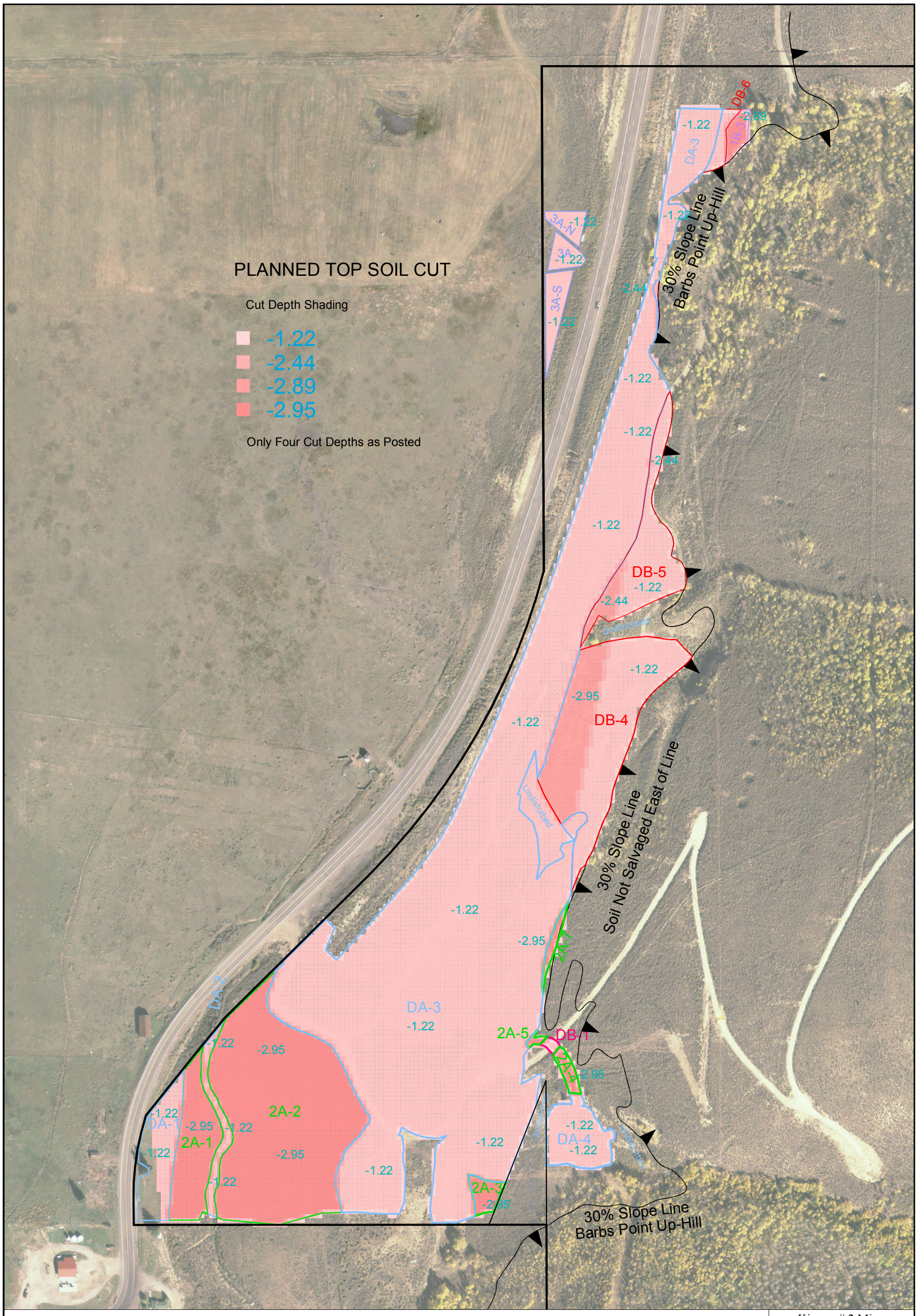
MAP 36

Planned Salvage Area Soil Map

DRAWN BY: BC & GLH DATE: 9/5/-2010
APPROVED BY: BG DATE: 9/10/2010

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

FILE: Map 36 planned salvage area soil map




SOIL TYPES and
Planned Disturbance Areas

DA Disturbed Lands, 0-20% Slopes
DB Disturbed Lands, 20-50% Slopes
1B Coarse-Loamy Typic Argicryoil Consociation
2A Typic Arglixeroll-Typic Haploxeroll Complex,0-35% Slopes
3A Cumulic Haplocryoll, 0-3% Slopes

LEGEND

Averaged 30% Slope Break Line
Barbs Point Up-Hill

Permit Boundary (Portal Block)

N

0 200ft

SCALE: 1:,400 or 1" = 200'

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Kinney # 2 Mine

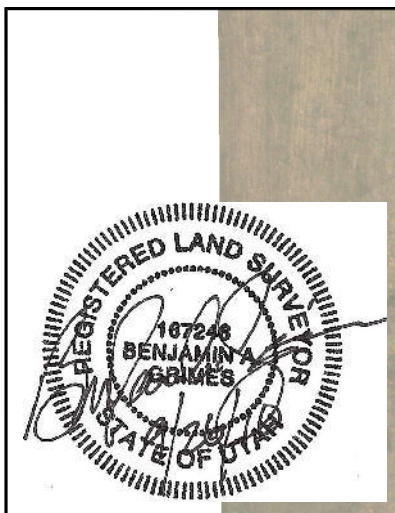
MAP 37

Planned Topsoil Cut Design

| | |
|---|---|
| DRAWN BY: BC & GLH | DATE: 9/5/-2010 |
| APPROVED BY: GLH | DATE: 9/10/2010 |

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

File: Map 37 Total TS Cut Design




**FILL - TOPSOIL STORAGE PILES**

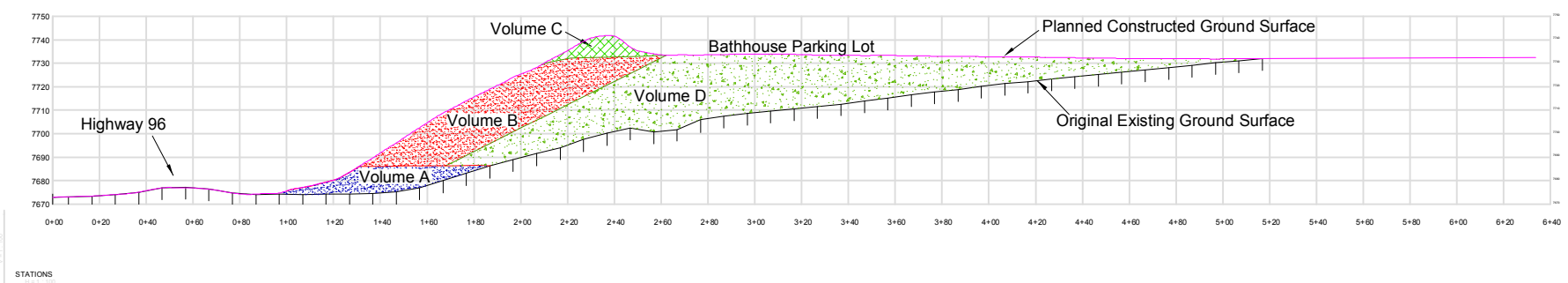
| A-Horizon Storage | Cubic Yds |
|---|---|
| VOL B: SW of Parking Lot TS Pile | 18,223 |
| West of Highway N | 612 |
| West of Highway S | 1,436 |
| VOL C: Additional Capacity, TOP SW Parking Lot | 2,077 |
| A-Horizon Storage Capacity Total | 22,348 |
| A-Horizon Storage Capacity Needed | 20,271 |
| Previously Disturbed Soil & B-Horizon Storage | |
| VOL D: Parking Lot Storage Capacity | 89,420 |
| Previously Disturbed Soil & B-Horizon Storage Capacity Needed | 33,175 |



W

## SOIL X-Section, Bathhouse Area

E




### X-Section LEGEND

Volume D = Previously Disturbed Soil Fill Beneath Parking Lot (Capacity 33,175 CY)
Volume C = A-Horizon Additional Storage Capacity (2,077 CY Capacity)
Volume B = A-Horizon Main TS Stockpile (18,223 CY Capacity)
Volume A = Underlayment of Volume B
Keeps Volume B Topsoil Protected from Road Salt Etc.

### MAP LEGEND

SOIL TYPES

DA Disturbed Lands, 0-20% Slopes
DB Disturbed Lands, 20-50% Slopes
2A Typic Arglixeroll-Typic Haploxeroll Complex,0-35% Slopes
1B Typic Argicryoll Consociaion, 35-70% Slopes
2B Typic Argixeroll Consociation, 35-70% Slopes
3A Cumulic Haplocryoll, 0-3% Slopes

Permit Boundary

N
0 200 ft
SCALE: 1:2,400 or 1" = 200'
Contour Interval 2 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

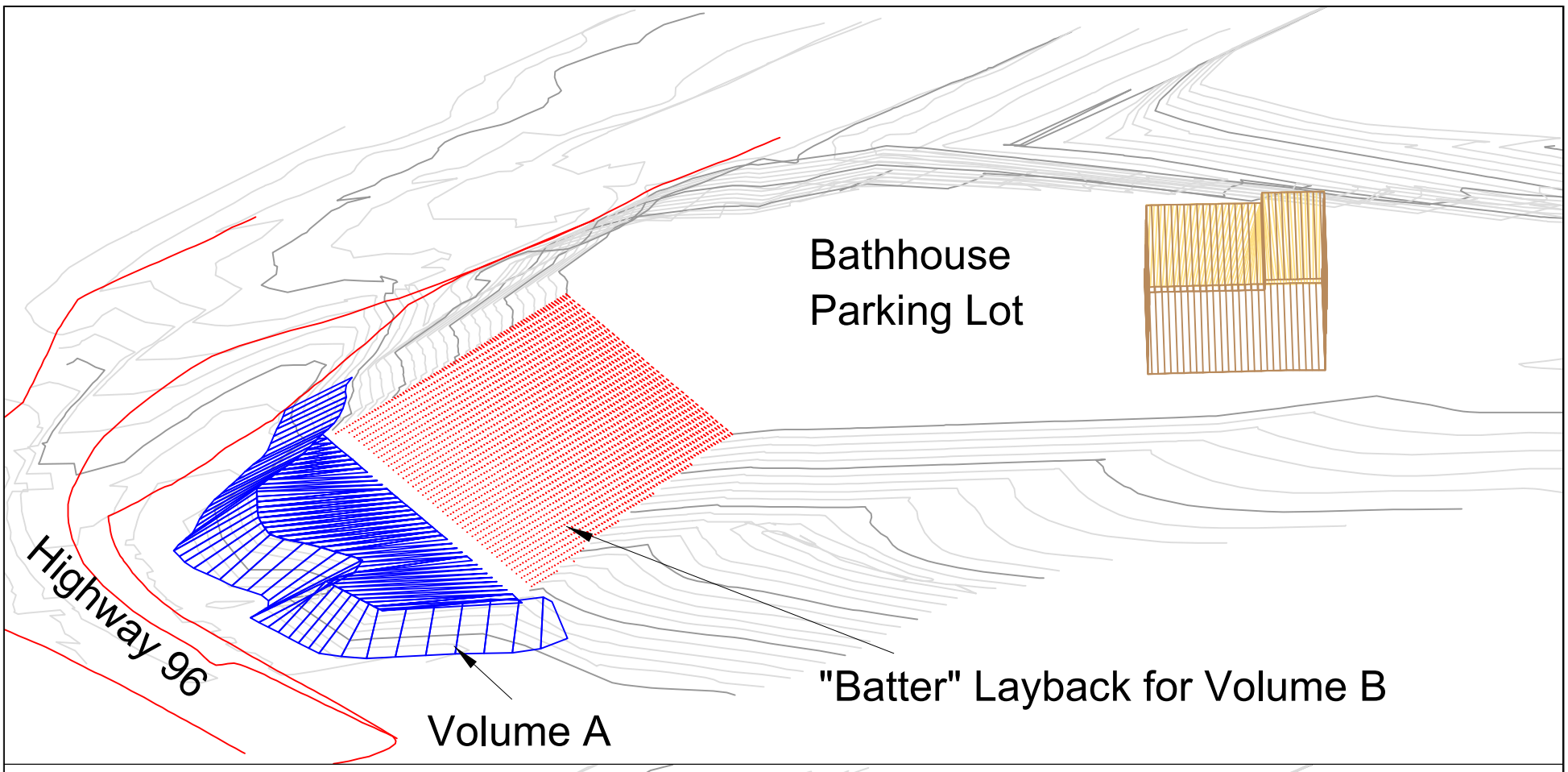
Kinney # 2 Mine

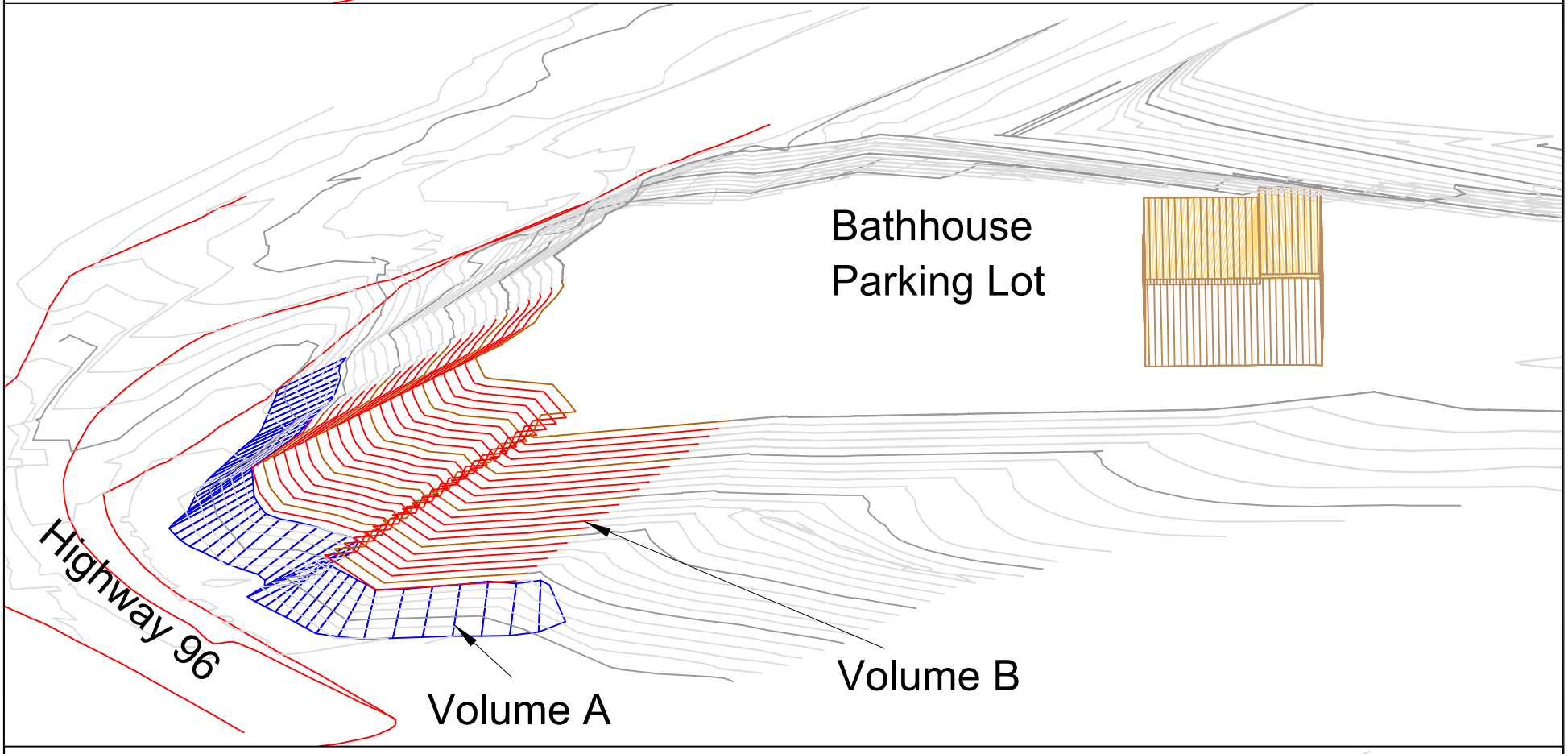
MAP 38
Top Soil Storage

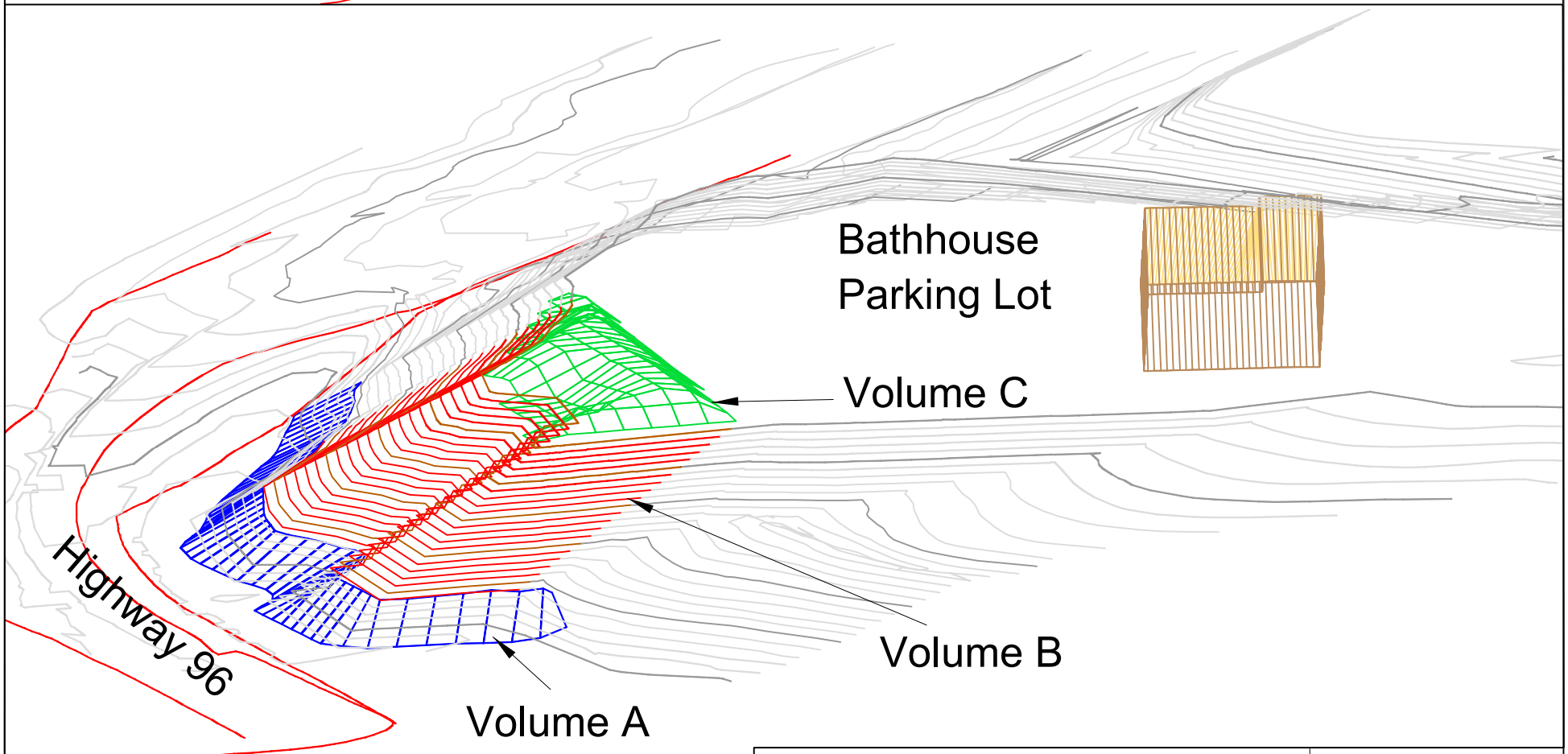
| | |
|---|---|
| DRAWN BY: GLH | DATE: 9/2/09 |
| APPROVED BY: GLH | DATE: 9/2/2009 |

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

FILE: Map 38 topsoil storage




LEGEND

VOLUME C

VOLUME B

VOLUME A

See Map S4 for location of this TS Stock Pile

N

NOT TO SCALE

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Kinney # 2 Mine

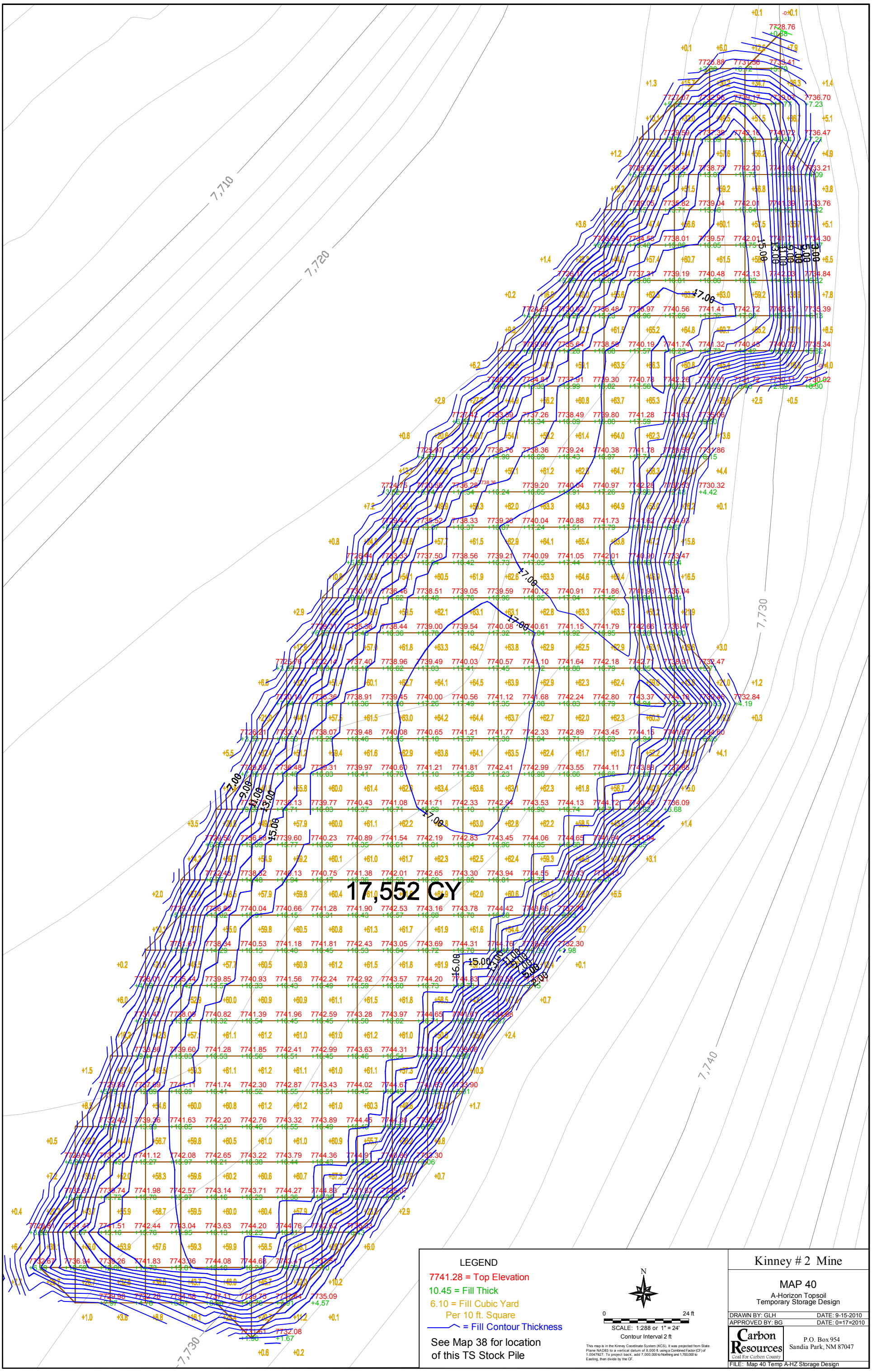
MAP 39
Topsoil Storage 3D Sequence
Perspective, Bathhouse Pad

DRAWN BY: GLH DATE: 9-15-10

APPROVED BY: GLH DATE: 9-15-10

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

FILE: MAP 39 TS 3D sequence


7,710
7,720
7,730
7,740
17,552 CY
17.08
15.00
13.00
11.00
9.00
7.00
5.00
3.00
LEGEND
7741.28 = Top Elevation
10.45 = Fill Thick
6.10 = Fill Cubic Yard
Per 10 ft. Square
= Fill Contour Thickness
See Map 38 for location
of this TS Stock Pile
N
0
24 ft
SCALE: 1:288 or 1" = 24'
Contour Interval 2 ft
This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.
Kinney # 2 Mine
MAP 40
A-Horizon Topsoil
Temporary Storage Design
DRAWN BY: GLH
DATE: 9-15-2010
APPROVED BY: BG
DATE: 0=17=2010
Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047
FILE: Map 40 Temp A-HZ Storage Design

HW 96 ROW

Volume A FILL

Approx. 8,000 Cubic Yards

Existing Topography

7730

7720

7710

7700

7690

7680

LEGEND

7741.28 = Top Elevation

10.45 = Fill Thick

6.10 = Fill Cubic Yard Per 10 ft. Square

= Fill Contour Thickness

= Fill ZERO Contour

See Maps 38 for location of this FILL

N

0 30 ft

SCALE: 1:360 or 1" = 30'

Contour Interval 10 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Kinney # 2 Mine

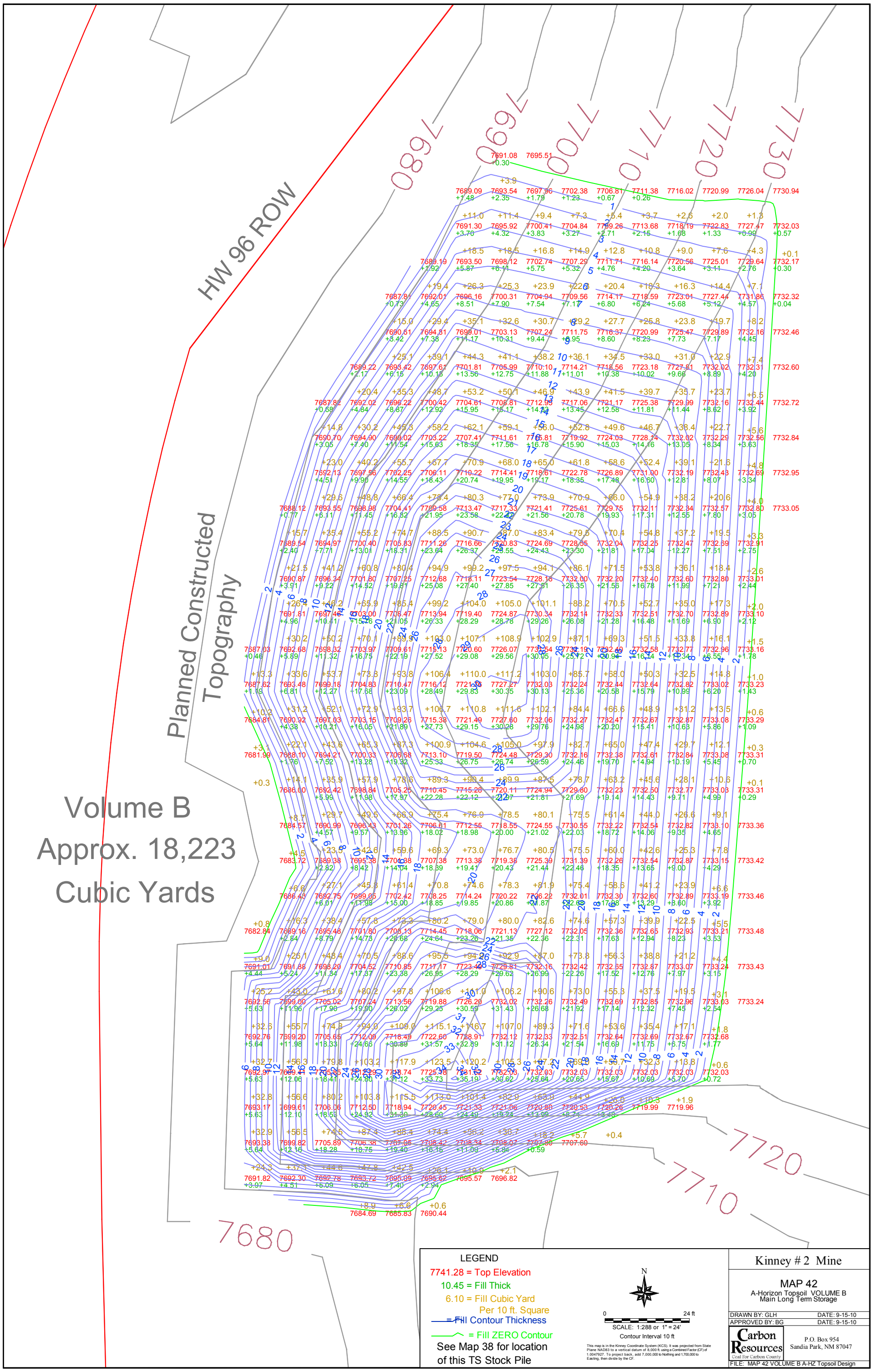
MAP 41
VOLUME A
FILL Design

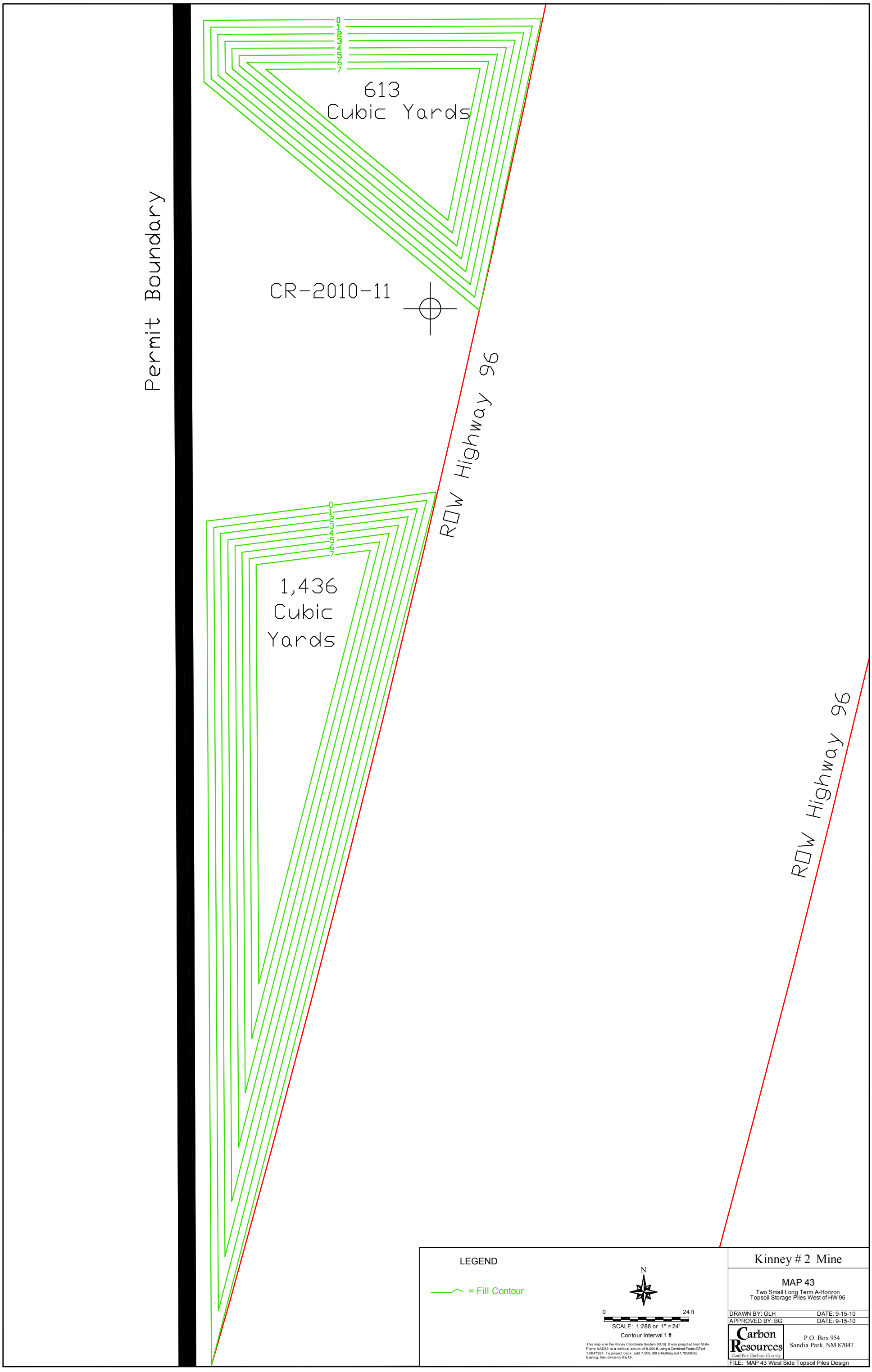
DRAWN BY: GLH DATE: 9-15-10

APPROVED BY: GLH DATE: 9-15-10

Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047

FILE: MAP 41 volume A fill design


HW 96 ROW
Planned Constructed Topography
7680
7690
7700
7710
7720
7730
Volume B
Approx. 18,223
Cubic Yards
LEGEND
7741.28 = Top Elevation
10.45 = Fill Thick
6.10 = Fill Cubic Yard
Per 10 ft. Square
= Fill Contour Thickness
= Fill ZERO Contour
See Map 38 for location
of this TS Stock Pile
N
0
24 ft
SCALE: 1:288 or 1" = 24'
Contour Interval 10 ft
This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.
Kinney # 2 Mine
MAP 42
A-Horizon Topsoil VOLUME B
Main Long Term Storage
DRAWN BY: GLH
DATE: 9-15-10
APPROVED BY: BG
DATE: 9-15-10
Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047
FILE: MAP 42 VOLUME B A-HZ Topsoil Design


Permit Boundary
613
Cubic Yards
CR-2010-11
ROW Highway 96
1,436
Cubic
Yards
ROW Highway 96
LEGEND
= Fill Contour
N
0
24 ft
SCALE: 1:288 or 1" = 24'
Contour Interval 1 ft
This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.
Kinney # 2 Mine
MAP 43
Two Small Long Term A-Horizon
Topsoil Storage Piles West of HW 96
DRAWN BY: GLH
DATE: 9-15-10
APPROVED BY: BG
DATE: 9-15-10
Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047
FILE: MAP 43 West Side Topsoil Piles Design

# VOLUME C
# Extra A-Horizon TS Storage
# Approx. 2,000 Cubic Yards

HW 96 ROW

7730
7720
7710
7680
7690
7700
7710
7720
7730

LEGEND

7741.28 = Top Elevation
10.45 = Fill Thick
6.10 = Fill Cubic Yard
Per 10 ft. Square
= Fill Contour Thickness
= Fill ZERO Contour
See Map 38 for location of this fill

N

0 24 ft

SCALE: 1:288 or 1" = 24'

Contour Interval 2 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Kinney # 2 Mine

MAP 44
A-Horizon Topsoil VOLUME C
EXTRA Storage Design

DRAWN BY: GLH DATE: 9-10-2010
APPROVED BY: GLH DATE: 9-15-2010

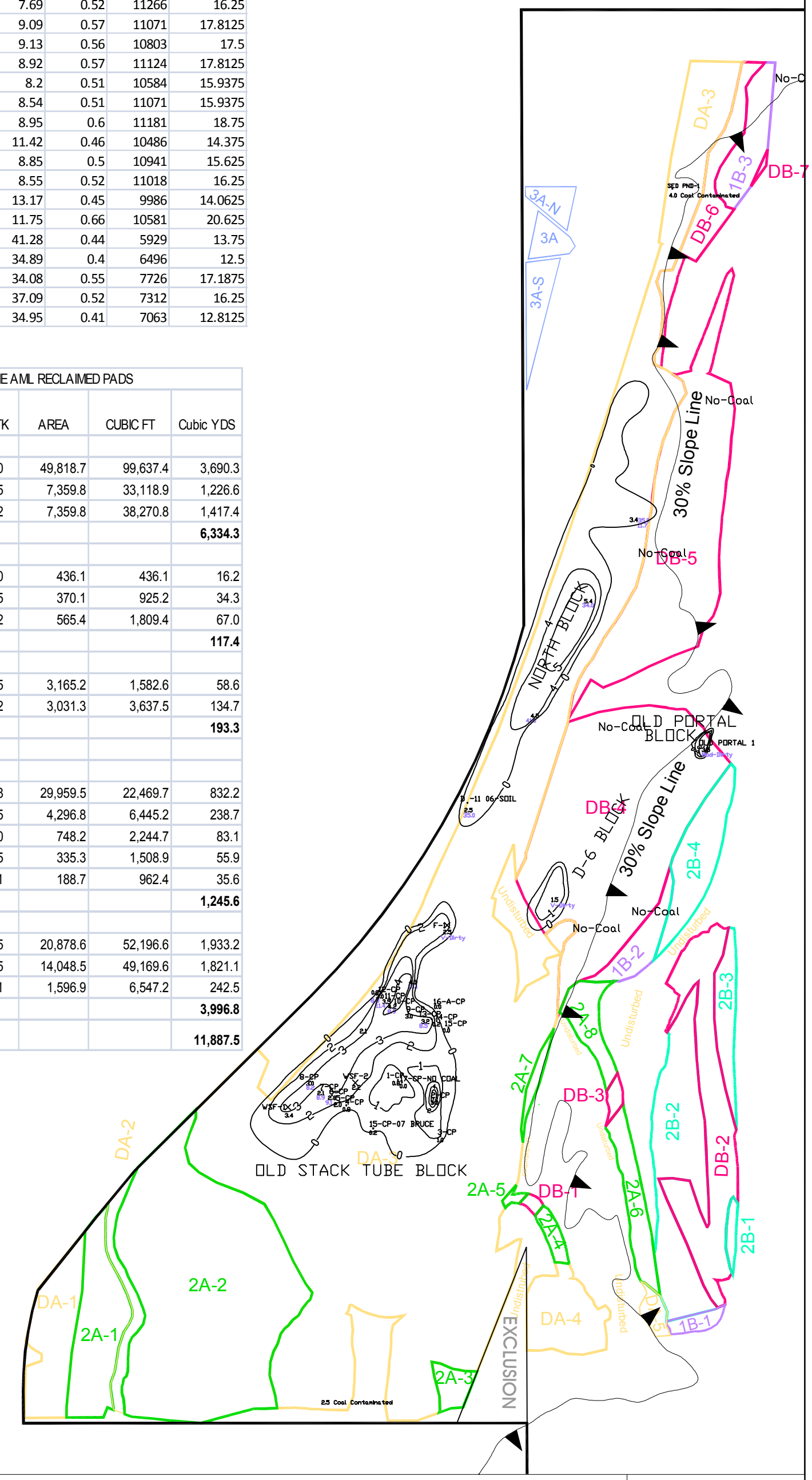
Carbon Resources
Coal For Carbon County

P.O. Box 954
Sandia Park, NM 87047

FILE: MAP 44 VOLUME C Extra TS Storage

| RECLAIMED COAL, October 2007 SGS Lab Analysis | | | | | | |
|---|---|---|---|---|---|---|
| | | As Received Basis | | | | Acid |
| Sample ID | Location | Moisture | Ash | Sulfur | Btu/lb | Potential* |
| 4-CP | Old Stack Tube | 9.92 | 7.69 | 0.52 | 11266 | 16.25 |
| 5-CP | Old Stack Tube | 9.6 | 9.09 | 0.57 | 11071 | 17.8125 |
| 6-CP | Old Stack Tube | 9.86 | 9.13 | 0.56 | 10803 | 17.5 |
| 7-CP | Old Stack Tube | 9.16 | 8.92 | 0.57 | 11124 | 17.8125 |
| 8-CP | Old Stack Tube | 12.09 | 8.2 | 0.51 | 10584 | 15.9375 |
| 9-CP | Old Stack Tube | 9.51 | 8.54 | 0.51 | 11071 | 15.9375 |
| 10-CP | Old Stack Tube | 8.81 | 8.95 | 0.6 | 11181 | 18.75 |
| 11-CP | Old Stack Tube | 10.61 | 11.42 | 0.46 | 10486 | 14.375 |
| 12-CP | Old Stack Tube | 9.46 | 8.85 | 0.5 | 10941 | 15.625 |
| 13-CP | Old Stack Tube | 10.42 | 8.55 | 0.52 | 11018 | 16.25 |
| 15-CS-1 | Old Stack Tube | 9.22 | 13.17 | 0.45 | 9986 | 14.0625 |
| 9-B | North Block | 8.48 | 11.75 | 0.66 | 10581 | 20.625 |
| D-4 | North Block | 12.47 | 41.28 | 0.44 | 5929 | 13.75 |
| DA-9-B | North Block | 15.19 | 34.89 | 0.4 | 6496 | 12.5 |
| D9-A Coal | North Block | 7.29 | 34.08 | 0.55 | 7726 | 17.1875 |
| D9-A | North Block | 6.81 | 37.09 | 0.52 | 7312 | 16.25 |
| D-11 | North Block | 11.33 | 34.95 | 0.41 | 7063 | 12.8125 |

| RECLAIMED COAL VOLUME AML RECLAIMED PADS | | | | | |
|---|---|---|---|---|---|
| BLOCK | ZONE | AVG TK | AREA | CUBIC FT | Cubic YDS |
| **NORTH High Ash** | | | | | |
| ~30 to 42% Ash | 0-4 ft. | 2.0 | 49,818.7 | 99,637.4 | 3,690.3 |
| ~30 to 42% Ash | 4-5 ft. | 4.5 | 7,359.8 | 33,118.9 | 1,226.6 |
| ~30 to 42% Ash | | 5.2 | 7,359.8 | 38,270.8 | 1,417.4 |
| **TOTAL** | | | | | **6,334.3** |
| | | | | | |
| **OLD Portal** | 0-2 ft. | 1.0 | 436.1 | 436.1 | 16.2 |
| Mod Ash ~13% | 2-3 ft. | 2.5 | 370.1 | 925.2 | 34.3 |
| | 3+ ft. | 3.2 | 565.4 | 1,809.4 | 67.0 |
| **TOTAL** | | | | | **117.4** |
| | | | | | |
| **D-6 Block High Ash** | 0-1 ft. | 0.5 | 3,165.2 | 1,582.6 | 58.6 |
| ~ 35% | 1+ ft. | 1.2 | 3,031.3 | 3,637.5 | 134.7 |
| **TOTAL** | | | | | **193.3** |
| | | | | | |
| **OLD Stack Tube** | | | | | |
| Mod Ash <14% | 0-1 + 2 | 0.8 | 29,959.5 | 22,469.7 | 832.2 |
| Mod Ash <14% | 1-2 ft. | 1.5 | 4,296.8 | 6,445.2 | 238.7 |
| Mod Ash <13% | 2-4 ft. | 3.0 | 748.2 | 2,244.7 | 83.1 |
| Mod Ash <12% | 4-5 ft. | 4.5 | 335.3 | 1,508.9 | 55.9 |
| Mod Ash <12% | 5 + | 5.1 | 188.7 | 962.4 | 35.6 |
| **SUB-TOTAL** | | | | | **1,245.6** |
| | | | | | |
| Low Ash <10% | 2-3 ft. | 2.5 | 20,878.6 | 52,196.6 | 1,933.2 |
| Low Ash <10% | 3-4 ft. | 3.5 | 14,048.5 | 49,169.6 | 1,821.1 |
| Low Ash <10% | 4 + | 4.1 | 1,596.9 | 6,547.2 | 242.5 |
| **SUB-TOTAL** | | | | | **3,996.8** |
| **TOTAL** | | | | | **11,887.5** |




SOIL TYPES and Planned Disturbance Areas

- DA Disturbed Lands, 0-20% Slopes
- DB Disturbed Lands, 20-50% Slopes
- 2A Typic Arglixeroll-Typic Haploxeroll Complex,0-35% Slopes
- 1B Typic Argicryoll Consociaion, 35-70% Slopes
- 2B Typic Argixeroll Consociation, 35-70% Slopes
- 3A Cumulic Haplocryoll, 0-3% Slopes

LEGEND

- 15 CP — Coal Pit Thickness Measurement Point. Some are also Sample Points with Ash Content Posted.
- 2.3 Coal Thickness ft.
- 9.1 % Ash Content
- 1.0 — Reclaimed Coal Thickness Contour
- Averaged 30% Slope Break Line, Barbs Point Up-Hill
- Permit Boundary (Portal Block)

N

0 200 ft

SCALE: 1:2,400 or 1" = 200'

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

# Kinney # 2 Mine

## Map 45

RECLAIMED COAL Thickness & Top Soil to be DISTURBED

| | |
|---|---|
| DRAWN BY: GLH | DATE: 9-1-2010 |
| APPROVED BY: BG | DATE: 9-15-2010 |


Carbon Resources
Coal For Carbon County
P.O. Box 954
Sandia Park, NM 87047


FILE: Map 45 Reclaimed Coal

# EXHIBIT 1

# Documentation of Existing Site Conditions

**Refer to Map 14 For Photograph Locations**

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

180 Degree Panorama

# EXHIBIT 2

# Prime Farmland Determination

NRCS
Natural Resources Conservation Service
240 West Highway 40 333-4
Roosevelt, UT 84066
(435) 722-4621
FAX (435) 722-9065

March 9, 2006

Ben Grimes
Hansen, Allen & Luce Engineers
23 South Carbon Avenue, Suite #21
P.O. Box 777
Price, UT 84501

Re: Prime, State Important and Unique Farmlands Determination for Kinney No. 2 Mine, near Scofield, UT; Job # 308.01.100

Dear Mr. Grimes:

We have reviewed your request for a determination of prime, state important and unique farmlands.

The soils do not meet the criteria for prime, state important or unique farmlands for one or more of the following reasons:

1. The soils have a temperature regime that is Cryic. The mean summer temperature is less than 59 degrees F. (15 degrees C.); and or

2. The product of K (erodibility factor) x percent slope is greater than 2.0 for prime farmlands, and is greater than 5.0 for state important farmlands; and or

3. More than 10 percent of the surface layer (upper 6 inches) in these soils consists of rock fragments coarser than 3 inches (7.6 cm); and or

4. The soils have a pH of greater than 8.6 in some horizons within a depth of 20 inches; and or

5. The area does not have a developed irrigation system that is of adequate quality or quantity to grow the commonly grown crops adapted to the region in 7 or more years out of 10; and or

6. The area is urban land.

7. Carbon County has not designated any lands as unique farmlands.

I am enclosing a Form AD-1006, FARMLAND CONVERSION IMPACT RATING for your use.

Robert H. Fish
Soil Scientist

Cc: Wayne Greenhalgh, DC, NRCS, Price, UT

Enclosure

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

Step 1 – Federal agencies involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form.

Step 2 – Originator will send copies A, B and C together with maps indicating locations of site(s), to the Natural Resources Conservation Service (NRCS) local field office and retain copy D for their files. (Note: NRCS has a field office in most counties in the U.S. The field office is usually located in the county seat. A list of field office locations are available from the NRCS State Conservationist in each state).

Step 3 – NRCS will, within 45 calendar days after receipt of form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland.

Step '4 – In cases where farmland covered by the FPPA will be converted by the proposed project, NRCS field offices will complete Parts II, IV and V of the form.

Step 5 – NRCS will return copy A and B of the form to the Federal agency involved in the project. (Copy C will be retained for NRCS records).

Step 6 – The Federal agency involved in the proposed project will complete Parts VI and VII of the form.

Step 7 – The Federal agency involved in the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA and the agency's internal policies.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

**Part I:** In completing the "County And State" questions list all the local governments that are responsible for local land controls where site(s) are to be evaluated.

**Part III:** In completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them.

2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities) that will cause a direct conversion.

**Part VI:** Do not complete Part VI if a local site assessment is used.

Assign the maximum points for each site assessment criterion as shown in § 658.5 (b) of CFR. In cases of corridor-type projects such as transportation, powerline and flood control, criteria #5 and #6 will not apply and will, be weighed zero, however, criterion #8 will be weighed a maximum of 25 points, and criterion #11 a maximum of 25 points.

Individual Federal agencies at the national level, may assign relative weights among the 12 site assessment criteria other than those shown in the FPPA rule. In all cases where other weights are assigned relative adjustments must be made to maintain the maximum total weight points at 160.

In rating alternative sites, Federal agencies shall consider each of the criteria and assign points within the limits established in the FPPA rule. Sites most suitable for protection under these criteria will receive the highest total scores, and sites least suitable, the lowest scores.

**Part VII:** In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, adjust the site assessment points to a base of 160. Example: if the Site Assessment maximum is 200 points, and alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \times 160 = 144 \text{ points for Site "A."}$$

U.S. Department of Agriculture

# FARMLAND CONVERSION IMPACT RATING

| **PART I** *(To be completed by Federal Agency)* | Date Of Land Evaluation Request 3/8/06 |
|---|---|
| Name Of Project Kinney No. 2 Mine (Scofield, UT) | Federal Agency Involved |
| Proposed Land Use Coal Mine | County And State Carbon County, Utah |
| **PART II** *(To be completed by NRCS)* | Date Request Received By NRCS 3/8/06 |

| Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply -- do not complete additional parts of this form).* | Yes ☐ | No ☑ | Acres Irrigated | Average Farm Size |
|---|---|---|---|---|
| Major Crop(s) | Farmable Land In Govt. Jurisdiction Acres: % | | Amount Of Farmland As Defined in FPPA Acres: % | |
| Name Of Land Evaluation System Used | Name Of Local Site Assessment System | | Date Land Evaluation Returned By NRCS | |

| **PART III** *(To be completed by Federal Agency)* | Alternative Site Rating | | | |
|---|---|---|---|---|
| | Site A | Site B | Site C | Site D |
| A. Total Acres To Be Converted Directly | | | | |
| B. Total Acres To Be Converted Indirectly | | | | |
| C. Total Acres In Site | 0.0 | 0.0 | 0.0 | 0.0 |
| **PART IV** *(To be completed by NRCS)* Land Evaluation Information | | | | |
| A. Total Acres Prime And Unique Farmland | | | | |
| B. Total Acres Statewide And Local Important Farmland | | | | |
| C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted | | | | |
| D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value | | | | |
| **PART V** *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)* | 0 | 0 | 0 | 0 |

| **PART VI** *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)* | Maximum Points | | | | |
|---|---|---|---|---|---|
| 1. Area In Nonurban Use | | | | | |
| 2. Perimeter In Nonurban Use | | | | | |
| 3. Percent Of Site Being Farmed | | | | | |
| 4. Protection Provided By State And Local Government | | | | | |
| 5. Distance From Urban Builtup Area | | | | | |
| 6. Distance To Urban Support Services | | | | | |
| 7. Size Of Present Farm Unit Compared To Average | | | | | |
| 8. Creation Of Nonfarmable Farmland | | | | | |
| 9. Availability Of Farm Support Services | | | | | |
| 10. On-Farm Investments | | | | | |
| 11. Effects Of Conversion On Farm Support Services | | | | | |
| 12. Compatibility With Existing Agricultural Use | | | | | |
| TOTAL SITE ASSESSMENT POINTS | 160 | 0 | 0 | 0 | 0 |
| **PART VII** *(To be completed by Federal Agency)* | | | | | |
| Relative Value Of Farmland *(From Part V)* | 100 | 0 | 0 | 0 | 0 |
| Total Site Assessment *(From Part VI above or a local site assessment)* | 160 | 0 | 0 | 0 | 0 |
| TOTAL POINTS *(Total of above 2 lines)* | 260 | 0 | 0 | 0 | 0 |

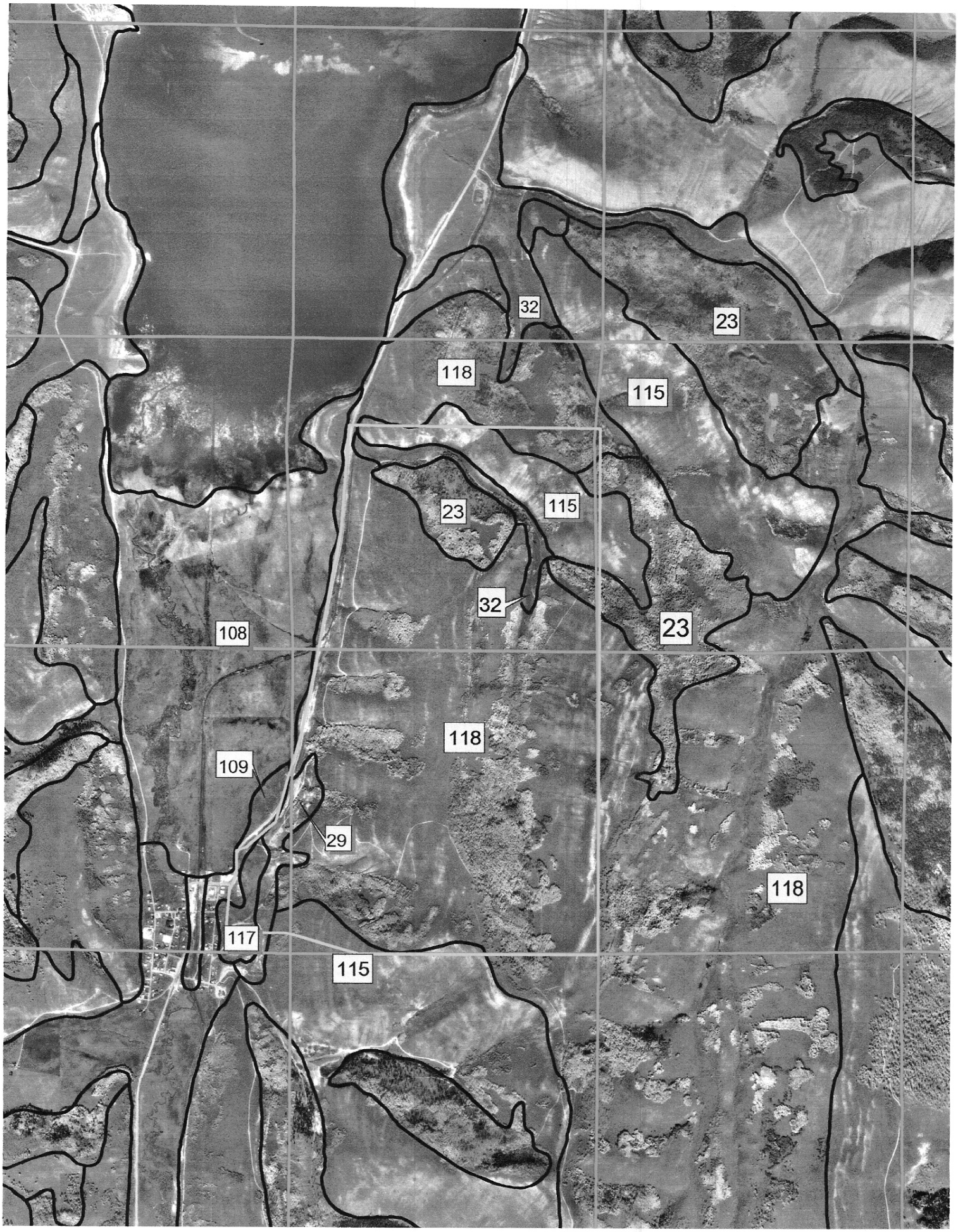
| Site Selected: | Date Of Selection | Was A Local Site Assessment Used? Yes ☐ No ☐ |
|---|---|---|

Reason For Selection:

*(See Instructions on reverse side)*

Form AD-1006 (10-83)

This form was electronically produced by National Production Services Staff


32
23
118
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108
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29
118
117
115

HANSEN ALLEN & LUCE INC.

23 South Carbon Ave, Suite #21
Price, Utah 84501
Phone: (435) 636-8269
Fax: (435) 636-8269

# *Fax Transmission*

**Consulting Engineers Specializing in Water Resources, Civil Engineering and the Environment**

| | |
|---|---|
| To: ROBERT FISH NRCS | |
| Date: 3/8/06 | Fax#: 435-722-9065 |
| Job #: 308.01.100 | Project: |

| NO. PAGES | DATE | ITEM |
|---|---|---|
| 2 | | |
| | | |

**SUBMITTED**

| | |
|---|---|
| ☐ For Approval | ☑ For Review & Comments |
| ☐ As Requested | ☐ For Use |
| ☐ Approved as Submitted | ☐ Returned for Corrections |
| ☐ Approved as Noted | ☐ Other _____ |

Copies to:

## Services

- Regulatory Coordination and Permitting
- Complex Analytical Analyses
- Studies
- Master Planning
- Design
- Services During Construction
- Litigation Support

## Areas of Specialization

- Water Supply
- Wastewater Disposal
- Storm Drainage and Flood Control
- Hydrology
- Hydraulics
- Water Quality Management
- Solid and Hazardous Waste
- Environmental Permitting

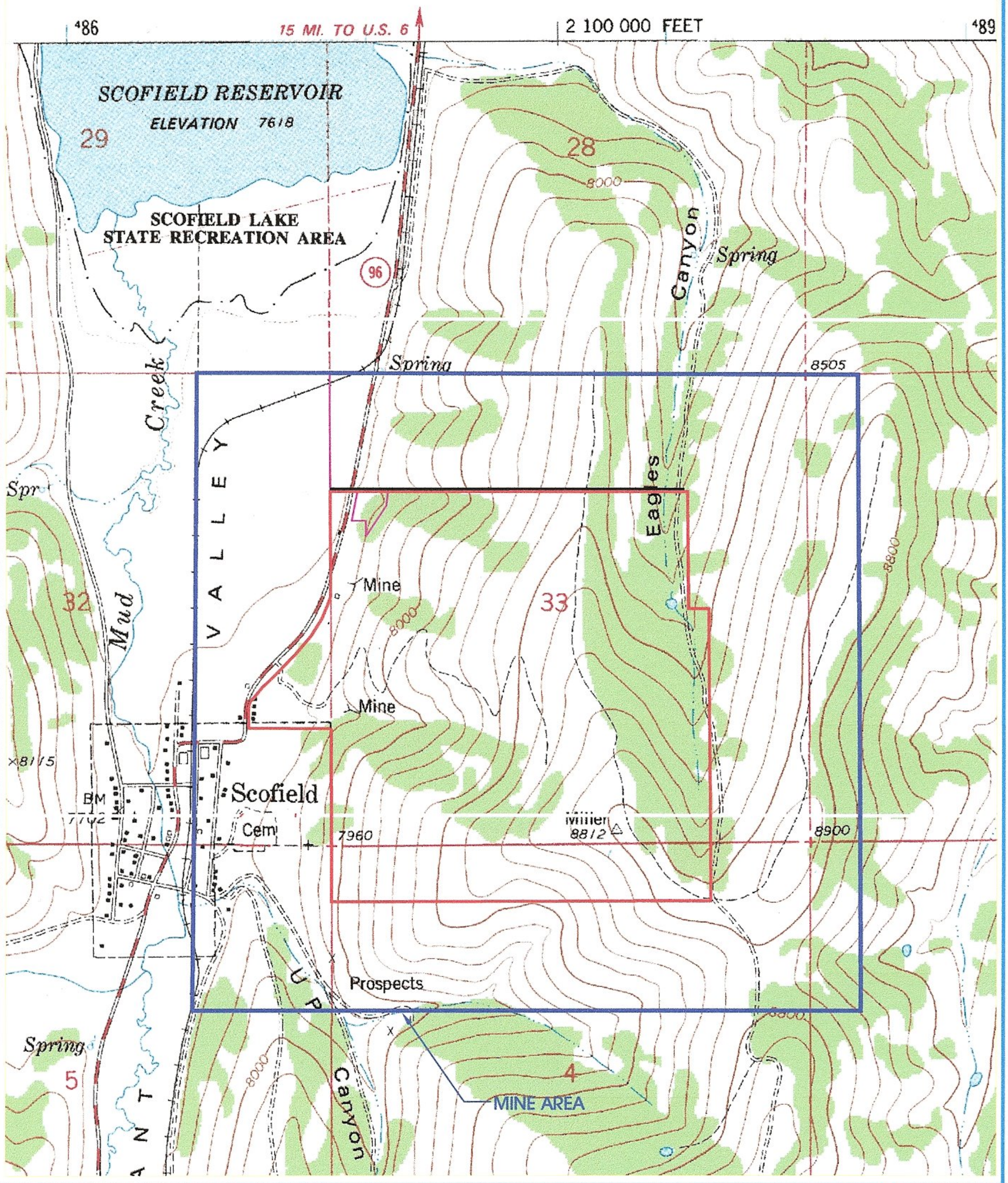
**GENERAL COMMENTS**

PLEASE PROVIDE PRIME FARMLAND DETERMINATION FOR:
- KINNEY No. 2 MINE -
- AREA SHOWN ON ATTACHED MAP
- SEND TO: BEN GRIMES
HANSEN, ALLEN & LUCE ENGINEERS
P.O. BOX 777
PRICE, UT 84501

Signed:

# SCOFIELD QUADRANGLE
## UTAH
## 7.5 MINUTE SERIES (TOPOGRAP

NW/4 SCOFIELD 15' QUADRANGLE




HANSEN ALLEN & LUCE Inc
ENGINEERS

# KINNEY NO. 2 MINE
# PRIME FARMLAND DETERMINATION REQUEST

FIGURE
1

# EXHIBIT 4

**UDOT Highway Access Permit**

**MSHA Permit**

**Carbon County Conditional Use Permit**

**Utah DNR Div. of Water Rights, Small Dam Permit (Negative Determination)**

**Utah Department of Commerce License Number**

**Dwelling within 300 Feet Waiver Letter**

**Raptor Nest #1541 Permit with US Fish & Wildlife Service**

**Environmental Citations**

**NPDES Proof of Coverage**

# UDOT Highway Access Permit

UDOT Keeping Utah Moving
Access Management Program

# CONDITIONAL ACCESS PERMIT

## GENERAL INFORMATION

| Issuance Date | Region | Project Name | OLP Application ID |
|---|---|---|---|
| 2/27/2019 | Region 4 | Kinney No. 2 Mine | 92021 |
| **Physical Address** | **City** | **Permit Type** | **Access Use Type** |
| 1/4 mile south of Scofield Utah | SCOFIELD | New | Commercial |

## PERMITEE INFORMATION

| Property Owner Name | Primary Contact | Primary Phone | Email |
|---|---|---|---|
| Coal Energy Group 3, LLC | Larry Johnson | (435) 691-2983 | ljohnson@altoncoal.com |

## LOCATION, WIDTH, AND ACCESS CATEGORY INFORMATION

| State Route | Milepost Marker | DD Center Latitude | DD Center Longitude | Access Width | Access Category |
|---|---|---|---|---|---|
| 0096 | 6.25 | | | 35 | 4 - Regional Rural |
| 0096 | 6.25 | 39.7287154 | -111.1583322 | 35 | 4 - Regional Rural |
| 0096 | 6.252 | 39.7287147 | -111.1582848 | 35 | 4 - Regional Rural |

A Conditional Access Permit is hereby authorized subject to the Utah Department of Transportation's (the Department's) Access Management Rule (Utah Administrative Code R-930-6), the Utility Accommodation Rule (Utah Administrative Code R930-7), the Standard Specifications for Road and Bridge Construction, and any terms, conditions, and limitations set forth herein. Per Utah Administrative Code R930-6-8(6)(g), a Conditional Access Permit shall expire if the access construction is not completed within twelve (12) months of the issuance date as identified at the top left of this document.

By carrying out the activities authorized by this approval the permittee and the permittee's successors in interests and/or assigns agree to accept all terms, conditions, and, limitations, of the approval including any attachments submitted with the Conditional Access Permit Application. In addition, the permittee certifies they will comply with all applicable regulations, properly control and warn the public of said work to prevent accident, and shall defend, indemnify and hold harmless the Department from all damages arising out of any and all operations performed during construction and operation of said access. Per Utah Administrative Code R930-6-8(5)(e), the permittee understands any intentional misrepresentation of existing or future conditions or of information requested for the application for the purposes of receiving a more favorable determination is sufficient grounds for permit revocation. The access allowed under this permit creates a license to only access a state highway to the extent provided in the permit. The access may be closed, modified or relocated by UDOT if, at any time, UDOT determines in its sole discretion that safety, efficiency or other reasons so require. UDOT will not be liable for any costs, losses or damages resulting from UDOT's review and comments on the submitted plan sets for a Conditional Access Permit.

PERMIT

**This conditional access permit does NOT allow construction or other activities within a state right-of-way. An encroachment permit must be separately applied for and issued before any construction within a state right-of-way may commence. Work on UDOT's right-of-way is seasonally restricted from October 15 to April 15. Work is not allowed on the right-of-way during the AM/PM peak traffic hours of 6:00 A.M. to 9:00 A.M. and 3:30 P.M. to 6:00 P.M. Some exceptions to this A.M./P.M. peak travel work restriction may be permissible for low AADT routes in rural areas. Any such exception requires special Region approval and must be explicitly stated on the approved encroachment permit.**

| Authorizing Name (printed) | Kurt McFarlane | Authorizing Name (signed) | Kurt McFarlane |
|---|---|---|---|

## TERMS, CONDITIONS, AND LIMITATIONS

**Special Limiations:** Need a 18" Culvert under the Access and not under the Highway.
Asphalt needs to be 7" thick on the turn lanes

1. A copy of this permit must be posted in a conspicuous location and be available for immediate review at the location of the permitted activity. No exceptions.
2. This agreement and/or permit is UDOT approval only. The permittee is responsible for obtaining clearances, authorizations, or permits from railroads, private property owners, other utility owners, and other government agencies as may also be required.
3. By the accepting this permit, the permittee acknowledges the hazardous nature of conducting activities within the right-of-way and assumes full responsibility in the event of an accident or other incident involving death, injury, or damages to any party resulting from the permittee's authorized use of the right-of-way.
4. All work performed under this permit must be in accordance with UDOT approved plans and standard drawings unless otherwise stated in writing.
5. The primary function of the highway is for transportation purposes. All other highway purposes are subordinate to this primary purpose. By conducting the activities authorized by this permit, the permittee agrees to timely prosecute the permitted activities in a manner that minimizes transportation-related impacts including but not limited to; ensuring overall site safety as an overarching priority, and by applying systematic efforts to minimize, or shorten, the project schedule.

# PRE-APPLICATION MEETING SUMMARY

**Pre-App Number: PA-91589**

| Property Owner Information | | Applicant Information | |
|---|---|---|---|
| Name: | Coal Energy Group 3, LLC | Name: | Coal Energy Group 3, LLC |
| Mailing Address: | 6602 Ilex Circle | Mailing Address: | 2850 E. Crimson Ridge Drive |
| City, State, Zip: | Naples Florida 34109, | City, State, Zip: | St. George, UT 84790 |
| Email: | ljohnson@altoncoal.com | Email: | ljohnson@altoncoal.com |
| Phone: | 4356912983 | Phone: | 4356912983 |

## Purposed Access Information

| | | | |
|---|---|---|---|
| Physical Address: | 1/4 mile south of Scofield Utah | Parcel Number: | 1 |
| State Route ID: | 0096 | Milepost Marker: | 6.25 |
| Latitude: | 39.731209 | Longitude: | 111.15617 |
| Access Width(in feet): | 26 | Access Use: | Commercial |
| Access Category: | Regional Rural | Side of Highway: | East |

## PROJECT NAME AND BRIEF SCOPE OF WORK DESCRIPTION

Kinney No. 2 Mine

Coal Energy Group 3, LLC is proposing an intersection on Highway 96 for the purpose to access the proposed Kinney No. 2 coal mine. This proposed intersection was approved by UDOT March 11, 2011 on behalf of Carbon Resources, LLC. At that time Carbon Resources planned on opening the Kinney No. 2 mine, but plans were scrapped. CEG3 proposes the same design and construction, with no changes, that the intersection was previously approved under.

| Meeting Date | Time Spent | Participant Name | Representing | Email | Phone |
|---|---|---|---|---|---|
| 12-FEB-19 | | Kurt McFarlane | UDOT | kmcfarlane@utah.gov | 4356501156 |
| | | Larry Johnson | Mine | | |

**Total Time Spent:**

**Access Application Review Level Fee:** **$475.00**

## SITE PLAN / ACCESS NOTES

18" culvert needed under Access road

## TRAFFIC IMPACT STUDY NOTES

If turn lanes are built as per design then a traffic impact study is not required

## TIS WAIVER

**Approved:** Y **Name:** Kurt McFarlane **Title:** Permit Officer

## UTILITIES NOTES

Must have a permit to run any Utilities in the ROW

## DRAINAGE NOTES

Need culvert at access. No water from the access can run onto Highway

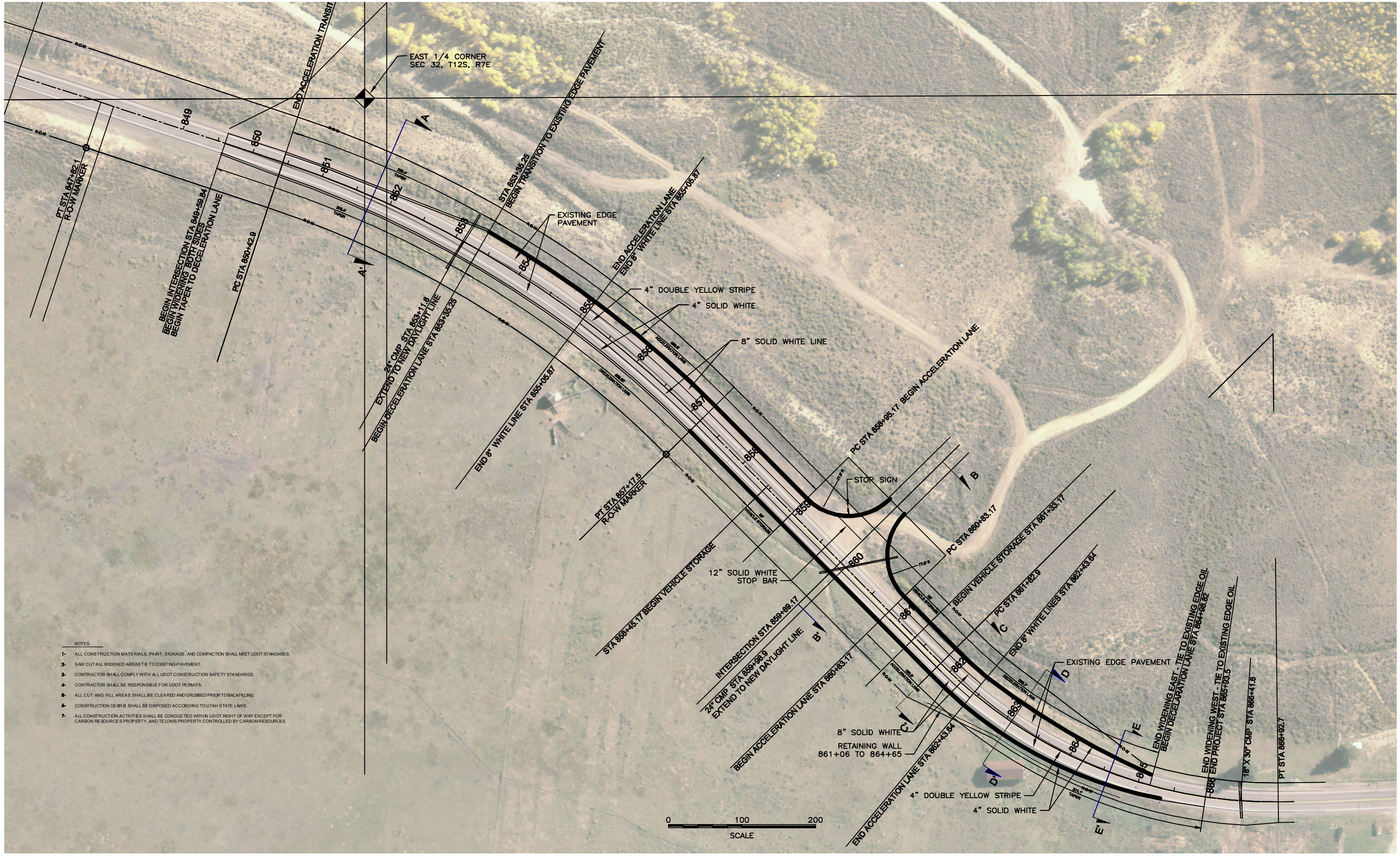
## OTHER NOTES

NA

## Required Default Documents

Plan Set

## Documents Required / Identified at Pre-Application Meeting




NOTES

1- ALL CONSTRUCTION MATERIALS, PAINT, SIGNAGE, AND COMPACTION SHALL MEET UDOT STANDARDS.
2- SAW CUT ALL WIDENED AREAS TIE TO EXISTING PAVEMENT.
3- CONTRACTOR SHALL COMPLY WITH ALL UDOT CONSTRUCTION SAFETY STANDARDS.
4- CONTRACTOR SHALL BE RESPONSIBLE FOR UDOT PERMITS.
5- ALL CUT AND FILL AREAS SHALL BE CLEARED AND GRUBBED PRIOR TO BACKFILLING.
6- CONSTRUCTION DEBRIS SHALL BE DISPOSED ACCORDING TO UTAH STATE LAWS.
7- ALL CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED WITHIN UDOT RIGHT OF WAY EXCEPT FOR CARBON RESOURCES PROPERTY, AND TELONIS PROPERTY CONTROLLED BY CARBON RESOURCES.

BEN GRIMES, P.L.S.
795 W. TWIN PEAKS RD.
ELMO, UTAH 84521
(435)653-2304

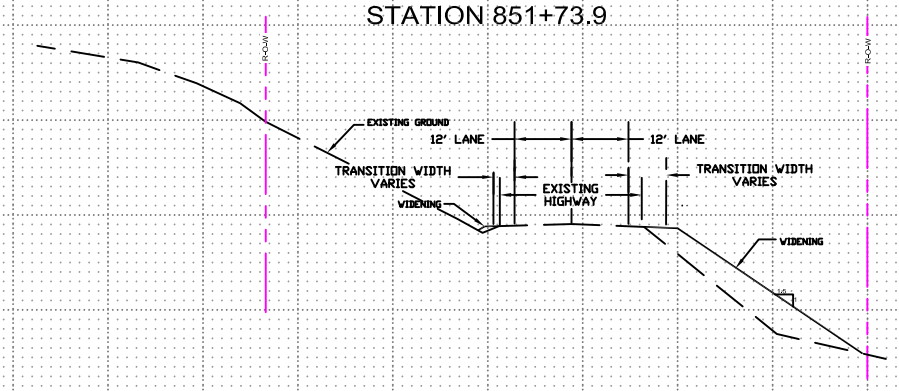
| | | | | | |
|---|---|---|---|---|---|
| DESIGNED | B.G. | 3 | | | |
| DRAFTED | B.G. | 2 | | | |
| CHECKED | G.H. | 1 | | | |
| DATE | 7-10 | NO. | DATE | REVISIONS | BY / APVD. |

SCALE: AS SHOWN

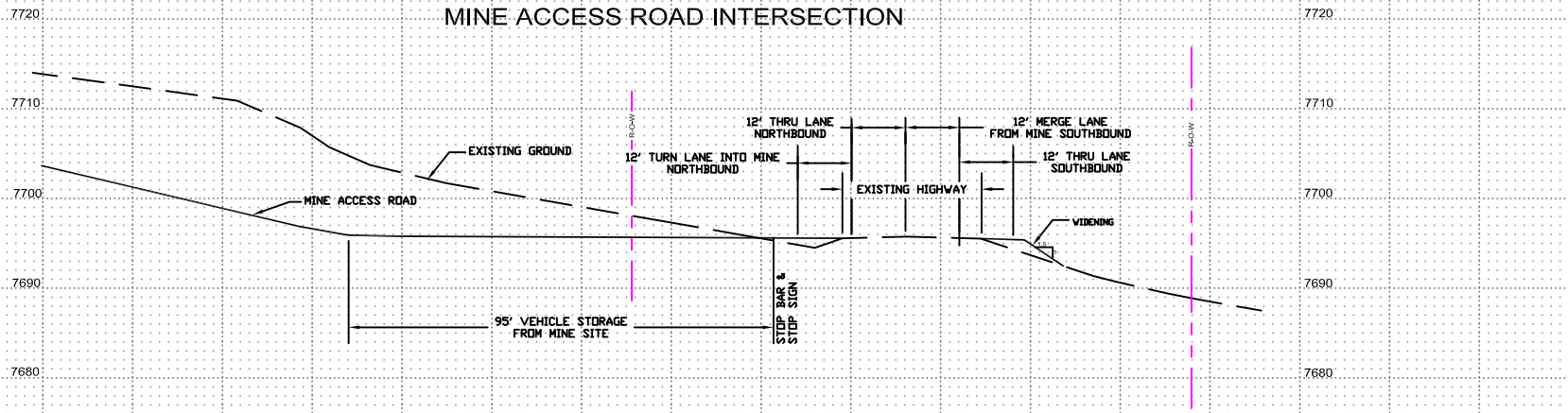
# KINNEY MINE INTERSECTION - SR 96
## PLAN

MAP 1 of 2

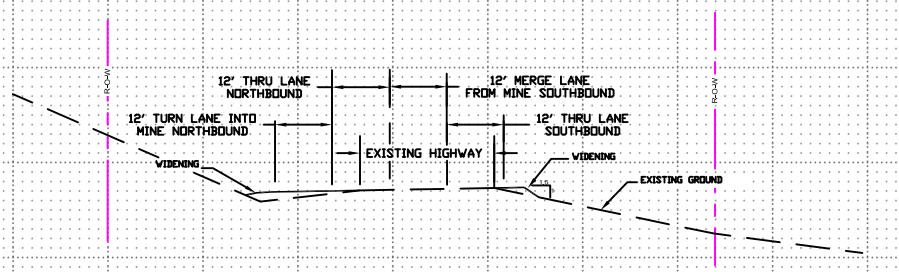
## SECTION A-A'
## STATION 851+73.9



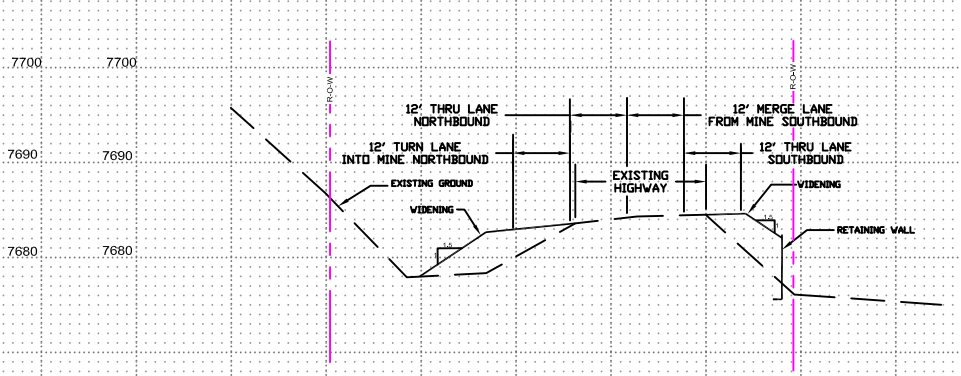

## SECTION B-B'
## STATION 859+89.2
## MINE ACCESS ROAD INTERSECTION



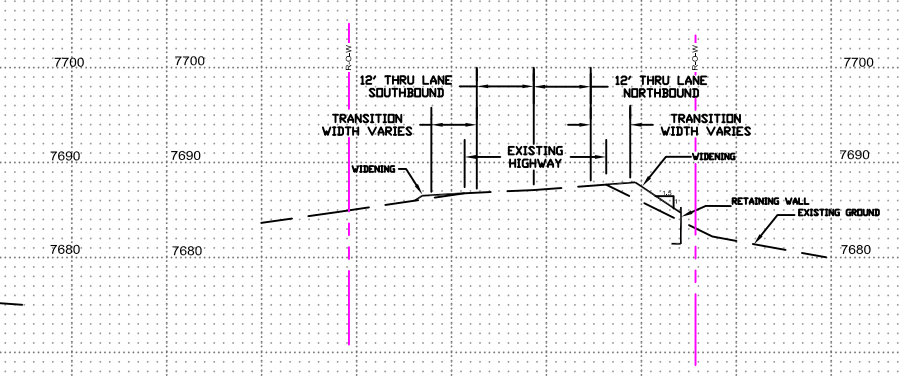

## SECTION C-C'
## STATION 861+82.9




## SECTION D-D'
## STATION 863+07.8

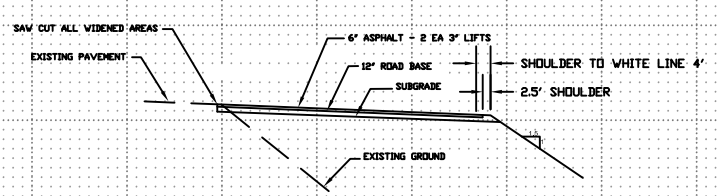



## SECTION E-E'
## STATION 864+58.9




## TYPICAL PAVEMENT SECTION

NOT TO SCALE





BEN GRIMES, P.L.S.
795 W. TWIN PEAKS RD.
ELMO, UTAH 84521
(435)653-2304


PROJECT ENGINEER

| | | | | | | |
|---|---|---|---|---|---|---|
| DESIGNED | B.G. | 3 | | | | |
| DRAFTED | B.G. | 2 | | | | |
| CHECKED | G.H. | 1 | | | | |
| DATE | 7-2010 | NO. | DATE | REVISIONS | BY | APVD. |

SCALE
HZ 1" = 20' ORIG.
1/2 SCALE 1"=40'

# KINNEY MINE INTERSECTION - SR 96
# CROSS SECTIONS

SHEET
2 of 2

MSHA Permit Number

# Carbon County Conditional Use Permit

**CONDITIONAL USE PERMIT**
**Carbon County Planning**
**120 East Main Street Price, Utah 84501**

THIS CERTIFICATE ISSUED AS PER SECTION 5.4 AND 4.2.17 OF THE DEVELOPMENT CODE OF CARBON COUNTY TO:

CARBON RESOURCES, LLC
c/o Gregory Hunt
PO Box 950
Sandia Park, New Mexico 87047

GRANTING A CONDITIONAL USE PERMIT TO CONSTRUCT AND OPERATE A COAL MINE IN SECTIONS 32 AND 33, TOWNSHIP 12 SOUTH, RANGE 7 EAST.

DATED: September 20, 2010

EXACTIONS:

1. Prior to any Building Permits being approved or issued all fees shall be paid.

2. Approval by all Agencies that govern, including the Utah Division of Oil, Gas, and Mining, and the Utah Division of Environmental Quality shall be required prior to any Building Permits or Business License being issued.

APPROVED

Dave Levanger
Director of Planning

# Utah DNR Div. of Water Rights, Small Dam Permit (Negative Determination)

GARY R. HERBERT
*Governor*
GREG BELL
*Lieutenant Governor*

# State of Utah
**DEPARTMENT OF NATURAL RESOURCES**
MICHAEL R. STYLER
*Executive Director*
**Division of Water Rights**
KENT L. JONES
*State Engineer/Division Director*

August 31, 2010

Ben Grimes
Carbon Resources, LLC
P.O. Box 954
Sandia Park, NM 87047

Re: Application to construct a small dam - Kinny No. 2 Mine

We have completed our review of your application to construct a small dam in Carbon County, Utah (section 33, T12S, R7E, SLB&M); the proposed structure will impound 3.18 acre-feet of water.

According to the application and attached drawings, the reservoir will be dug into the natural ground with no water storage above the natural grade. As such, this facility will not be considered to be a dam and Dam Safety approval is not necessary.

Water right issues must be resolved with the South Eastern regional office in Price, Utah. They can be contacted at 435-613-3750.

Sincerely,

David K. Marble, P.E.
Assistant State Engineer / Dam Safety

DKM/jm

cc: Marc Stilson – Regional Engineer
Hansen, Allen & Luce

# Exhibit 4

# Utah Department of Commerce

# Verification of Business Entity

# Dwelling within 300 Feet Waiver Letter

February 22, 2019

Larry W. Johnson
Coal Energy Group 3, LLC
2850 East Crimson Ridge Drive
St. George, Utah 84790

Dear Mr. Johnson:

As the owner of the property, Carbon County Parcel No. 1B-433-2, L2H Enterprises, Inc waives all objections to which Coal Energy Group 3, LLC seeks to secure a permit from the Utah Department of Oil, Gas and Mining to conduct coal mining, reclamation activities, and other mining activities and processes.

Said Property lies within 300 feet of the boundary of property Coal Energy Group 3, LLC seeks to secure in a permit from the Utah Department of Oil, Gas and Mining.

Very Truly yours

L2H Enterprises, Inc.

_____

By: Jim Levanger, Treasurer

February 9, 2009

Clay Wisdom, CFO
Carbon Resources, LLC
P.O. Box 11789
Albuquerque, NM 87192

Dear Mr. Wisdom:

As the owner of the property described on the attached Exhibit A, which property lies within 300 feet of the boundary of property upon which Carbon Resources, LLC seeks to secure a permit from the Utah Department of Oil, Gas and Minerals to conduct coal mining and reclamation activities, please be advised that we have no objection to those activities.

We waive any and all objections to your conducting coal mining and reclamation activities within 300 feet of our property.

Very truly yours,

L2H Enterprises, Inc.

By: Jim Levanger, President

# Exhibit 4

# US Fish & Wildlife Service

# Nest 1451 Deterrent Action

# Letter of Authorization

# &

# Utah Division of Wildlife Resources Concurrence

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
Migratory Bird Permit Office, Region 6

IN REPLY REFER TO:
USFWS/PERMITS

MAILING ADDRESS:
Post Office Box 25486
Denver Federal Center (60154)
Denver, Colorado 80225

STREET LOCATION:
134 Union Blvd.
Lakewood, Colorado 80228

April 26, 2011

Gregory Hunt
Carbon Resources LLC
P.O. Box 954
Sandia Park, NM 87047

Dear Mr. Hunt:

The letter serves as authorization for you and any other persons under direct control of, under contract to, or employed by you, to carry out activities only to the extent necessary in accomplishing the purpose authorized below.

**You are authorized to temporarily deter nesting activities of one (1) inactive Red-tailed Hawk (*Buteo jamaicensis*) or Swainson's Hawk (*Buteo swainsoni*) nest #1541, located at UTM coordinates 487008.6949 and 4397609.6045 Kinney No. 2 Mine, Carbon County, Utah during the 2011 breeding season. The nest must be verified that it is inactive before applying the nest deterrent.**

This authorization expires 90 days from the date of this letter and is issued for this one nest only. If the deterring of nest activities does not occur, please notify this office within five (5) days.

You and any other persons under direct control of, under contract to, or employed by you, shall comply with all mitigation efforts coordinated and approved by the U.S. Fish and Wildlife, Ecological Services Field Office, Salt Lake City, Utah (801) 975-3330.

You and any other persons under direct control of, under contract to, or employed by you, shall implement the above activities, and monitor the status of the nest during the 2011 breeding season.

A narrative summary of all activities conducted under this authorization shall be sent to the Migratory Bird Permit Office, Denver, Colorado.

This authorization is contingent upon approval of the Utah Department of Natural Resources, and a copy shall accompany anyone exercising its authority.

Sincerely,

for Janell Suazo
Chief, Migratory Bird Permit Office

Gmail by Google

**Ben Grimes <bagrimes@gmail.com>**

# Kinney Mine Nest #1541

5 messages

**Ben Grimes <bagrimes@gmail.com>** **Wed, Apr 27, 2011 at 4:22 PM**
To: leroymead@utah.gov

We got the Letter of Authorization from the USFWS. The letter says that we need Utah Dept. of Natural Resources approval also. What do we need from DNR/DWR? Time is of the essence, we would like to do the nesting deterrent this weekend since we are getting late in the nesting season.

I will try to get you by phone also, but I hear you have a new assignment and may be very busy.

Thanks,
Ben Grimes

**Leroy Mead <leroymead@utah.gov>** **Thu, Apr 28, 2011 at 8:23 AM**
To: Ben Grimes <bagrimes@gmail.com>

Ben,

I feel like I've already given my approval. If you want something more formal, then it will take weeks to run it through our Salt Lake office.

Leroy

435-613-3718 (office)
435-636-5359 (cell)

>>> Ben Grimes <bagrimes@gmail.com> 4/27/2011 4:22 PM >>>
[Quoted text hidden]

**Ben Grimes <bagrimes@gmail.com>** **Thu, Apr 28, 2011 at 12:24 PM**
To: Gregory Hunt <geohuntllc@gmail.com>, Joe Helfrich <joehelfrich@utah.gov>, nathan_darnall@fws.gov

[Quoted text hidden]

**Ben Grimes <bagrimes@gmail.com>** **Thu, Apr 28, 2011 at 12:24 PM**
To: Ben Grimes <ben.grimes@carbon.utah.gov>

[Quoted text hidden]

**Ben Grimes <bagrimes@gmail.com>** **Sat, Apr 30, 2011 at 11:23 AM**
To: Gregory Hunt <geohuntllc@gmail.com>

---------- Forwarded message ----------
From: **Leroy Mead** <leroymead@utah.gov>
Date: Thu, Apr 28, 2011 at 8:23 AM
Subject: Re: Kinney Mine Nest #1541
[Quoted text hidden]

# Exhibit 4

## VIOLATION INFORMATION

Information updated to March 24, 2019

**Coal Energy Group 3, LLC**
**Kinney #2 Mine**

| Permit Number | MSHA | Violation Number | Date of Issuance | Issuing Agency | State | Current Status of NOV |
|---|---|---|---|---|---|---|
| C070033 | ----------NO VIOLATIONS IN PRECEDING 3 YEARS---------- | | | | | |
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**Coal Energy Group 2, LLC**
**Wildcat Loadout**

| Permit Number | MSHA | Violation Number | Date of Issuance | Issuing Agency | State | Current Status of NOV |
|---|---|---|---|---|---|---|
| C070033 | ----------NO VIOLATIONS IN PRECEDING 3 YEARS---------- | | | | | |
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**Alton Coal Development, LLC**
**Coal Hollow Mine**

| Permit Number | MSHA | Violation Number | Date of Issuance | Issued to | Issuing Agency | State | Brief Description of NOV | Action taken to Abate NOV | Current Status of NOV |
|---|---|---|---|---|---|---|---|---|---|
| C250005 | 42-02519 | 21162 | 1/20/2016 | K.Nicholes | UDOGM | Utah | Failed to install drainage from the sump in pit 10 to its discharge point in Pond 3 according to the design found in Appendix 5-13. | Installed two pipes from Pit 10 Sump to Pond 3, that terminate under water | Terminated |
| C250005 | 42-02519 | 21163 | 1/20/2016 | K.Nicholes | UDOGM | Utah | Failure to have rough backfilling and grading follow coal removal by not more than 60 days. Mining ceased in HWT 2 with Panel 4E in July 2015. | Submitted plans that were reviewed and approved May 27, 2016 to backfill HWT 2. | Terminated |
| C250005 | 42-02519 | 21164 | 1/20/2016 | K.Nicholes | UDOGM | Utah | Failure to provide a plan for reclamation of the final Pit 10. | Submitted an ammendment for a plan to backfill Pit 10 utilizing material from a designated borrow area. | Terminated |
| C250005 | 42-02519 | 21165 | 3/9/2016 | K.Nicholes | UDOGM | Utah | 1. Failure to provide accurate, certified underground (UG) mine surface facilities map showing buildings; utility corridors; coal and non-coal waste disposal locations; and coal loading locations. 2. Failure to provide accurate certified map of UG mine water diversions, collection, conveyance and treatment structures. | Provided drawing 5-3B showing UG facilities. Made changes to Chapter 5 Text. | Terminated |
| C250005 | 42-02519 | 21166 | 3/9/2016 | K.Nicholes | UDOGM | Utah | Failure to correct structural weakness in pond 001 and 002 | Replaced gaskets for oil skimmer on the primary discharge culvert. | Terminated |
| C250005 | 42-02519 | 21167 | 3/9/2016 | K.Nicholes | UDOGM | Utah | 1. Failure to install adequate sediment control measures on the fill slopes surrounding the underground mine (UG).<br>2. Failure to install adequate sediment control within Pit 10 for the UG mine surface facility | Provided drawings and supporting text for drainage in Pit 10. | Terminated |
| C250005 | 42-02519 | 21174 | 4/6/2016 | K.Nicholes | UDOGM | Utah | Failure to follow the approved plan in Area 1, MRP, Vol 3, Chapter 5, pages 5-13 and page 5-21. Page 5-13: County road to be completed prior to mining activity so that public is routed around the mine. Page 5-21: construction of haul roads, pond 5 and pond 6, subsoil pile, topsoil pile and spoil pile all ditches and culverts completed prior to mining in Pit 1 or development of pit 1. | Completed County bypass road. | Terminated |
| C250005 | 42-02519 | 21183 | 6/3/2016 | K.Nicholes | UDOGM | Utah | Over excavation of excess spoil pile area. | An amendment to the MRP to include reclamation of the highwall left from overexcavation of the excess spoils pile was submitted and approved. | Terminated |
| C250005 | 42-02519 | 21185 | 9/7/2016 | K.Nicholes | UDOGM | Utah | Maintenance of ASCA-1 NPL | Made repairs to ASCA-1 | Terminated |
| C250005 | 42-02519 | 21191 | 12/8/2016 | K.Nicholes | UDOGM | Utah | Failure to protect topsoil NPL. | Removed topsoil from top of highwall and reestablished berm. | Terminated |
| C250005 | 42-02519 | 21193 | 3/15/2017 | K.Nicholes | UDOGM | Utah | Failure to store oil & grease in a controlled manner in a designated area of the permit area. | Removed unauthorized oil storage tank. | Terminated |
| C250005 | 42-02519 | 21194 | 3/15/2017 | K.Nicholes | UDOGM | Utah | Failure to maintain siltation structures and diversions at the underground facilities. | Submitted amendment to MRP to enlarge sump and dike in Pit 10. | Terminated |

Mine Data Retrieval System
as developed by PEIR

# Mine Citations, Orders, and Safeguards

## Current Mine Information

| | |
|---|---|
| **Mine ID:** | **4202639** |
| **Operator:** | **Alton Coal Development LLC** |
| **Opr. Begin Date:** | **11/25/2014** |
| **Mine Name:** | **Burton #1 Mine** |
| **Current Controller:** | **James J Wayland** |
| **Controller Start Date:** | **1/11/2009** |
| Mine Status: | Temporarily Idled |
| Status Date: | 11/22/2017 |
| Mined Material: | Coal (Bituminous) |
| Type of Mine: | Underground |
| Location: | Kane County, UT |
| State: | UT |

Operator History for Mine ID: **4202639**

| Operator Name | Begin Date | End Date |
|---|---|---|
| Alton Coal Development LLC | 11/25/2014 | |

**How do I use this information?** *Click Here*

**PLEASE NOTE:** The information provided by the Mine Data Retrieval System (MDRS) is based on data gathered from various MSHA systems. As there may be a lag time in data being entered into those systems, there will also be a lag in the reflection of that data on the MDRS.

Assessment data is not available prior to 1/1/1995

## Citations, Orders, and Safeguards

**The current operator Alton Coal Development LLC has been the operator since 11/25/2014**

Indicates violations pending hearings, appeals, and/or other actions.
Indicates violations that have not yet been assessed.
These are non-assessable.

— Assessment Process Overview

**Note: Vacated Citations are not included in any reports on the MDRS.**

| Violator | Contractor ID | Citation/Order No. | Case No. | Date Issued | Final Order Date | Section of Act | Date Terminated | Citation/ Order | S & S | Standard | Proposed Penalty ($) | Citation/Order Status | Current Penalty ($) | Amount Paid To Date ($) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alton Coal Development, LLC | | 9023327 | 0004354 19 | 2/1/2017 | 12/12/2017 | 104(d) (1) | 3/8/2017 | C | Y | 49.18(b)(1) | 37,900.00 | Closed | 3,200.00 | 3,200.00 |
| Alton Coal Development, LLC | | 9022808 | 0004354 19 | 2/1/2017 | 12/12/2017 | 104(d) (1) | 3/8/2017 | O | Y | 49.16(a) | 44,500.00 | Closed | 5,000.00 | 5,000.00 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alton Coal Development LLC | | 9022254 | 000425931 | 10/17/2016 | 2/6/2017 | 104(a) | 10/18/2016 | C | N | 47.51 | 114.00 | Closed | 114.00 | 114.00 |
| Alton Coal Development LLC | | 9022485 | 000421684 | 8/10/2016 | 12/5/2016 | 104(a) | 8/18/2016 | C | N | 49.13(g) | 114.00 | Closed | 114.00 | 114.00 |
| Alton Coal Development LLC | | 9022481 | 000419373 | 7/27/2016 | 11/7/2016 | 104(a) | 7/27/2016 | C | N | 75.1713-7(a)(1) | 114.00 | Closed | 114.00 | 114.00 |
| Alton Coal Development LLC | | 9023298 | 000416893 | 6/15/2016 | 9/14/2016 | 104(a) | 6/15/2016 | C | N | 75.370(a)(1) | 114.00 | Closed | 114.00 | 114.00 |
| Alton Coal Development LLC | | 9023290 | 000414659 | 5/25/2016 | 9/5/2016 | 104(a) | 5/25/2016 | C | N | 75.333(h) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 9022002 | 000412232 | 4/13/2016 | 8/8/2016 | 104(a) | 4/13/2016 | C | N | 75.1103-4(a)(1)(iii) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8481282 | 000407209 | 2/23/2016 | 5/13/2016 | 104(a) | 2/23/2016 | C | N | 75.701 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8481283 | 000407209 | 2/23/2016 | 5/13/2016 | 104(a) | 2/23/2016 | C | Y | 75.601-1 | 138.00 | Closed | 138.00 | 138.00 |
| Alton Coal Development LLC | | 8481257 | 000404901 | 1/20/2016 | 9/6/2016 | 104(a) | 1/20/2016 | C | N | 77.516 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8481254 | 000404901 | 1/20/2016 | 9/6/2016 | 104(a) | 1/20/2016 | C | N | 77.400(a) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8481256 | 000404901 | 1/20/2016 | 9/6/2016 | 104(a) | 1/20/2016 | C | Y | 77.505 | 207.00 | Closed | 207.00 | 207.00 |
| Alton Coal Development LLC | | 8483459 | 000404901 | 1/20/2016 | 9/6/2016 | 104(a) | 1/20/2016 | C | N | 75.1600-1 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8481255 | 000404901 | 1/20/2016 | 9/6/2016 | 104(a) | 1/20/2016 | C | N | 77.1110 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482838 | 000404901 | 1/20/2016 | 9/6/2016 | 104(a) | 1/20/2016 | C | N | 77.400(a) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8481258 | 000404901 | 1/20/2016 | 9/6/2016 | 104(a) | 1/20/2016 | C | N | 77.505 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482834 | 000402685 | 12/16/2015 | 3/27/2016 | 104(a) | 12/17/2015 | C | N | 77.1606(c) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8483458 | 000402685 | 12/15/2015 | 3/27/2016 | 104(a) | 12/15/2015 | C | N | 75.503 | 100.00 | Closed | 100.00 | 100.00 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alton Coal Development LLC | | 8483455 | 000398584 | 10/29/2015 | 1/11/2016 | 104(a) | 10/29/2015 | C | N | 75.503 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8483622 | 000393753 | 8/10/2015 | 12/7/2015 | 104(a) | 9/1/2015 | C | N | 75.403 | 127.00 | Closed | 127.00 | 127.00 |
| Alton Coal Development LLC | | 8483619 | 000391080 | 7/23/2015 | 8/4/2016 | 104(a) | 7/23/2015 | C | N | 75.370(a)(1) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 9021808 | 000386086 | 5/13/2015 | 4/26/2016 | 104(a) | 5/13/2015 | C | N | 77.1111 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8483522 | 000383309 | 5/6/2015 | 12/15/2015 | 104(a) | 5/6/2015 | C | Y | 77.701 | 138.00 | Closed | 138.00 | 138.00 |
| Alton Coal Development LLC | | 8483523 | 000383309 | 5/6/2015 | 12/15/2015 | 104(a) | 5/6/2015 | C | N | 77.502 | 100.00 | Closed | 100.00 | 100.00 |

Return to DRS Home Page

# MSHA Violations – Coal Hollow Mine



Mine Data Retrieval System
as developed by PEIR

## Mine Citations, Orders, and Safeguards

### Current Mine Information

| | |
|---|---|
| **Mine ID:** | **4202519** |
| **Operator:** | **Alton Coal Development LLC** |
| **Opr. Begin Date:** | **1/11/2009** |
| **Mine Name:** | **Coal Hollow Mine** |
| **Current Controller:** | **James J Wayland** |
| **Controller Start Date:** | **1/11/2009** |
| Mine Status: | Active |
| Status Date: | 12/31/2015 |
| Mined Material: | Coal (Bituminous) |
| Type of Mine: | Surface |
| Location: | Kane County, UT |
| State: | UT |

Operator History for Mine ID: **4202519**

| Operator Name | Begin Date | End Date |
|---|---|---|
| Alton Coal Development LLC | 1/11/2009 | |

**How do I use this information?** *Click Here*

**PLEASE NOTE:** The information provided by the Mine Data Retrieval System (MDRS) is based on data gathered from various MSHA systems. As there may be a lag time in data being entered into those systems, there will also be a lag in the reflection of that data on the MDRS.

Assessment data is not available prior to 1/1/1995.

### Citations, Orders, and Safeguards

**The current operator Alton Coal Development LLC has been the operator since 1/11/2009**

- Indicates violations pending hearings, appeals, and/or other actions.
- Indicates violations that have not yet been assessed.
- These are non-assessable.

— Assessment Process Overview

**Note: Vacated Citations are not included in any reports on the MDRS.**

| Violator | Contractor ID | Citation/Order No. | Case No. | Date Issued | Final Order Date | Section of Act | Date Terminated | Citation/ Order | S & S | Standard | Proposed Penalty ($) | Citation/Order Status | Current Penalty ($) | Amount Paid To Date ($) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alton Coal Development LLC | | 9028262 | 000470587 | 6/19/2018 | | 104(a) | 6/19/2018 | C | N | 77.208(d) | 128.00 | Proposed | 128.00 | 0.00 |
| Alton Coal Development LLC | | 9028260 | 000470587 | 6/13/2018 | | 104(a) | 6/13/2018 | C | N | 71.501 | 208.00 | Proposed | 208.00 | 0.00 |
| Alton Coal | | 9028261 | 000470587 | 6/13/2018 | | 104(a) | 6/13/2018 | C | N | 77.1713(c) | 118.00 | Proposed | 118.00 | 0.00 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Development LLC | | | | | | | | | | | | | |
| Alton Coal Development LLC | | 9028259 | 000470587 | 6/12/2018 | | 104(a) | 6/19/2018 | C | Y | 77.1104 | 638.00 | Proposed | 638.00 | 0.00 |
| Alton Coal Development LLC | | 9028258 | 000470587 | 6/12/2018 | | 104(a) | 6/19/2018 | C | Y | 77.404(a) | 691.00 | Proposed | 691.00 | 0.00 |
| Alton Coal Development LLC | | 9028043 | 000462166 | 2/14/2018 | | 104(a) | 2/15/2018 | C | N | 77.1606(c) | 118.00 | Hearing Case Filed | 118.00 | 0.00 |
| Alton Coal Development LLC | | 9028042 | 000462166 | 2/14/2018 | | 104(a) | 2/14/2018 | C | N | 77.502 | 151.00 | Hearing Case Filed | 151.00 | 0.00 |
| Alton Coal Development LLC | | 9028152 | 000462166 | 2/14/2018 | | 104(a) | 2/14/2018 | C | Y | 77.1104 | 544.00 | Hearing Case Filed | 544.00 | 0.00 |
| Alton Coal Development LLC | | 9028151 | 000462166 | 2/13/2018 | | 104(a) | 2/13/2018 | C | N | 77.1607(n) | 128.00 | Hearing Case Filed | 128.00 | 0.00 |
| Alton Coal Development LLC | | 9028041 | 000462166 | 2/13/2018 | | 104(a) | 2/14/2018 | C | Y | 77.1104 | 953.00 | Hearing Case Filed | 953.00 | 0.00 |
| Alton Coal Development LLC | | 9026670 | 000450029 | 8/9/2017 | 7/3/2018 | 104(a) | 8/9/2017 | C | N | 77.1104 | 148.00 | Delinquent | 132.00 | 0.00 |
| Alton Coal Development LLC | | 9026669 | 000450029 | 8/9/2017 | 7/3/2018 | 104(a) | 8/9/2017 | C | N | 77.1109(c)(1) | 148.00 | Delinquent | 148.00 | 0.00 |
| Alton Coal Development LLC | | 9026668 | 000450029 | 8/9/2017 | 7/3/2018 | 104(a) | 8/9/2017 | C | N | 47.44(b) | 148.00 | Delinquent | 119.00 | 0.00 |
| Alton Coal Development LLC | | 9026665 | 000450029 | 8/7/2017 | 7/3/2018 | 104(a) | 8/7/2017 | C | Y | 77.400(a) | 734.00 | Delinquent | 734.00 | 0.00 |
| Alton Coal Development LLC | | 9026664 | 000450029 | 8/7/2017 | 7/3/2018 | 104(a) | 8/7/2017 | C | Y | 77.1713(a) | 3,098.00 | Delinquent | 902.00 | 0.00 |
| Alton Coal Development LLC | | 9026666 | 000450029 | 8/7/2017 | 7/3/2018 | 104(a) | 8/9/2017 | C | N | 77.1605(a) | 148.00 | Delinquent | 119.00 | 0.00 |
| Alton Coal Development LLC | | 9026667 | 000450029 | 8/7/2017 | 7/3/2018 | 104(a) | 8/9/2017 | C | Y | 77.1104 | 734.00 | Delinquent | 337.00 | 0.00 |
| Alton Coal Development LLC | | 9026663 | 000447618 | 7/26/2017 | 8/1/2018 | 104(a) | 8/7/2017 | C | N | 77.213 | 148.00 | Final Order Issued | 148.00 | 0.00 |
| Alton Coal Development LLC | | 9026657 | 000442837 | 6/1/2017 | 12/20/2017 | 104(a) | 6/1/2017 | C | N | 77.1707(g) | 148.00 | Closed | 148.00 | 148.00 |
| Alton Coal Development | | 9022817 | 000437771 | 3/22/2017 | 2/20/2018 | 104(a) | 3/22/2017 | C | N | 77.502 | 577.00 | Closed | 462.00 | 462.00 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LLC | | | | | | | | | | | | | | |
| Alton Coal Development LLC | | 9022814 | 000437771 | 3/7/2017 | 2/20/2018 | 104(a) | 3/21/2017 | C | N | 77.1103(d) | 259.00 | Closed | 207.00 | 207.00 |
| Alton Coal Development LLC | | 9022811 | 000437771 | 3/7/2017 | 2/20/2018 | 104(a) | 3/7/2017 | C | N | 77.1713(d) | 387.00 | Closed | 310.00 | 310.00 |
| Alton Coal Development LLC | | 9022813 | 000437771 | 3/7/2017 | 2/20/2018 | 104(a) | 3/7/2017 | C | N | 77.1606(c) | 577.00 | Closed | 577.00 | 577.00 |
| Alton Coal Development LLC | | 9022812 | 000437771 | 3/7/2017 | 2/20/2018 | 104(a) | 3/7/2017 | C | N | 77.1606(c) | 577.00 | Closed | 577.00 | 577.00 |
| Alton Coal Development LLC | | 9022815 | 000437771 | 3/7/2017 | 2/20/2018 | 104(a) | 3/7/2017 | C | N | 77.505 | 259.00 | Closed | 207.00 | 207.00 |
| Alton Coal Development LLC | | 9022256 | 000425929 | 10/18/2016 | 6/27/2017 | 104(a) | 10/31/2016 | C | Y | 77.200 | 1,078.00 | Closed | 1,078.00 | 1,078.00 |
| Alton Coal Development LLC | | 9022255 | 000425929 | 10/18/2016 | 6/27/2017 | 104(a) | 10/24/2016 | C | N | 77.502 | 216.00 | Closed | 216.00 | 216.00 |
| Alton Coal Development LLC | | 9022257 | 000425929 | 10/18/2016 | 6/27/2017 | 104(a) | 10/24/2016 | C | N | 77.200 | 216.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8486634 | 000425929 | 10/17/2016 | 6/27/2017 | 104(a) | 10/24/2016 | C | N | 77.1104 | 6,786.00 | Closed | 4,286.00 | 4,286.00 |
| Alton Coal Development LLC | | 8486636 | 000425929 | 10/17/2016 | 6/27/2017 | 104(a) | 10/17/2016 | C | N | 77.1109(d) | 351.00 | Closed | 351.00 | 351.00 |
| HTC Hauling LLC | B3323 | 8486632 | 000424990 | 10/17/2016 | 1/27/2017 | 104(a) | 10/17/2016 | C | N | 77.1110 | 114.00 | Closed | 114.00 | 114.00 |
| Alton Coal Development LLC | | 8486637 | 000425929 | 10/17/2016 | 6/27/2017 | 104(a) | 10/17/2016 | C | N | 77.502 | 351.00 | Closed | 351.00 | 351.00 |
| HTC Hauling LLC | B3323 | 8486631 | 000424990 | 10/17/2016 | 1/27/2017 | 104(a) | 10/17/2016 | C | N | 77.410(b) | 114.00 | Closed | 114.00 | 114.00 |
| Alton Coal Development LLC | | 8486635 | 000425929 | 10/17/2016 | 6/27/2017 | 104(a) | 10/17/2016 | C | N | 77.1606(c) | 4,548.00 | Closed | 3,048.00 | 3,048.00 |
| HTC Hauling LLC | B3323 | 8486633 | 000424990 | 10/17/2016 | 1/27/2017 | 104(a) | 10/17/2016 | C | N | 77.1606(c) | 114.00 | Closed | 114.00 | 114.00 |
| Alton Coal Development LLC | | 8488271 | 000423853 | 9/7/2016 | 1/9/2017 | 104(a) | 10/5/2016 | C | N | 50.20(a) | 114.00 | Closed | 114.00 | 114.00 |
| Barney Trucking Inc | Q37 | 9022484 | 000420622 | 8/9/2016 | 11/5/2016 | 104(g)(1) | 8/9/2016 | O | Y | 48.31 | 390.00 | Closed | 390.00 | 390.00 |
| Barney Trucking Inc | Q37 | 9022482 | 000420622 | 7/28/2016 | 11/5/2016 | 104(g)(1) | 7/28/2016 | O | Y | 48.31 | 390.00 | Closed | 390.00 | 390.00 |
| Alton Coal | | 9022479 | 000421682 | 7/26/2016 | 12/5/2016 | 104(a) | 7/26/2016 | C | N | 77.1713(d) | 615.00 | Closed | 615.00 | 615.00 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Development LLC | | | | | | | | | | | | | | |
| Alton Coal Development LLC | | 9022480 | 000419379 | 7/26/2016 | 6/27/2017 | 104(a) | 7/26/2016 | C | N | 77.208(d) | 185.00 | Closed | 185.00 | 185.00 |
| Alton Coal Development LLC | | 9022478 | 000419370 | 7/26/2016 | 6/27/2017 | 104(a) | 7/28/2016 | C | N | 77.1713(c) | 918.00 | Closed | 385.00 | 385.00 |
| Alton Coal Development LLC | | 8373178 | 000414657 | 5/31/2016 | 9/5/2016 | 104(a) | 6/14/2016 | C | N | 77.202 | 162.00 | Closed | 162.00 | 162.00 |
| Alton Coal Development LLC | | 8373176 | 000414657 | 5/25/2016 | 9/5/2016 | 104(a) | 5/25/2016 | C | N | 77.1606(c) | 162.00 | Closed | 162.00 | 162.00 |
| Alton Coal Development LLC | | 8373177 | 000414657 | 5/25/2016 | 9/5/2016 | 104(a) | 5/31/2016 | C | N | 77.1103(d) | 162.00 | Closed | 162.00 | 162.00 |
| Alton Coal Development LLC | | 8373170 | 000414657 | 5/23/2016 | 9/5/2016 | 104(a) | 5/24/2016 | C | N | 77.1606(c) | 108.00 | Closed | 108.00 | 108.00 |
| Alton Coal Development LLC | | 8373171 | 000414657 | 5/23/2016 | 9/5/2016 | 104(a) | 5/23/2016 | C | N | 77.1104 | 425.00 | Closed | 425.00 | 425.00 |
| Alton Coal Development LLC | | 8373173 | 000414657 | 5/23/2016 | 9/5/2016 | 104(a) | 5/24/2016 | C | N | 77.1606(c) | 243.00 | Closed | 243.00 | 243.00 |
| Alton Coal Development LLC | | 8373174 | 000414657 | 5/23/2016 | 9/5/2016 | 104(a) | 5/31/2016 | C | Y | 77.620 | 1,795.00 | Closed | 1,795.00 | 1,795.00 |
| Alton Coal Development LLC | | 8373175 | 000414657 | 5/23/2016 | 9/5/2016 | 104(a) | 5/24/2016 | C | N | 77.1104 | 3,143.00 | Closed | 3,143.00 | 3,143.00 |
| Alton Coal Development LLC | | 8373172 | 000414657 | 5/23/2016 | 9/5/2016 | 104(a) | 5/24/2016 | C | N | 77.1606(c) | 243.00 | Closed | 243.00 | 243.00 |
| Alton Coal Development LLC | | 8373168 | 000414657 | 5/18/2016 | 9/5/2016 | 104(a) | 5/18/2016 | C | N | 77.1713(c) | 308.00 | Closed | 308.00 | 308.00 |
| Alton Coal Development LLC | | 8373169 | 000414657 | 5/18/2016 | 9/5/2016 | 104(a) | 5/18/2016 | C | N | 77.1713(c) | 308.00 | Closed | 308.00 | 308.00 |
| Alton Coal Development LLC | | 9022957 | 000402684 | 1/6/2016 | 3/27/2016 | 104(a) | 1/7/2016 | C | Y | 77.502 | 1,203.00 | Closed | 1,203.00 | 1,203.00 |
| Alton Coal Development LLC | | 8482835 | 000402684 | 12/17/2015 | 3/27/2016 | 104(a) | 1/6/2016 | C | N | 77.502 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482837 | 000402684 | 12/17/2015 | 3/27/2016 | 104(a) | 12/17/2015 | C | N | 77.505 | 138.00 | Closed | 138.00 | 138.00 |
| Alton Coal Development | | 8482836 | 000402684 | 12/17/2015 | 3/27/2016 | 104(a) | 12/17/2015 | C | Y | 77.205(b) | 2,282.00 | Closed | 2,282.00 | 2,282.00 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LLC | | | | | | | | | | | | | | |
| Alton Coal Development LLC | | 7621916 | 000400557 | 12/2/2015 | 8/30/2016 | 104(a) | 12/2/2015 | C | N | 77.1104 | 138.00 | Closed | 138.00 | 138.00 |
| Alton Coal Development LLC | | 7621917 | 000400557 | 12/2/2015 | 8/30/2016 | 104(a) | 12/2/2015 | C | N | 77.1606(c) | 687.00 | Closed | 500.00 | 500.00 |
| Alton Coal Development LLC | | 7621915 | 000400557 | 12/1/2015 | 8/30/2016 | 104(a) | 12/2/2015 | C | N | 77.1606(c) | 138.00 | Closed | 112.00 | 112.00 |
| Alton Coal Development LLC | | 8476489 | 000400557 | 12/1/2015 | 8/30/2016 | 104(a) | 12/1/2015 | C | Y | 77.502 | 1,026.00 | Closed | 821.00 | 821.00 |
| Alton Coal Development LLC | | 7621914 | 000400557 | 12/1/2015 | 8/30/2016 | 104(a) | 12/1/2015 | C | N | 77.1109(a) | 138.00 | Closed | 138.00 | 138.00 |
| Alton Coal Development LLC | | 8476488 | 000400557 | 12/1/2015 | 8/30/2016 | 104(a) | 12/1/2015 | C | N | 77.1103(g) | 138.00 | Closed | 138.00 | 138.00 |
| Alton Coal Development LLC | | 8483629 | 000393750 | 8/31/2015 | 4/27/2016 | 104(a) | 8/31/2015 | C | N | 77.1606(c) | 117.00 | Closed | 117.00 | 117.00 |
| Alton Coal Development LLC | | 8483620 | 000393750 | 7/29/2015 | 9/6/2016 | 104(g)(1) | 8/3/2015 | O | N | 48.25(a) | 1,500.00 | Closed | 823.00 | 823.00 |
| Alton Coal Development LLC | | 8483524 | 000383307 | 5/7/2015 | 12/15/2015 | 104(a) | 5/7/2015 | C | N | 77.404(a) | 362.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 9021624 | 000380705 | 3/10/2015 | 12/15/2015 | 104(a) | 3/10/2015 | C | N | 77.1104 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 9021621 | 000380705 | 3/9/2015 | 12/15/2015 | 104(a) | 3/10/2015 | C | Y | 77.404(a) | 1,304.00 | Closed | 1,304.00 | 1,304.00 |
| Alton Coal Development LLC | | 9021622 | 000380705 | 3/9/2015 | 12/15/2015 | 104(a) | 3/10/2015 | C | N | 77.1104 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 9021623 | 000380705 | 3/9/2015 | 12/15/2015 | 104(a) | 3/9/2015 | C | N | 77.402 | 108.00 | Closed | 108.00 | 108.00 |
| Alton Coal Development LLC | | 9021620 | 000380705 | 3/9/2015 | 12/15/2015 | 104(a) | 3/10/2015 | C | Y | 77.410(c) | 1,203.00 | Closed | 1,050.00 | 1,050.00 |
| Alton Coal Development LLC | | 8483430 | 000378270 | 1/7/2015 | 11/4/2015 | 104(a) | 1/8/2015 | C | N | 77.1200(j) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8483431 | 000378270 | 1/7/2015 | 1/4/2016 | 104(a) | 1/8/2015 | C | N | 77.1000 | 2,700.00 | Closed | 2,700.00 | 2,700.00 |
| Alton Coal Development LLC | | 8483429 | 000373716 | 1/6/2015 | 8/25/2015 | 104(a) | 1/6/2015 | C | N | 77.408 | 100.00 | Closed | 100.00 | 100.00 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alton Coal Development LLC | | 8483428 | 000378270 | 1/6/2015 | 1/4/2016 | 104(a) | 1/6/2015 | C | Y | 77.1607(q) | 6,800.00 | Closed | 6,800.00 | 6,800.00 |
| Alton Coal Development LLC | | 8483427 | 000373716 | 1/6/2015 | 8/25/2015 | 104(a) | 1/6/2015 | C | Y | 77.1437(a) | 1,304.00 | Closed | 1,304.00 | 1,304.00 |
| Alton Coal Development LLC | | 8483497 | 000373716 | 12/16/2014 | 8/25/2015 | 104(a) | 12/16/2014 | C | N | 77.1104 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8483488 | 000371357 | 12/3/2014 | 11/4/2015 | 104(a) | 12/4/2014 | C | N | 77.1605(k) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8483486 | 000373716 | 12/3/2014 | 8/25/2015 | 104(a) | 12/3/2014 | C | N | 77.1000 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8483487 | 000371357 | 12/3/2014 | 11/4/2015 | 104(a) | 12/4/2014 | C | N | 77.1605(k) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8483479 | 000368768 | 10/21/2014 | 1/4/2016 | 104(a) | 10/22/2014 | C | Y | 77.1104 | 460.00 | Closed | 460.00 | 460.00 |
| Alton Coal Development LLC | | 8483478 | 000368768 | 10/21/2014 | 1/4/2016 | 104(a) | 10/22/2014 | C | N | 77.1104 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8483477 | 000368768 | 10/20/2014 | 1/4/2016 | 104(a) | 10/21/2014 | C | N | 77.1104 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8483476 | 000368768 | 10/20/2014 | 1/4/2016 | 104(a) | 10/20/2014 | C | N | 77.1104 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8483140 | 000364720 | 9/11/2014 | 8/30/2015 | 104(a) | 9/26/2014 | C | N | 77.403-1(d) | 308.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482828 | 000364720 | 9/11/2014 | 8/30/2015 | 104(a) | 9/11/2014 | C | N | 77.404(b) | 460.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482826 | 000364720 | 9/11/2014 | 8/30/2015 | 104(a) | 9/11/2014 | C | N | 77.1110 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482827 | 000364720 | 9/11/2014 | 8/30/2015 | 104(a) | 9/11/2014 | C | Y | 77.404(a) | 460.00 | Closed | 460.00 | 460.00 |
| Alton Coal Development LLC | | 8483402 | 000372812 | 8/12/2014 | 1/4/2016 | 104(a) | 8/12/2014 | C | N | 77.1000 | 2,100.00 | Closed | 2,100.00 | 2,100.00 |
| Alton Coal Development LLC | | 8483401 | 000372812 | 8/11/2014 | 1/4/2016 | 104(a) | 8/11/2014 | C | Y | 77.1000 | 6,800.00 | Closed | 6,800.00 | 6,800.00 |
| Alton Coal Development LLC | | 8483093 | 000361905 | 7/28/2014 | 8/30/2015 | 104(a) | 7/28/2014 | C | N | 77.1104 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal | | 8483092 | 000361905 | 7/28/2014 | 8/30/2015 | 104(a) | 7/28/2014 | C | Y | 77.205(a) | 460.00 | Closed | 460.00 | 460.00 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Development LLC | | | | | | | | | | | | | | |
| Alton Coal Development LLC | | 8482233 | 000358878 | 6/25/2014 | 8/25/2015 | 104(a) | 6/25/2014 | C | Y | 77.1503(b) | 1,657.00 | Closed | 420.00 | 420.00 |
| Alton Coal Development LLC | | 8482234 | 000358878 | 6/25/2014 | 8/25/2015 | 104(a) | 6/25/2014 | C | N | 77.1000 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482235 | 000358878 | 6/25/2014 | 8/25/2015 | 104(a) | 7/9/2014 | C | N | 77.1000 | 308.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8483126 | | 5/21/2014 | | 103(j) | 6/2/2014 | O | N/A | | Non-Assessable | | | |
| Alton Coal Development LLC | | 8483208 | 000356499 | 5/19/2014 | 8/20/2014 | 104(a) | 5/21/2014 | C | N | 77.1000 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8483121 | | 5/8/2014 | | 103(k) | 5/20/2014 | O | N/A | | Non-Assessable | | | |
| Alton Coal Development LLC | | 8481964 | 000361905 | 4/30/2014 | 8/30/2015 | 104(a) | 8/15/2014 | C | Y | 77.1000 | 1,530.00 | Closed | 1,530.00 | 1,530.00 |
| Alton Coal Development LLC | | 8481963 | | 4/29/2014 | | 103(k) | 5/1/2014 | O | N/A | | Non-Assessable | | | |
| Alton Coal Development LLC | | 8484396 | | 4/16/2014 | | 104(a) | 4/21/2014 | C | N | | Non-Assessable | | | |
| Alton Coal Development LLC | | 8484397 | | 4/16/2014 | | 104(a) | 4/21/2014 | C | N | | Non-Assessable | | | |
| Alton Coal Development LLC | | 8484394 | | 4/15/2014 | | 104(a) | 4/15/2014 | C | Y | | Non-Assessable | | | |
| Alton Coal Development LLC | | 8484395 | | 4/15/2014 | | 104(a) | 4/21/2014 | C | N | | Non-Assessable | | | |
| Alton Coal Development LLC | | 8482999 | 000351079 | 3/17/2014 | 3/25/2015 | 104(a) | 3/17/2014 | C | N | 77.1713(a) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8483000 | 000351079 | 3/17/2014 | 3/25/2015 | 104(a) | 3/17/2014 | C | N | 77.1713(c) | 108.00 | Closed | 108.00 | 108.00 |
| Alton Coal Development LLC | | 8482987 | 000358878 | 1/30/2014 | 1/4/2016 | 104(d) (1) | 3/4/2014 | C | Y | 77.1006(a) | 70,000.00 | Closed | 25,800.00 | 25,800.00 |
| Alton Coal Development LLC | | 8482946 | 000348285 | 1/29/2014 | 8/25/2015 | 104(a) | 1/29/2014 | C | Y | 77.1104 | 308.00 | Closed | 308.00 | 308.00 |
| Alton Coal Development | | 8482983 | 000345459 | 1/27/2014 | 8/25/2015 | 104(a) | 1/27/2014 | C | N | 77.1110 | 100.00 | Closed | 100.00 | 100.00 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LLC | | | | | | | | | | | | | | |
| Alton Coal Development LLC | | 8482942 | 000345459 | 1/27/2014 | 8/25/2015 | 104(a) | 1/27/2014 | C | N | 77.410(b) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482982 | 000345459 | 1/27/2014 | 8/25/2015 | 104(a) | 1/29/2014 | C | N | 77.1606(c) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482945 | 000358878 | 1/27/2014 | 8/25/2015 | 104(a) | 2/6/2014 | C | Y | 50.10(d) | 1,530.00 | Closed | 430.00 | 430.00 |
| Alton Coal Development LLC | | 8482944 | 000345459 | 1/27/2014 | 8/25/2015 | 104(a) | 1/28/2014 | C | N | 77.1606(c) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482986 | 000359231 | 1/27/2014 | 8/25/2015 | 104(a) | 4/16/2014 | C | Y | 77.1000 | 5,700.00 | Closed | 5,700.00 | 5,700.00 |
| Alton Coal Development LLC | | 8482984 | 000345459 | 1/27/2014 | 8/25/2015 | 104(a) | 2/6/2014 | C | N | 77.1606(c) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482943 | 000345459 | 1/27/2014 | 8/25/2015 | 104(a) | 1/27/2014 | C | N | 77.1605(d) | 308.00 | Closed | 308.00 | 308.00 |
| Alton Coal Development LLC | | 8482820 | 000345459 | 1/27/2014 | 8/25/2015 | 104(a) | 1/29/2014 | C | N | 77.205(a) | 308.00 | Closed | 200.00 | 200.00 |
| Alton Coal Development LLC | | 8482985 | 000345459 | 1/27/2014 | 8/25/2015 | 104(a) | 1/29/2014 | C | N | 77.1606(c) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482981 | 000345459 | 1/27/2014 | 8/25/2015 | 104(a) | 1/29/2014 | C | Y | 77.1104 | 460.00 | Closed | 460.00 | 460.00 |
| Alton Coal Development LLC | | 8482128 | 000330002 | 7/10/2013 | 4/22/2014 | 104(a) | 7/11/2013 | C | N | 50.20(a) | 100.00 | Closed | 85.00 | 85.00 |
| Alton Coal Development LLC | | 8482126 | 000330002 | 7/9/2013 | 4/22/2014 | 104(a) | 7/9/2013 | C | N | 77.1605(k) | 100.00 | Closed | 85.00 | 85.00 |
| Alton Coal Development LLC | | 8482113 | | 5/15/2013 | | 103(k) | 5/19/2013 | O | N/A | | Non-Assessable | | | |
| Alton Coal Development LLC | | 8482115 | 000343403 | 5/15/2013 | 11/11/2014 | 104(a) | 5/19/2013 | C | Y | 77.1000 | 946.00 | Closed | 946.00 | 946.00 |
| Alton Coal Development LLC | | 8482112 | 000327483 | 5/14/2013 | 5/8/2014 | 104(a) | 5/14/2013 | C | N | 77.502 | 190.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482111 | 000327483 | 5/14/2013 | 5/8/2014 | 104(a) | 5/14/2013 | C | Y | 77.205(g) | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482074 | 000316333 | 1/17/2013 | 2/27/2014 | 104(a) | 2/4/2013 | C | N | 77.202 | 100.00 | Closed | 100.00 | 100.00 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Alton Coal Development LLC | | 8482073 | 000316333 | 1/17/2013 | 2/27/2014 | 104(a) | 2/4/2013 | C | N | 77.213 | 100.00 | Closed | 100.00 | 100.00 |
| Kane Mining | A1006 | 8482076 | 000314514 | 1/16/2013 | 7/23/2013 | 104(a) | 1/16/2013 | C | N | 77.404(a) | 190.00 | Closed | 152.00 | 152.00 |
| Alton Coal Development LLC | | 8482071 | 000316333 | 1/16/2013 | 2/27/2014 | 104(a) | 1/16/2013 | C | N | 77.404(a) | 100.00 | Closed | 100.00 | 100.00 |
| Kane Mining | A1006 | 8482077 | 000314514 | 1/16/2013 | 7/23/2013 | 104(a) | 1/16/2013 | C | Y | 77.404(a) | 190.00 | Closed | 190.00 | 190.00 |
| Kane Mining | A1006 | 8482340 | 000314514 | 1/16/2013 | 7/23/2013 | 104(a) | 2/4/2013 | C | N | 77.1104 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482072 | 000316333 | 1/16/2013 | 2/27/2014 | 104(a) | 1/16/2013 | C | N | 77.404(a) | 100.00 | Closed | 100.00 | 100.00 |
| Kane Mining | A1006 | 8482075 | 000314514 | 1/15/2013 | 7/23/2013 | 104(a) | 1/15/2013 | C | Y | 77.202 | 190.00 | Closed | 190.00 | 190.00 |
| Kane Mining | A1006 | 8482067 | 000314514 | 1/15/2013 | 7/23/2013 | 104(a) | 1/15/2013 | C | N | 77.1104 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482069 | 000316333 | 1/15/2013 | 2/27/2014 | 104(a) | 1/15/2013 | C | Y | 77.202 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482068 | 000316333 | 1/15/2013 | 2/27/2014 | 104(a) | 1/15/2013 | C | N | 77.505 | 100.00 | Closed | 100.00 | 100.00 |
| Alton Coal Development LLC | | 8482070 | 000316333 | 1/15/2013 | 2/27/2014 | 104(a) | 1/15/2013 | C | N | 77.202 | 100.00 | Closed | 100.00 | 100.00 |

Return to DRS Home Page

# Exhibit 4

## NPDES Proof of Coverage

State of Utah
GARY R. HERBERT
*Governor*

SPENCER J. COX
*Lieutenant Governor*

Department of
Environmental Quality

Alan Matheson
*Executive Director*

DIVISION OF WATER QUALITY
Erica Brown Gaddis, PhD
*Director*

April 8, 2019

Larry Johnson
Coal Energy Group 3, LLC
6602 Ilex Circle
Naples, FL 34109
***VIA EMAIL***

Subject: Coverage under the UPDES General Permit for Coal Mining Operations
Kinney No. 2 Mine near Scofield, Utah
**UPDES Permit Coverage No. UTG040030**

Dear Mr. Johnson:

This letter provides proof of coverage for the above referenced facility under the UPDES General Permit for Coal Mining Operations, No. UTG040000 (General Permit). The General Permit and applicant information was public noticed in the Emery County Progress and Sun Advocate newspapers, as well as on the Utah Division of Water Quality's (DWQ) website from February 26, 2019 through March 28, 2019. No comments were received during the public notice period, therefore the General Permit has been re-issued as drafted with all the requirements and conditions set forth therein effective April 1, 2019, subject to the right to challenge this decision in accordance with the provisions of *Utah Administrative Code*, Section R317-9. A copy of the final General Permit documents has been sent to you previously under separate cover.

Your facility referenced above has been assigned **UPDES Permit Coverage No. UTG040030** and is based upon the Notice of Intent permit application information submitted previously, including the location and number of permitted outfalls. Please refer to your permit coverage number in future correspondence and keep DWQ informed of site conditions and operations for future inspections as appropriate.

Reporting and self-monitoring requirements are specified in the permit. Copies of EPA form 3320-1, Discharge Monitoring Report (DMR) forms, for reporting requirements are only available upon request (for those facilities not yet using NetDMR). As a reminder, DMR paper forms or NetDMR electronic submittals are due in by the 28th day of each month following each monthly monitoring period. Please note that if you are not already signed up for and using NetDMR, that you are required to do so no later than January 1, 2020. Please contact our office for NetDMR assistance as needed.

A fee schedule was included in the Utah Department of Environmental Quality Budget appropriation request at the direction of the Legislature and in accordance with *Utah Code Annotated* 19-1-201. The fee schedule, as approved by the Legislature, includes a prescribed fee for specific Industrial Categories. The prescribed fee for UPDES Coal Mining and Preparation for the General Permit is $436.00 per year for each of the five years of the permit period. A separate invoice will be sent out in the summer of each year and is to be paid within 30 days upon receipt of the invoice to maintain permit coverage as appropriate.

The DWQ values your feedback, and as the State agency charged with the administration of issuing UPDES permits, we are continuously looking for ways to improve our quality of service to you. DWQ is committed to continually assessing and improving the level and quality of services provided to you. In an effort to improve the State UPDES permitting process, we are asking for your input. Please take a minute to provide feedback on the quality of service you received by clicking on the "Feedback" link on lower right corner of DWQ's webpage at www.waterquality.utah.gov. Thank you for assisting us in improving our public service.

Thank you for your efforts to help protect Utah's Water Quality. If you have any questions with regard to this matter, please contact Jeff Studenka at jstudenka@utah.gov or at (801) 536-4395.

Sincerely,

Matthew Garn, P.E., Manager
UPDES Surface Water Section

MG/JAS/blj

Cc: Via Email
Orion Rogers, SE Utah Health Department
Scott Hacking, SE Utah District Engineer
Steve Christensen, DOGM Permit Supervisor

DWQ-2019-003184

# EXHIBIT 5

# Public Notices and Proof of Publication, Hearing Notices and Documentation

## PROOF OF PUBLICATION AFFIDAVIT

I, Scottie Draper, being first duly sworn, state that I am the Publisher of ETV News, a weekly newspaper of general circulation published at Price, County of Carbon, State of Utah; and that the advertisement or notice, a printed copy of which is attached hereto, was printed and published in said newspaper for four issues and on www.utahlegals.com website as follows:

December 19, 2018

December 27, 2018

January 3, 2019

January 9, 2019

Scottie Draper, Editor

Subscribed to and sworn before me this 9th day of January 2019.

TANYA SHORT
NOTARY PUBLIC • STATE OF UTAH
COMMISSION# 696531
COMM. EXP. 08-17-2021

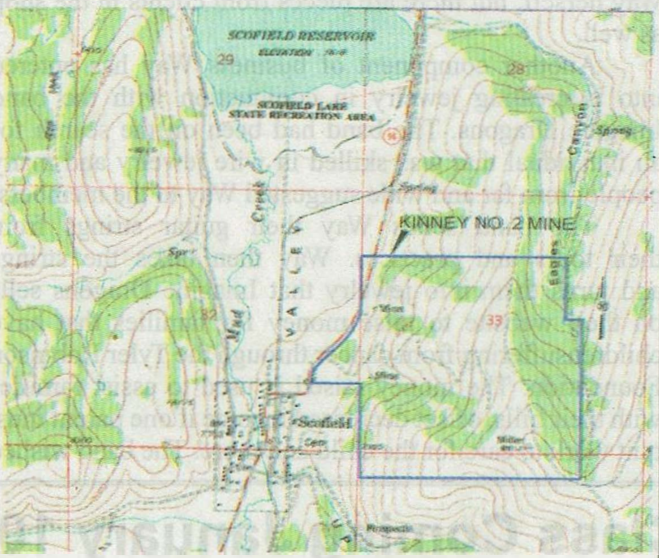
Notary Public

## PUBLIC NOTICE

## APPLICATION FOR PERMIT TO MINE COAL UNDER UTAH COAL MINING REGULATIONS R645 CARBON RESOURCES, LLC CARBON COUNTY, UTAH

Notice is hereby given that Coal Energy Group 3, LLC., 2002 N. Reserve Parkway, Washington, UT 84780, with Larry W. Johnson as Resident Agent, 2850 E. Crimson Ridge Dr., St. George, UT 84790, has filed an application with the Utah Department of National Resources, Division of Oil, Gas and Mining for a Permit to mine coal pursuant to R645 of the Utah Coal Program Regulations. The permit area is shown on the Scofield U.S. Geologic Survey 7 .5-minute Quadrangle map.

The permit area affected is located in Carbon County, Utah as follows:




Township 12 South, Range 7 East, Salt Lake Base & Meridian

Section 32
E2SE4

Section 33
S2, S2N2

Township 13 South, Range 7 East,
Salt Lake Base & Meridian

Section 4
N2N2

Copies of the application can be reviewed at the following locations:

Carbon County Recorder's Office
120 East Main Street
Price, Utah 84501

Utah Department of Natural Resources
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84116

Mining operations will be conducted within 100 feet of Utah Highway 96.

Written comments, objections, or requests for informal conferences on the application may be submitted to the Division of Oil, Gas and Mining at the address above.

Closing date for submission of such comments, objections and requests for an informal conference on this proposal must be submitted by February 11, 2019.

February 11, 2019

Utah Department of Natural Resources
Division of Oil, Gas and Mining
1594 West North Temple, Suite 1250
Salt Lake City, UT 84116

Re: Comments on Coal Energy Group 3, LLC - Application for Permit to mine coal

To whom it may concern,

Please accept this letter as Canyon Fuel Company LLC's (CFC) comments on Coal Energy Group 3, LLC application for permit to mine coal at the previously permitted Kinney Mine.

CFC is the operator of the Skyline Mine, located in Eccles Canyon, approximately six road miles from the proposed permit area. In addition to the main mine site, Skyline Mine also operates a waste rock disposal facility in UP Canyon located in the SW¼NW¼ of Section 4, Township 13 South, Range 7 East, SLB&M. This waste rock site is located directly South of the current proposed permit boundary of the Kinney Mine. CFC leases this site from the Telonis Family and is part of the Skyline Mine Permit C007005. CFC anticipates continuing to use this facility through the life of the Skyline Mine.

CFC respectfully requests that the currently permitted activities of Skyline be recognized during the Kinney Mine permitting process. CFC would like to ensure the environmental quality and stability of the waste rock site are protected from adverse impacts caused by adjacent mining.

In addition to the protection of the waste rock site, Skyline Mine also ships a significant amount of coal via truck along Highway 96. With the close proximity of the proposed Kinney mine facilities to the road, CFC respectfully requests that proper accommodations for truck traffic be included in the permit approval. Without proper turning lanes and truck entrances, truck traffic can create a risk to public safety along the highway and through the town of Scofield.

CFC appreciates the opportunity to provide these comments on Coal Energy Group 3, LLC's application for permit to mine coal. If you should have any questions, please feel free to contact me by email at: rwilson@wolverinefuels.com or by phone at (970) 852-0110.

Sincere regards,

Ryan Wilson
Landman

**Canyon Fuel Company, LLC**
1401 North 1st St., Suite A
Grand Junction, CO 81501

# EXHIBIT 6

# Soils Report and Appendices

**APPENDIX 1: ACZ  Spreadsheets &Lab Sheets**

**APPENDIX 2: IML Analysis Sheets**

**APPENDIX 3: Field Pedon Descriptions**

**APPENDIX 4: Soil Pit Profile Photos**

**APPENDIX 5: Micromonolith Photos**

**APPENDIX 6: Official Soils Series Descriptions**

**RECLAIMED COAL: SGS Lab Sheets**

# SOIL SURVEY REPORT

# KINNEY No. 2 MINE

# CARBON COUNTY, UTAH

Prepared for:
Carbon Resources, LLC
PO Box 1789
Albuquerque, NM 87192

Prepared by:
Bruce Chesler
PO Box 355
Escalante, Utah 84726

November 6, 2007

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Figure 1. Soil Map Unit ID Legend with Sampled Soil profile locations
Figure 2. Prime Farmland Map, from WEB Soil Survey

Table 1 Soil Analysis and Analytical Methods
Table 2 Utah Oil Gas and Mining Soil Suitability/Unsuitability Evaluation Guidelines
Table 3 Soil Map Unit Descriptions and Physical Parameters
Table 4 Soil Family Classifications by Pedon Location
Table 5 Proposed Surface Disturbances by Soil Map Unit
Table 6 Soil Suitability Data
Table 7 Erodibility Factor Calculations and Input Parameters
Table 8 Summary of Soil Limitation, Salvage Depths, and Salvageable Volumes

Appendix 1 ACZ Laboratories, Inc. Lab Analysis Spreadsheets (2006)

Appendix 2 Intermountain Laboratories, Inc. Lab Analyses Spreadsheets (2007)

Appendix 3 Soil Profile Descriptions

Appendix 4 Soil Profile Photographs

Appendix 5 Soil Micromonolith Box Photographs

Appendix 6 Official Soil Series Descriptions

## Introduction

During October, 2006, 23 soil profiles were excavated by backhoe within an area containing previous underground coal mining disturbances on approximately 21 acres. An adjacent soil survey and sampling of 13 additional soil profiles was made during September, 2007 on an additional 16 acres to the south west. The southern portion of the survey area is dominantly comprised of disturbed lands containing reclaimed soil with alternative reclamation materials provided through the State of Utah Division of Oil Gas, and Mining Abandoned Mine Lands Program (AML) around 1986. The entire soil survey area, referred to in this report as Kinney No.2 Mine Soil Survey, is 36.7 acres in extent found along a 700 feet wide by approximately 1 mile long strip of private land adjacent to Highway 96. It is located approximately one quarter mile to the northeast of Scofield, Utah. The 27.3 acres shown on Figure 1 is that portion (sub-set) of the 36.7 acres survey area where disturbance is planned for construction of the surface facilities of the mine. The soil survey and sampling of soil profiles were made as part of Carbon Resources, LLC application to mine coal in this area, and is intended to identify and characterize the major soil types found within 36.7 acres of the coal mine permit area. The fieldwork portion of this soil survey was conducted by Bruce Chesler, an independent soil survey contractor, with the assistance of Greg Hunt of Carbon Resources, LLC. As a guide in planning the scope of work to be addressed in this soil survey report, Utah Division of Oil, Gas, and Mining (UDOGM) Guidelines of Management for Topsoil and Overburden (UDOGM, 2005) were consulted.

Objectives:

Map soils at Order 2 level on approximately 37 acres of the Kinney No.2 Mine Permit Area.

Describe and sample representative soil profiles at 6 inch to 24 inch depth increments in previously disturbed (AML) sites. Sample by horizon, and describe and classify soils to family level, in areas with undisturbed soil profiles.

Analyze soil physiochemical parameters for each sample according to methodologies suggested in 2005 UDOGM Guidelines for Management of Topsoil and Overburden.

Rate the soil's ability to be used as plant growth medium in soil reclamation for each soil map unit based on UDOGM guidelines.

Calculate an average salvageable topsoil or alternative reclamation material volume, for each soil map unit within the approximately 37 acres of the Mine Permit Area.

Make recommendations for management practices which may overcome any deficiencies in the quality and quantity of topsoil and alternative reclamation material which may be feasibly salvaged within the Mine Permit Area.

**Soil Survey Setting**

The survey area is located within portions of Sections 33 and 28, T 12 S, R 7 E, approximately one quarter mile northeast of Scofield, Utah. Elevations range between 7500 and 7900 feet. Previous coal mining in this area has affected over half of the natural landscape with abandoned mine portal and staging areas, coal mine dumps, roads and abandoned railroad grades, cut slopes and haul routes. There have been no previous attempts to salvage topsoil from the previous mining disturbance activities in this area. The present soil and alternate reclamation materials found on-site represents the extent of material available for post mining reclamation efforts at the Kinney No.2 permit area. As the AML alternative reclamation materials comprise a significant proportion of the materials found within the southern half of the survey area, a primary focus of this report will be to address their chemical properties and their plant re-growth potential. The 1986 AML reclaimed acreage generally contains coal/spoil/soil mixtures which I will refer to in this report as alternative reclamation materials. Soil Map Units used to describe these lands are referenced as either Mine Dumps (SCS, 1988) or Disturbed Lands, in this report. The alternative reclamation materials found in this area's backhoe excavations reveal layers of AML- placed subsoil materials covering coal that was historically dumped or spilled during mining, transport, or storage of coal and or coal abandoned in the old stock pile, along with buried natural subsoil horizons. This coal buried by AML will be referred to throughout this report as "reclaimed coal".

Access throughout the survey area was made by driving graded dirt roads on private lands, one which switchbacks up toward a ridgeline from the south end of the property, and one which leads south to north along the axis of the two mile long permit area. The geomorphology of the surrounding landscape is dominated by a fault block graben valley which contains Mud Creek drainage to the west, flowing north into Scofield Reservoir. Along the Mud Creek floodplain is an approximately one acre slice of the Kinney No.2 property, containing alluvial soils which I've sampled to represent the floodplain terrace soil types west of Highway 96. Steeper slopes comprised of colluvium and mass wasted landslide materials derived from Black Hawk Formation sedimentary rocks are the dominant and primary soil forming materials within the Order 2 soil survey area.

The colluvial material may contain less rock fragment content and finer soil materials in concave slope positions and at junctions of several side canyons, which dissect slopes within the survey area from the east. The sedimentary rock parent materials include limestone, calcareous sandstones, and siltstones. Mass wasting soil and colluvial deposits are noticeable within all soil map units and on various slope gradients across the soil survey area. These ancient landslide deposits have randomly distributed soil and geologic parent materials across the survey area in a way which makes predicting soil depths, rock content, and textures of soil profiles challenging for me. The vegetation is characterized by sagebrush on west to southerly aspects of the mountainsides, and pockets of aspen forest with snowberry understory located on north to easterly facing

slopes. The previously disturbed AML reclamation lands are dominated by Rubber Rabittbush and Wyoming Big Sagebrush. Slope gradients are steepest along the east side of the survey area, with moderate to gently sloping areas along the lower side slope and toeslope positions to the west. Soils with rock fragment contents of over 40 percent in their profiles are common within the survey area on all aspects and across all slope shapes.

**Previous Soil Surveys**

The Order 3 soil survey which includes the Kinney No.2 Mine permit area was reviewed (SCS, 1988). Sheet #6 of the Carbon Area Soil Survey provides 4 map unit delineations mapped by SCS in the Kinney No.2 permit area, which includes six soil map unit components, or Soil Series, and one Miscellaneous Land type. The Trag-Croyden complex (Map Unit 117) represents much of the steeper mountain slope positions, and Trag-Bege-Senchert complex (Map Unit 118) occurs to a lesser extent on toeslope positions along the southern edge of the permit area. Silas loam and Silas-Brycan loams (Map Units 108, 109) are mapped along the one acre of the permit area found within alluvial bottomlands along Mud Creek. One Miscellaneous Land Type, Mine Dumps, was described in the SCS Soil Survey Report for the areas with previous coal mining disturbance.

Trag Series has recently been revised in its extent by NRCS soil scientists in the Carbon County Area, to characterize soil types found with granitic parent material. Tie Creek Series, classified as a Fine-loamy, Typic Argiustoll, is a Soil Series which has been established in other portions of Carbon County. This Series is currently being used to represent sedimentary rock influenced soils found with sagebrush vegetation in frigid soil temperature regimes (personal communications, Leland Sasser, NRCS Price Field Office). Sagebrush vegetation and a frigid soil temperature regime represent the dominant soil ecotypes and climate in this area. The Tie Creek soil profile is very deep, has an argillic subsoil horizon, and includes some calcium carbonate accumulations in its subsoil. Croyden Series, a fine-loamy, Typic Argicryoll, is mapped by SCS on aspen forested sites in this area, and is usually about 50 inches to weathered sandstone bedrock and has an argillic horizon in the subsoil. The Bege soil Series is shallow to sandstone bedrock, and was not found within backhoe excavations to be a representative soil type along colluvium dominated lower side slopes. Senchert Series is a moderately deep to bedrock (20 to 40 inches) soil found under aspen understory, and occurs occasionally on spurs of ridges in this survey area. Official Soil Series descriptions from Carbon Area Soil Survey of several of these related soil types are included in Appendix 6.

There has been no attempt in this report to match soil profile descriptions described in the field to the Soil Series level of soil classification. The focus of this report is to identify

and rate soil properties as they affect feasible topsoil salvage operations. Soil family level classifications were used in documenting soil types.

**Methods**

In October 2006, 1:24,000 aerial photographs and mine plan schematic maps were reviewed. On a 1:6,000 scaled base map of the survey area, preliminary soil map unit boundaries were drawn. These map units were designed primarily with the intent to separate areas of previous surface disturbances (mainly alternative soil reclamation materials) from natural soil areas. The remote sensing effort was further refined during October 2007, with use of Utah State's (AGRC) high resolution aerial orthophotographs, which examination of has provided more accurate determinations for the extent of AML and other surface disturbances (Ben Grimes, personal comm.). Other factors influencing soil map unit design are slope gradients, aspect, and vegetation changes. The soil map units are designed to accommodate the intent of this project's objective of evaluating the major soil type's ability to be salvaged feasibly and then to be used as a plant growth medium in reclaiming this site. Slopes with steeper than 50 percent gradient, or soils with greater than 50 percent coarse fragments in their profile are regarded as impractical for conventional bulldozer scraping and feasible topsoil salvage practices, and were therefore not sampled in this survey.

On October 15, I met with Greg Hunt of Carbon Resources LLC and backhoe operator Mike Erkkila of Scofield, and began a field reconnaissance of pre-delineated soil map units by driving two access roads which bisect the survey area. Where available, road cut exposures were taken advantage of by cutting back with shovels and backhoe, to sample and describe soils within the survey area. A minimum of one representative soil profile was chosen for each map unit, and in the case of previously disturbed areas, the density of soil backhoe pits was increased due to the greater variability of these soil types. A total of 18 soil profiles were excavated and recorded during the following three days according to A Field Guide for Describing and Sampling Soils Version 2.2 (Schoeneberger, et al., 2005). Photographs were taken of each soil pit, and micromonolith sample boxes were assembled from each soil profile, photographed, and then stored for reference.

An average of 4 to 5 sample increments of soil materials and coal samples were taken from each soil profile, placed in gallon-sized plastic bags, and shipped to ACZ Laboratories, Inc. (ACZ) in Steamboat Springs. The amount of soil samples sent to the lab total 96 increments, and the number of coal samples sampled within five of the soil profiles total six. On November 3, 2006, all 102 of the samples had been received by ACZ. Samples were analyzed according to UDOGM Guidelines (Topsoil Guidelines, Tables 2 and 3, 2005) and results were reported on December 21, 2006.

An additional sampling and soil survey trip was made to Kinney No.2 soil survey area during September, 2007. This 3 day sampling excursion was dedicated to describing the

soil resources of the Hansen Surface (about 15.3 acres) located to the south and west of the 2006 sampling area. During this trip, a partial review of the soil profiles excavated during 2007 was made on-site with UDOGM soil scientist Priscilla Burton. Thirteen additional soil profiles were excavated by backhoe, and a total of 52 soil horizons, including 2 coal buried samples, were delivered to Intermountain Laboratories, Inc. (IML), Sheridan Wyoming on September 8. Results of the IML lab analyses were made available on Sept. 18, 2007.

**Laboratory Analysis and Data Interpretation**

Laboratory analysis of soil samples collected from 31 backhoe pits, hand-dug holes, and road cut excavations were conducted to determine chemical and physical properties of soils within the 36.7 acre Kinney No.2 soil survey area. Areas of previously disturbed land found within the southern portion of the soil survey area containing a majority of the planned coal mining building facilities were given closer scrutiny by increasing the soil sampling frequency. The laboratory analyses performed on all of the soil samples and the associated coal samples are provided in Table 1. In addition to the standard UDOGM lab parameter for topsoil suitability, Acid-Base Potential, Boron, Selenium, and Sulfur, and Total Organic Carbon percentages were analyzed for coal samples taken at 9 sample locations and for the 13 associated soil horizons (AML) at the following sites: D-3, D-4, D-9A, D-9B, and D-11, 06 –SP-07, 13-SP-07.

These data, along with soil profile and map unit descriptions, were used to classify soil types (USDA, 2006) and to assess the suitability of soils as primary plant growth medium for reclamation. The Utah Division of Oil, Gas, and Mining topsoil suitability ratings are listed in Table 2. Soil suitability criteria and four rating categories are also provided in Table 2. Based on numeric values assigned to each category (1 to 4), an average (or overall), cumulative, and maximum (highest) score determines the ultimate rating for each sample. However, some parameters are more important than others and some plant growth limiting factors may be readily overcome using proper management practices. For instance, available water holding capacity and soil erodibilty (K-factor), when adjusted for the higher coarse fragment content of these particular soils, is often rated less than if only the fine earth fraction of the soils are considered. The higher percentage of rock volume found in these soils may contain additional pockets of moisture beneath them, which are stored and used by plants during dryer periods of the year. Also, the higher coarse fragment contents of soil effectively shelter silty and other finer-textured soil particles from wind and water erosion.

Estimates of soil available water holding capacity (AWHC) were made using Saxton, et al. SPAW Soil Modeling Calculator, available on the Web. Permeability class (Rawls et al. 1982), and hydrologic group (Rawls et al. 1982) were based on soil texture of the major component of each soil map unit and adjusted for coarse fragment contents. The procedures found in Soil Survey Manual (USDA 1993b) were used to estimate surface

runoff class. The estimated root restricting depths were based on soil profile observation in the field, by such characteristics rock distribution, or bedrock layers.

The soil erodibility factors (K factors) were calculated based on the numerical representation of the nomographs typically used to calculate the erodibility of the fine earth fraction (Kf) and entire soil including rock fragments (Kw). This calculation involves the use of several variables including: the percentage of silt and very fine sand, soil organic matter, soil structure, and permeability. The procedures and calculation used to estimate the soil erodibility factors are provided in the National Soil Survey Handbook (USDA 1993a pages 618-30 and 618-32). The higher the K value, the more susceptible the soil is to sheet and rill erosion by water.

**Soil Survey Results**

Six soil map units were identified at the Order 2 level on 36.7 acres of the permit area. Figure 1 shows the location of the Kinney No.2 Mine Order 2 Soil Survey area, Soil Map Unit Identification Legend, and 31 of 36 soil sample site locations. Five locations are north of the present permit application boundary and not shown on this map. The Soil Map Unit ID Legend includes 5 natural soil map units and two previously disturbed map units. Family level soil classifications are provided for each of the natural soil map unit components. Three slope breaks, A: 0-35 percent, and B: 35-70 percent, C: 0-3 percent, were used to differentiate natural soil mapping units. Two slopes breaks, 0-20 percent, and 20-50 percent were used to differentiate the Disturbed Lands (DA, DB) map units. Of the 31 soil sample locations, 16 are located within previously disturbed/reclaimed areas and 15 were sampled from non-disturbed, natural soil landscapes.

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Important and prime farmland determinations for this area were assessed during September 2007 using the NRCS WEB SOIL SURVEY. Figure 2. Contains a page printed form this website listing the Soil Map units found in the area of this soil survey, and their Prime Farmland suitability ratings (NRCS, 2007). There are no prime farmland soils or soils of statewide importance found within areas of concern in this soil survey report, primarily limited by a cold climate (growing season length), slope steepness and rock fragment contents.

The laboratory data from ACZ (2006 sampling, including 5 sample sites located outside of present permit application) are presented in Appendix 1. Intermountain Laboratories, Inc. data (from 2007) are shown in Appendix 2. Soil pedon descriptions for the 36 profiles are provided in Appendix 3. Soil profile photographs with sampled depth increments are shown in Appendix 4. Soil micromonolith box samples for the 36 sites are provided in Appendix 5. Appendix 6 contains three Official Soil Series Descriptions which closely resemble soils described in this report, and are published in the Soil Survey of Carbon Area, Utah Report ( SCS, 1988).

Table 1 lists the soil analyses and the laboratory methods used by ACZ and IML to determine soil physiochemical properties. Table 3 shows the six Map Units, their major components, and the physical parameters typically used to assess impacts to soil resources and feasible soil management and handling options. Table 4 identifies each soil sample site with its family taxonomic classification. Classifications for profiles described within previously disturbed areas are listed as Disturbed Area Soils. Table 5 lists the soil map unit delineations by their acreage. Table 6 contains the laboratory data used to assess soil suitability and the various rating (highest, average, and cumulative ranking) based on comparison with the UDOGM topsoil suitability rating guideline provided in Table 2. Table 7 contains soil erodibility ( K factor) calculations and input parameters. Table 8 is a summary of all of the identified soil limitations, and estimated soil salvage depth and salvage volumes by soil map unit.

Two Soil Orders were described within the undisturbed lands (Map Units 1B, 2A, 2B, 3A) of Kinney No.2 Mine Order 2 soil survey area, Mollisol, and to a lesser extent, Alfisol. Inclusions of Inceptisols were also noted. A 10 –15 inch dark topsoil layer (A horizon) with 2 to 3 feet of very stony to bouldery coarse textured subsoil (B to C horizons) characterize the soils of these areas. Soils with over 10 percent coal fines on the surface are common in the disturbed/reclaimed area of the survey area, and these "reclaimed coal" dump areas are identified in this report as Disturbed Area Soils (Map Units DA and DB). It has proven difficult for me to model or predict the depths to and extent of "reclaimed coal" fines and chunks that occurs within the previously disturbed area. Soils located within Disturbed Areas contain a highly variable mixture of soil and rock material, mixed with "reclaimed coal" deposits. A common feature of both undisturbed and reclaimed sites across the survey area is the high percentage of coarse fragments found throughout these profiles. Exceptions to this case are found in soils located on concave lower slope positions (Map Unit 1B), and along floodplain terraces and drainages (map unit 3A).

**Following are brief descriptions of the six map units.**

DA. Disturbed area soils, 0-20 percent slopes

This map unit occurs in previously disturbed AML reclamation area throughout the soil survey area which includes former dumps, portals, and staging areas, and along abandoned haul and rail roads. The entire area appears to have been regraded since 1986 to conform to the moderate to slightly sloping toeslopes in context with the adjacent natural slope gradients. Mixtures of soil with alternative reclamation materials from the area are combined with "reclaimed coal" chunks and fines, and are distributed in a way making soil taxonomy inapplicable. Vegetation is a mixture of seeded grasses and Rubber rabbitbrush. Slope gradients are between 0 and 20 percent, the soil is well drained, and has a moderate permeability. Some concrete foundations of abandoned structures are found within this map unit. Eighty percent of the map unit are classified

Disturbed land soils, and 10 percent each are Fine-loamy and Loamy-skeletal, Typic Haploxerolls found on undisturbed soil landscapes with sagebrush and grass vegetation.

DB. Disturbed area soils, 20-50 percent slopes

This map unit is also located within previously disturbed AML reclamation areas, located primarily in the southern portion of the survey area. Parent materials include sandstone, limestone, and mudstones, Slopes range between 20 and 50 percent and soils are well drained and have a moderate permeability. There is a mixture of reclaimed materials, up to 20 inches depth comprised of subsoil with "reclaimed coal" covering the natural soil profiles. Depths of the reclaimed material covering the natural soils profile vary considerably across the map unit, and are not easily predicted by surface features. Eighty percent of this map unit is comprised of Disturbed land soil containing "reclaimed coal" and alternative reclamation materials. Vegetation is comprised of seeded grasses and Rubber Rabbitbrush, with a small proportion of sagebrush and aspen trees. Included are 10 percent Loamy-skeletal Typic Haploxeroll soils on undisturbed lands, with a mix of sagebrush and aspen vegetation. Another ten percent inclusion are Fine-loamy Typic Argixeroll soils on undisturbed land found on concave slope positions.

1B. Typic Haplocryoll loamy skeletal – Typic Argicryoll, coarse-loamy Complex, 35-70 percent slopes

This soil map unit is found on steeper mountain side slopes of the permit area with aspen vegetation and slopes above 35%. The parent materials are colluvial sandstones, shale, and limestones from the Blackhawk Formation. Soils are moderately deep to deep, well drained, and have a moderate permeability. Typic Haplocryoll, loamy-skeletal comprise 50 percent of this map unit. Typic Argicryoll, coarse-loamy comprise 40 percent of this map unit. Included in the map unit are ten percent Pachic Haplocryoll fine loamy soils located on concave slope positions.

2A. Typic Argixeroll, loamy-skeletal – Typic Haploxeroll, loamy-skeletal Complex, 0-35 percent slopes

This map unit is located on colluvial side slopes and toeslopes with sagebrush vegetation and slopes less than 35%. Soils are deep to very deep, well drained, and have a moderate permeability. Soils with south to westerly aspects under sagebrush vegetation types in this area have a frigid temperature regime. Loamy–skeletal, Typic Argixerolls comprise 50 percent of this map unit, and Fine-loamy Typic Haploxeroll comprise 35 percent of the map unit on concave slopes. Included in the map unit are 10 percent soils with pachic epipedons on concave lower sideslopes (Senchert Series), and 5% soils that are shallow to bedrock on ridges and convex sideslopes (Bege Series).

2B. Typic Argixeroll, loamy-skeletal Consociation, 35 - 70 percent slopes

This map unit is found on steep colluvial sideslopes with sagebrush and grass dominated vegetation. Mixed sedimentary rocks are the parent materials. The south to westerly aspects have a frigid temperature regime. Slopes are between 35% and 70% and soils are moderately deep to deep and well drained, with a moderate permeability. Loamy-skeletal Typic Argixerolls comprise 80 percent of this map unit. Included in the map unit are 10 percent shallow to bedrock soils on convex slopes, and 10 percent Pachic Haploxerolls on concave slope positions.

3A. Cumulic Argicryoll Fine-loamy, Consociation, 0-3 percent slopes

This map unit is of limited extent (0.8 acre) within the Kinney No.2 permit area, and is located west of Highway 96 on alluvial terrace bottomlands of the Mud Creek drainage. No backhoe pits were excavated in this map unit; soil sampling was by hand-excavated pits to 40 inches. The area is characterized by seasonally moist subsoil resulting from groundwater and Scofield Reservoir level fluctuations in the area. Soils are very deep, with stratified loam to silt loam textures, and are faintly mottled below 40 inches. Vegetation includes grass, sedges, and weeds. Ninety percent of this map unit is Silas Series soil types. Included in this map unit are five percent soils with 20 inches cover of coal fines with alternative reclamation material, found along depositional areas adjacent to the highway berms and associated drainage culverts, and five percent soils with a coarse- loamy particle size class in their control section.

**Soil Salvage**

The determination of soil suitability depends on the intended use of the soil. Soil intended for reclamation should have a sufficient depth and quantity to permit economic salvage and be of suitable quality and texture. Soils management considerations include the development of practical methods for soil salvage, stockpile construction, redistribution onto regraded spoil, seedbed preparation, erosion protection, and the rapid establishment of perennial and permanent vegetation.

Soil map unit salvageability, plant growth limiting factors, and the estimated volume of plant growth medium within the 27.3 acre Kinney No.2 Mine planned disturbance area provided in Table 8 which is a subset of the 36.7 soil survey area within the controlled property. These estimates were based on soil profile descriptions (Appendix 3), comparison of the suitability rating guidelines (Table 2) with physicochemical soils data (Table 6), size of the map unit within the proposed disturbance (Table 5), estimated depths of suitable soil in each map unit component, and the proportion of each map unit component for which soil salvage was considered feasible.

The factors limiting soil suitability in the 27.3 acre Kinney No.2 Mine Order 2 soil survey include Total Organic Carbon content (found in most alternative reclamation materials), available water holding capacity in the soils with over 40% coarse fragments, K-factor of the fine-earth fraction soil material of A horizons with minimal coarse fragment content, and slope gradients of over 50%. These limitations were identified based on the review of laboratory data and field description of coal distribution around and within the soil profiles, soil texture, and the ocular estimation for percentage rock content observed in the soil profiles. Slope gradients were determined using hand held clinometer.

Of the 154 samples tested within the 31 soil profiles, all tested good for electrical conductivity, SAR, and CaC03 percentage. All samples tested good for pH, with the exception of one sample (13-SP-07) which had pH values of slightly less then 6.5.

The water content, at saturation, of 151 of the samples rated good. Two sample increments from one site (1B-1) rated poorly, and one from site 13-SP-07 was fair, with saturation percentage of between 67 and 80 percent. The calculated available water capacity (AWHC), when corrected for coarse fragment content, for 87 of the soils rated good, 49 rated fair, and 18 were rated poor. The calculated soil erodibilty or K-factor for the fine earth fraction includes 123 rated good, 16 rated fair, and 15 rated poor. When coarse fragment contents are factored into the K-factor calculations, 144 samples are rated good, 3 are rated fair, and 7 are rated poor.

Soil textures of 152 of the coal and soil samples rated fair to good, with the majority of soils having a sandy loam, loam, or silt loam textures. Two of the subsurface soils rated poor with textures of silty clay (sites D-10, and 2A-5) and 2 coal samples (sites D-3 and 13-SP-07) had a poorly rated sand texture. The amount of very fine sand as proportion of total sand was generally between 15 and 30 percent.

Of 21 coal and coal- affected soil samples that were tested from 7 separate locations, all results for Boron results were good. They range between 0.46 and 2.30 mg/kg, well below the 5 mg/kg UDOGM acceptable limit. Of all of the selenium samples tested, 20 of 21 tested below lab detected limits. One sample, D-11 tested .007 mg/kg, below UDOGM acceptable standard of .15 mg/kg. Soil materials, alternative reclamation materials, and coal samples from 7 of the sample sites, are thus considered nonseleniferous and non-boroniferous.

The Acid- Base Potential for these 21 samples all rated good, with a lab calculations of between 5 and 38 available tons CaCo3 per1000 tons overburden in the samples. Total Organic Carbon for the 8 coal samples tested between 5 and 63 percent TOC. All of the "reclaimed coal" found buried within soil profiles, and mixed into the alternative reclamation material of soils of disturbed sites within the survey area, notwithstanding their distribution and thickness within soil profiles, are regarded as poorly rated in their topsoil suitability because of Total Organic Carbon percentages of over 10 percent. The issue of addressing the segregation and disposition of these coal fines is outside the scope of this soil survey report and will be a topic found in the topsoil salvage plan and the reclamation plan.

Based on these laboratory results and soil profile observations for 27.3 acres of the Kinney No. 2 Mine Order 2 soil survey area, the natural soil landscapes represented by Map units 2A, 2B, 1B, and 3A contain suitable growth medium of between 8 and 24 inches thickness that can be salvaged for reclamation of mine-related disturbances when found in contiguous areas of over an acre in extent. Map Units 1B and 2B, found on over 35 percent slopes, pose mechanical limitations in separating potential topsoil increments of less than 8 inch depth without inclusion of subsoil. Experience has shown that where less than about one foot of suitable materials are found on steep, rocky slopes, or close to shallow bedrock contacts, it would be impractical to strip, salvage and transport any of the suitable soils without including some subsoil material (B or C horizons) located at depths between one to two feet.

An exception to the available topsoil reclamation suggestion above is found within areas of disturbed land (map units DA and DB), where some of the alternative reclamation materials are mixed with varying amounts of "reclaimed coal" containing Total Organic Carbon contents of over 10 percent, and containing coal fines on the surface in excess of 15%. These soils are regarded as unsuitable for reclamation purposes, yet comprise significant proportions of the survey area. The variably-sized, buried bodies of "reclaimed coal" located within map units DA and DB may contain acid forming materials and should be contained separately from other suitable topsoil growth medium. However, based on the sample sites located within disturbed areas of this survey, the establishment of certain plants has successfully occurred in much of the previously disturbed area reclaimed by AML. The alternative topsoil materials used in 1986 may be argued as having had some success in providing adequate neutralizing affects when used in association with small amounts of coal fines (less than 15%) so that these materials

may repeatedly used, if necessary, as a source for additional alternative topsoil materials.

The exact extent of coal buried within previously disturbed Map units DA and DB cannot be precisely estimated by methodologies used to prepare this soil survey report. Additional core drilling in areas of previous disturbances and located within AML 1986 reclamation is recommended. This core drilling would allow for modeling of a better estimate of the quantities of "reclaimed coal" located in this area. Such an estimate of coal volumes could provide the information needed to decide whether economics of the stripping/ recovery of buried coal is feasible. In my judgment, potential additional reclamation materials could be made available from within map Units DA and DB if the isolation and recovery of "reclaimed coal" are deemed feasible. Separation of, and salvage for resale of the larger bodies of the "reclaimed coal" is perhaps an economically feasible management alternative. The removal from the AML areas of any potential acid toxicity resulting from "reclaimed coal" products provides assurance that buried "reclaimed coal" is isolated and separate from other nearby, suitable alternative reclamation topsoil materials.

According to the results of 154 soil sample analyses and a field survey of soil resources, an estimated 66.5 thousand cubic yards ($yds^3$) of suitable soil is salvageable within the 27.3 acres of Kinney No.2 Mine Order 2 soil survey area for use as plant growth medium for reclamation. Additional soil salvage volume may be possible if marginal soils (poorly rated soils by UDOGM Guidelines), along with use of some of the alternative reclamation materials mixed with coal fines, are considered necessary for overcoming deficiencies in topsoil balance. The plants presently growing on-site attest to the abilities of these previously disturbed lands alternative reclamation materials to grow vegetation.

Salvageable soil quantities may be more precisely estimated when detailed plans for the scheduling and mine development are completed. At that time, the detailed balance of salvaged soil materials and substrates can be calculated, and their storage or distribution can be determined and become part of the reclamation planning. Experience in soil salvage on large-scale mining projects has shown that field determination of soil salvage and suitability at the time of construction may be necessary. My recommendation is for a trained soil scientist to be present at time of soil salvage operations.

**Potential Soil management Alternatives**

Two potential reclamation uses for soils salvaged from Kinney No.2 Order 2 Soil Survey are:

1. Primary plant growth medium;
2. Seed, organic matter, and soil inoculum source

## 1. Primary Plant Growth Medium

Soils capable of acting as a primary plant growth medium for revegetation and reclamation are generally composed of soil materials rated as 1 or 2 according to the UDOGM guidelines. These soils are currently capable of supporting, in this case, native plant species that are adapted to conditions in the area. The physical and chemical properties of texture, pH, soluble salts content, sodium content, organic matter, etc. are in general not limiting for plant growth of native species. In some instances, soil material below the zone of active pedogenic processes should be suitable for reclamation.

## 2. Seed and Microbial Innoculum

The second subsidiary use of the surface soils is as a source for seed and plant propagules and microorganism inoculum. Seeds are generally contained in the top few inches of soils and are more abundant in the late summer and fall after flowering and seed set. Microbial inoculum is also contained in the top 2 to 8 inches of growth medium. Root propagules are typically found within the top 2 feet of the soil profile. Stockpiling of these plant propagules and microbial active materials significantly reduces their viability over time. If mine planning allows, soils should be applied within a short time following salvage and placed directly on regraded surfaces (‘live handled’).

## Summary

There are some limitations to soil salvage in the proposed disturbed area within the Kinney No.2 Mine Order 2 soil survey area. The primary limitations are the available water holding capacity of soils containing greater than 50% rock content, slope gradients of over 50 percent affecting use of soil salvage machinery, soil materials with sandy textures, and an accurate determination of the quantity of coal found within the mixture of alternative reclamation materials located in Disturbed Lands Map Units DA and DB. Soil salinity, pH, calcium carbonate percentage, and plant nutrition do not pose any limitations to plant growth medium at the Kinney No.2 soil survey area. To ensure maximum utilization of the soils resource, soil salvage should be coordinated with the planning and construction phases of mining operations. A soil reclamation plan, at a later date, will have to address the issue of separation of the previous coal mining affected surfaces from natural topsoil, in the stripping and salvage operations.

Based on the soil descriptions in this report, the stripping, handling, storage, and application of the salvaged material can be estimated for reclamation planning. The estimated amount of salvageable soils was calculated based on depth and extent of soils found within the 36.7 acres within the Kinney No.2 Mine Order 2 soil survey area. All of the soil salvage estimates in this report are approximations.

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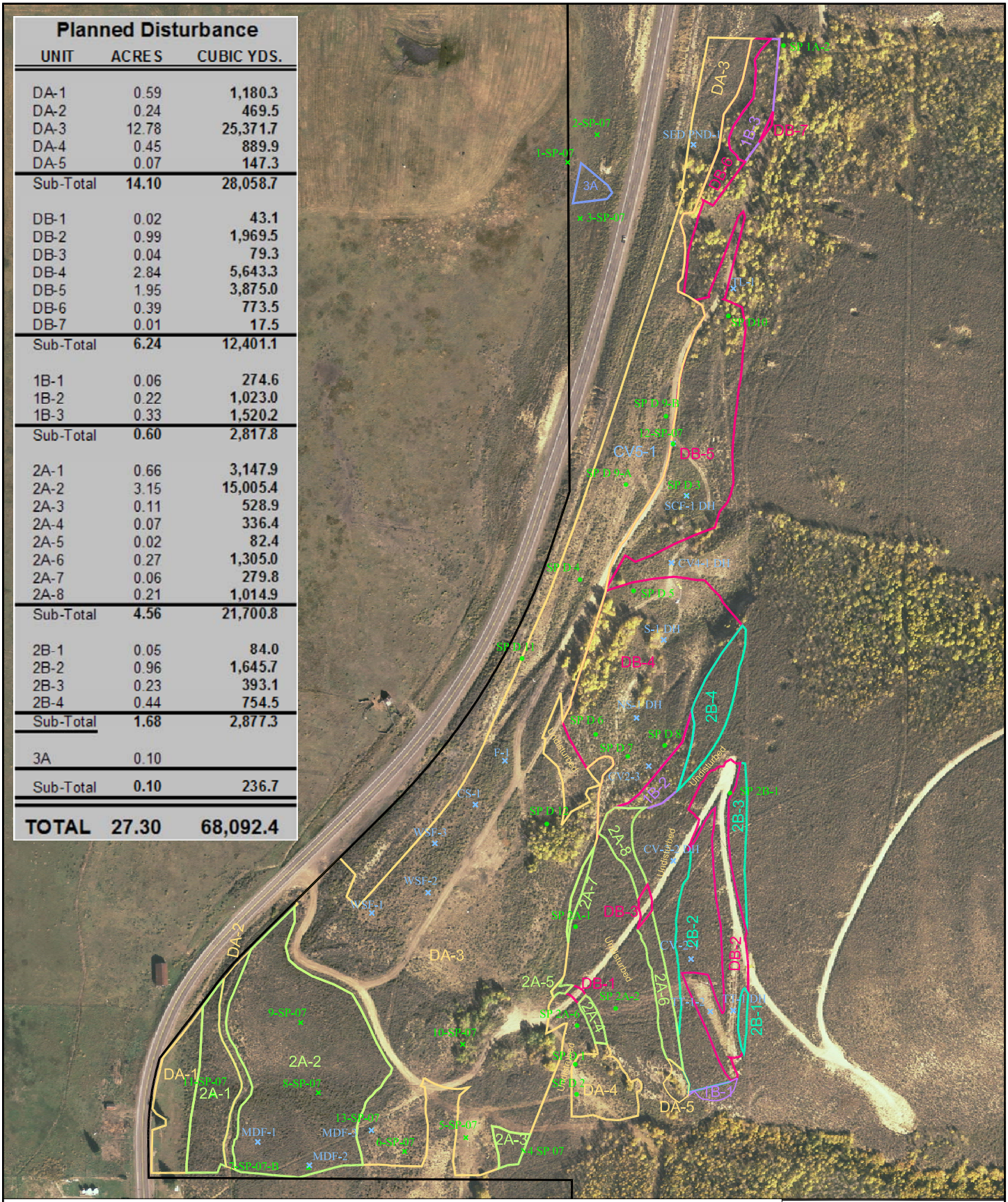
# REPORT TABLES




## Planned Disturbance

| UNIT | ACRES | CUBIC YDS. |
|---|---|---|
| DA-1 | 0.59 | 1,180.3 |
| DA-2 | 0.24 | 469.5 |
| DA-3 | 12.78 | 25,371.7 |
| DA-4 | 0.45 | 889.9 |
| DA-5 | 0.07 | 147.3 |
| Sub-Total | 14.10 | 28,058.7 |
| DB-1 | 0.02 | 43.1 |
| DB-2 | 0.99 | 1,969.5 |
| DB-3 | 0.04 | 79.3 |
| DB-4 | 2.84 | 5,643.3 |
| DB-5 | 1.95 | 3,875.0 |
| DB-6 | 0.39 | 773.5 |
| DB-7 | 0.01 | 17.5 |
| Sub-Total | 6.24 | 12,401.1 |
| 1B-1 | 0.06 | 274.6 |
| 1B-2 | 0.22 | 1,023.0 |
| 1B-3 | 0.33 | 1,520.2 |
| Sub-Total | 0.60 | 2,817.8 |
| 2A-1 | 0.66 | 3,147.9 |
| 2A-2 | 3.15 | 15,005.4 |
| 2A-3 | 0.11 | 528.9 |
| 2A-4 | 0.07 | 336.4 |
| 2A-5 | 0.02 | 82.4 |
| 2A-6 | 0.27 | 1,305.0 |
| 2A-7 | 0.06 | 279.8 |
| 2A-8 | 0.21 | 1,014.9 |
| Sub-Total | 4.56 | 21,700.8 |
| 2B-1 | 0.05 | 84.0 |
| 2B-2 | 0.96 | 1,645.7 |
| 2B-3 | 0.23 | 393.1 |
| 2B-4 | 0.44 | 754.5 |
| Sub-Total | 1.68 | 2,877.3 |
| 3A | 0.10 | |
| Sub-Total | 0.10 | 236.7 |
| **TOTAL** | **27.30** | **68,092.4** |

SOIL TYPES and Planned Disturbance Areas

- DA Disturbed Lands, 0-20% Slopes
- DB Disturbed Lands, 20-50% Slopes
- 2A Typic Argixeroll-Typic Haploxeroll Complex,0-35% Slopes
- 1B Typic Argicryoll Consociation, 35-70% Slopes
- 2B Typic Argixeroll Consociation, 35-70% Slopes

LEGEND

- SP 2A1 — Soil Survey Sample Pit 2006 Field Work w/Lab Analysis
- 6 SP 07 — Soil Survey Sample Pit 2007 Field Work w/Lab Analysis
- WSF-2 — Soil Stability Sample Pit 2007 Field Work; Soil Horizion Data Only, NO /Lab Analysis
- Permit Boundary (Portal Block)

N

0 300 ft

SCALE: 1:3,600 or 1" = 300'

Contour Interval 20 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft, using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then multiply by the CF.

Carbon Resources LLC

KINNEY NO. 2 MINE

FIGURE 1

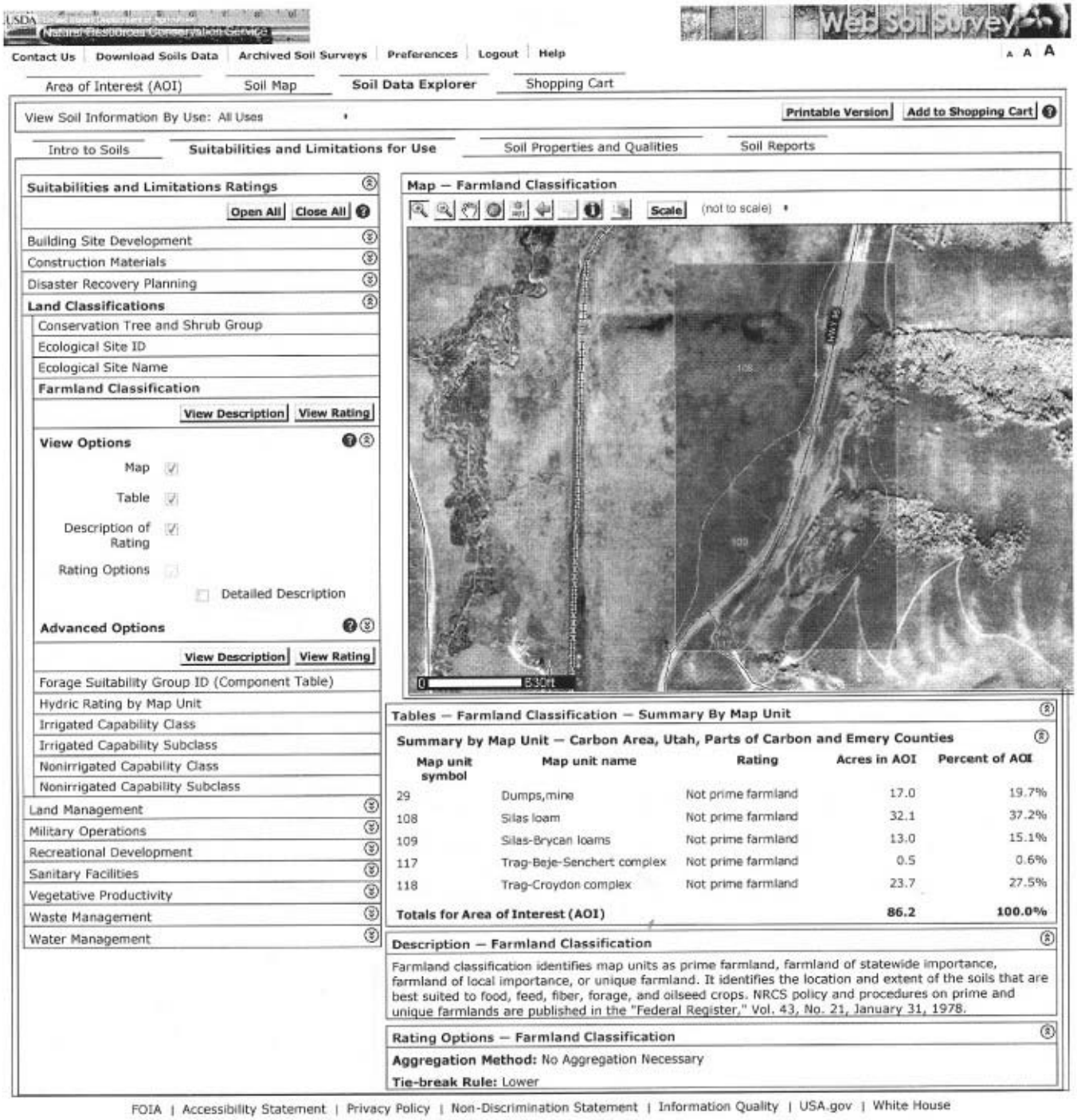
Planned Disturbed Area Soil Map

DRAWN BY: BC & GLH DATE: 9/20/-7

APPROVED BY: Gregory Hunt DATE: 12/31/2007

HANSEN ALLEN & LUCE, Inc. ENGINEERS
23 S. Carbon Ave., Suite 21
Price, UT 84501

FILE: Fig 1 Soil Chemistry 07


USDA Natural Resources Conservation Service
Web Soil Survey
Contact Us | Download Soils Data | Archived Soil Surveys | Preferences | Logout | Help
A A A
Area of Interest (AOI) | Soil Map | Soil Data Explorer | Shopping Cart
View Soil Information By Use: All Uses
Printable Version | Add to Shopping Cart
Intro to Soils | Suitabilities and Limitations for Use | Soil Properties and Qualities | Soil Reports
Suitabilities and Limitations Ratings
Open All | Close All
Building Site Development
Construction Materials
Disaster Recovery Planning
Land Classifications
Conservation Tree and Shrub Group
Ecological Site ID
Ecological Site Name
Farmland Classification
View Description | View Rating
View Options
Map
Table
Description of Rating
Rating Options
Detailed Description
Advanced Options
View Description | View Rating
Forage Suitability Group ID (Component Table)
Hydric Rating by Map Unit
Irrigated Capability Class
Irrigated Capability Subclass
Nonirrigated Capability Class
Nonirrigated Capability Subclass
Land Management
Military Operations
Recreational Development
Sanitary Facilities
Vegetative Productivity
Waste Management
Water Management
Map — Farmland Classification
Scale (not to scale)
Tables — Farmland Classification — Summary By Map Unit
Summary by Map Unit — Carbon Area, Utah, Parts of Carbon and Emery Counties
Map unit symbol | Map unit name | Rating | Acres in AOI | Percent of AOI
29 | Dumps,mine | Not prime farmland | 17.0 | 19.7%
108 | Silas loam | Not prime farmland | 32.1 | 37.2%
109 | Silas-Brycan loams | Not prime farmland | 13.0 | 15.1%
117 | Trag-Beje-Senchert complex | Not prime farmland | 0.5 | 0.6%
118 | Trag-Croydon complex | Not prime farmland | 23.7 | 27.5%
Totals for Area of Interest (AOI) | 86.2 | 100.0%
Description — Farmland Classification
Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.
Rating Options — Farmland Classification
Aggregation Method: No Aggregation Necessary
Tie-break Rule: Lower
FOIA | Accessibility Statement | Privacy Policy | Non-Discrimination Statement | Information Quality | USA.gov | White House

# TABLE 1

## Kinney #2 Mine - Soil Analyses and Analytical Methods

| ANALYSES | METHOD |
|---|---|
| Boron, soluble (Hot Water) | M6010B ICP |
| Calcium, soluble (Sat. Paste) | M6010B ICP |
| Magnesium, soluble (Sat. Paste | M6010B ICP |
| Potassium, extractable (AB-DTP | M6010B ICP |
| Potassium, soluble (Sat. Paste | M6010B ICP |
| Selenium, soluble (Hot Water) | SM3500-Se.C |
| Sodium Absorption Ratio | Calculation |
| Sodium, soluble (Sat. Paste) | M6010B ICP |
| Acid Generation Potential (cal | M600/2-78-054 1.3 |
| Acid Neutralization Potential | M600/2-78-054 1.3 |
| Acid-Base Potential (calc on S | M600/2-78-054 1.3 |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Co |
| Clay | ASTM D 422 Hydromete |
| Conductivity @25C | M120.1 - Meter, w/ S |
| Neutralization Potential as Ca | M600/2-78-054 3.2.3 |
| pH, Saturated Paste | USDA No. 60 (21A) |
| Sand | ASTM D 422 Hydromete |
| Saturation Percent | USDA No. 60 (2) |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 |
| Silt | ASTM D 422 Hydromete |
| Solids, Percent | CLPSOW390, PART F, D |
| Sulfur Organic Residual | M600/2-78-054 3.2.4 |
| Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 |
| Sulfur Sulfate | M600/2-78-054 3.2.4 |
| Sulfur Total | M600/2-78-054 3.2.4 |
| Texture Classification | ASTM D 422 Hydromete |
| Total Sulfur minus Sulfate | M600/2-78-054 3.2.4 |
| Nitrate as N, extractable (KCL | Calculation: NO3NO2 |
| Nitrate/Nitrite as N, extracta | M353.2 - Automated C |
| Nitrite as N, extractable (KCL | M353.2 - Automated C |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Bloc |
| Phosphorus, extractable (AB-DT | M365.1 - Automated A |

## Table 2

## Utah Oil Gas and Mining Soil Suitability/Unsuitability Evaluation Guidelines [1]

| Criteria | Suitability Rating[2] | | | |
|---|---|---|---|---|
| | Good (G) | Fair (F) | Poor (P) | Unacceptable(U) |
| **Saturation %** | 25 to 55 | ≥56 to 80 | <25, >80 | |
| **pH** | 6.5 to 8.1 | 6.0 to 6.4, 8.2-8.5 | 5.5 to 6.0, 8.6 to 9.0 | <5.5, >9.0 |
| **EC (mS/cm 25$^0$ C)** | 0 to 4 | 4 to 8 | 8 to 15 | >15 |
| **SAR (Sodium Adsorption Ration)[a,b]** | 0 to 4 | 5 to 10 | 10 to 14 | >14[a] |
| **%$CaCO_3$** | <15 | 15-30 | >30 | |
| **Texture [c]** | sl, l, sil, scl, sc, ls, lfs | cl, c, sicl, sc, ls, lfs | sic, s, sc, cos, fs, vfs | g, vcos |
| **Total Organic Carbon** | <10% | | | ≥10% |
| **Available Water Capacity [d]** | >0.10, moderate | 0.05 to 0.10, low | <0.05, very low | |
| **K factor [e]** | <0.37 | 0.37 | >0.37 | |

[1] Utah Oil Gas and Mining, October, 2005. Guideline for Management of Topsoil and Overburden R645-301-200 Soils - Table 4

[a] For clay textured soils unacceptable SAR > 14. For sandy textured soils unacceptable is >20.

[b] For most Western soils, the SAR to ESP relationship is usually 1:1, up to ESP ≈ 20. If SAR> 20, then determine ESP (Evangelou, 2000).

[c] s=sand, l=loam, si=silt, c=clay, v=very, f=fine, co=coarse, g=gravel

[d] Available Water Capacity is adjusted for texture and coarse fragment percentage, and SAR

[e] K factor recommendations from the USDA Soil Conservation Service, 1978. National Soils Handbook Notice 24 (3/31/78). NSH Part II-403.6 (a). For prime farmland soils, the K factor times the percent slope should be a value of five or less for minimal erosion hazard.

**Table 3**
**Kinney #2 Mine Order 2 Soil Survey - Soil Map Unit Descriptions and Physical Parameters**

| Map Unit ID # | Map Unit | Map Unit Component | % of Map Unit[1] | Landform | Depth to Bedrock inches | Parent Material | Drainage[2] | Bulk Density g/cm$^3$ | AWHC[3] in/in | Perm Class[4] | Hydro Soil Group[4] | Surface Runoff Class[5] | Root Restriction Depth[8] | Soil Depth Class[8] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DA | Disturbed Lands, 0-20 percent slopes | Disturbed Soil | 90% | toeslopes | 40-60 plus | Coal Waste and reclaimed Topsoil | W | 1.4 | .02-.12 | 3 | B | M | None | 60 plus |
| | | Lo-sk Typic Haploxeroll | 10% | | | | | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | | | | | | | | | | | | | | |
| DB | Disturbed Lands, 20-50 percent slopes | Disturbed Soils | 80% | lower sideslopes | 60 plus | Coal Waste and reclaimed Topsoil | MW- W | 1.4 | .01-.13 | 3 | B | M | None | 60 plus |
| | | Lo-sk Typic Haploxeroll | 10% | | | | | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | | Fi-lo Typic Argixeroll | 10% | | | | | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1B | Coarse-loamy Typic Argicryoll Consociation, 35-70 percent slopes | Co-lo Typic Haplocryoll | 80% | sideslopes | 60 plus | Mixed Colluvium from Black Hawk Fm. | EW-W | 1.50 | .06-.12 | 2 | A | H | None | 40-60 |
| | | Disturbed Soils | 10% | | 40-60 | | | 1.4 | .02-.12 | 3 | B | H | None | 60 plus |
| | | Lo-sk Typic Argicryoll | 10% | | 40-60 | | | 1.35 | .03-.16 | 3 | B | H | None | 40-60 |
| 2A | Typic Argixeroll - Typic Haploxeroll Complex, 0-35 percent slopes | Lo-sk Typic Argixeroll | 50% | toeslopes | 40-60 | Mixed Colluvium from Black Hawk Fm | MW-W | 1.40 | .03-.15 | 3 | B | M | None | 40-60 |
| | | Lo-sk Typic Haploxeroll | 35% | | | | | 1.40 | .05-.11 | 3 | B | M | None | 40-60 |
| | | Inclusions | 15% | | 40-60 | | | 1.4 | .11-.15 | 3 | B | M | None | 40-60 |
| 2B | Typic Argixeroll Consociation, 35-70 percent slopes | Lo-sk Typic Argixeroll | 80% | sideslopes | 40-60 | Mixed Colluvium from Black Hawk Fm | MW-W | 1.35 | .08-.14 | 3.00 | B | H | None | 40-60 |
| | | Disturbed Soils | 10% | | 40-60 | | | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | | shallow to bedrock inclusion | 10% | | 10 to 20 | | | | | | | | | |
| | | | | | | | | | | | | | | |

[1] Percentage of components in map unit.

[2] Drainage: E=excessively drained ; W=well drained; MW=moderately well drained; P=poorly drained

[3] AWHC estimated with coarse fragment Reduction (UDOGM Guidelines, page 11)

[4] See explanation Table 7 , footnote 2

[5] Surface Runoff Class: L=low; M=moderate; H=high; VH=very high

[7] Soil Erosion Hazard: K<0.37 = Low (L); K = 0.37 = Moderate (M); K > 0.37 = High (H)

[8] VS= very shallow (0-10 inches); S=shallow (10-20 inches); MD=moderately deep (20-40 inches); D=deep (40-60 inches); VD=very deep (>60 inches)

## Table 4

### Kinney #2 Mine Order 2 Soil Survey - Soil Family Classification by Pedon Location

| Pedon ID Number | Map Unit | Soil Classification |
|---|---|---|
| D-1 | Disturbed Area Soils, 0-20 percent slopes | N/A Disturbed Land Soils |
| D-2 | Disturbed Area Soils, 0-20 percent slopes | N/A Disturbed Land Soils |
| D-9A | Disturbed Area Soils, 0-20% percent slopes | N/A Disturbed Land Soils |
| D-9B | Disturbed Area Soils, 0-20 % percent slopes | N/A Disturbed Land Soils |
| D-10 | Disturbed Area Soils, 0-20 % percent slopes | N/A Disturbed Land Soils |
| D-11 | Disturbed Area Soils, 0-20% percent slopes | N/A Disturbed Land Soils |
| 05-SP-07 | Disturbed Area Soils, 0-20 percent slopes | N/A Disturbed Land Soils |
| 06-SP-07 | Disturbed Area Soils, 0-20 percent slopes | N/A Disturbed Land Soils |
| 13-SP-07 | Disturbed Area Soils, 0-20 percent slopes | N/A Disturbed Land Soils |
| | | |
| D-3 | Disturbed Area Soils, 20-50 percent slopes | N/A Disturbed Land Soils |
| D-4 | Disturbed Area Soils, 20-50 percent slopes | N/A Disturbed Land Soils |
| D-5 | Disturbed Area Soils, 20-50 percent slopes | N/A Disturbed Land Soils |
| D-6 | Disturbed Area Soils, 20-50 percent slopes | N/A Disturbed Land Soils |
| D-7 | Disturbed Area Soils, 20-50 percent slopes | N/A Disturbed Land Soils |
| | | |
| D-12 | 1A Complex, 0-35 percent slopes | Loamy-skeletal, mixed, superactive, Typic Argicryoll |
| 1A-1 | 1A Complex, 0-35 percent slopes | Loamy-skeletal, mixed, superactive, Typic Argicryoll |
| 1B-1 | 1A Complex, 0 -35 percent slopes | Coarse-loamy, mixed, superactive, Typic Haplocryoll |
| 1A-2 | 1A Complex, 0-35 percent slopes | Fine-loamy, mixed, superactive, Pachic Haplocryoll |
| 10-SP-07 | 1A Complex, 0-35 percent slopes | Loamy-skeletal, mixed, superactive, Typic Argicryoll |
| | | |
| D-8 | 1B Consociation, 35-70 % slopes | Coarse-loamy, mixed, superactive, Typic Haplocryoll |
| | | |
| 2A-1 | 2A Complex, 0-35 percent slopes | Loamy-skeletal, mixed, superactive, Typic Argixeroll |
| 2A-2 | 2A Complex, 0-35 percent slopes | Loamy-skeletal, mixed, superactive, Typic Argixeroll |
| 2A-3 | 2A Complex, 0-35 percent slopes | Loamy-skeletal, mixed, superactive, Typic Argixeroll |
| 2A-5 | 2A Complex, 0-35 percent slopes | Loamy-skeletal, mixed, superactive, Typic Argixeroll |
| 2A-6 | 2A Complex, 0-35 percent slopes | Fine-loamy, Mixed, superactive, Pachic Palexeroll |
| 2A-7 | 2A Complex, 0-35 percent slopes | Loamy-skeletal, mixed, superactive, Typic Haploxeroll |
| 04-SP-07 | 2A Complex, 0-35 percent slopes | Loamy-skeletal,mixed, superactive, Typic Haplustoll |
| 07-SP-07 | 2A Complex, 0-35 percent slopes | Loamy-sleletal, mixed superactive, Typic Haplustoll |
| 08-SP-07 | 2A Complex, 0-35 percent slopes | Fine-loamy, mixed, superactive, Typic Argixeroll |
| 11-SP-07 | 2A Complex, 0-35 percent slopes | Loamy-skeletal, mixed, superactive, Typic Argixeroll |
| 09-SP-07 | 2A Complex, 0-35 percent slopes | Fine-loamy, mixed, superactive, Typic Argixeroll |
| 12-SP-07 | 2A Complex, 0-35 percent slopes | Coarse-loamy, mixed, superactive, Typic Haplustoll |
| | | |
| 2B-1 | 2B Consociation, 35-70 percent slopes | Loamy-skeletal, mixed, superactive, Typic Argixeroll |
| | | |
| 01-SP-07 | 3A Consociation, 0-3 percent slopes | Coarse-loamy, mixed, superactive, Cumulic Endoaquoll |
| 02-SP-07 | 3A Consociation, 0-3 percent slopes | Fine-loamy, mixed, superactive, Cumulic Haplocryoll |
| 03-SP-07 | 3A Consociation, 0-3 percent slopes | Fine-loamy, mixed, superactive, Cumulic Haplocryol |

## Table 5

**Kinney #2 Mine Order 2 Soil Survey - Surface Disturbance by Soil Map Unit**

| Map Unit ID | Map Unit Name | Disturbance Acres |
|---|---|---|
| DA | Disturbed Lands, 0-20 percent slopes | 14.1 |
| | | |
| DB | Disturbed Lands, 20-50 percent slopes | 6.1 |
| | | |
| 1B | Typic Argicryoll Consociation, 35-70 percent slopes | 0.8 |
| | | |
| 2A | Typic Argixeroll - Typic Haploxeroll Complex, 0-35 percent slopes | 4.5 |
| | | |
| 2B | Typic Argixeroll Consociation, 35-70 percent slopes | 1.6 |
| | | |
| 3A | Cumulic Haplocryoll, fine-loamy, 0-3 percent slopes | 0.1 |
| | | |
| | **Total** | **27.3** |

Table 6

Kinney #2 Order 2 Soil Survey - Soil Suitability Data

| Lab | Sample | pH (Sat Paste) | R[1] | E.C. @25°C | R[1] | SAR | R[1] | Sand | Silt | Clay | VFS | USDA Texture Class[2] | R[1] | Saturation Percent | R[1] | Available Water Capacity[5] | R[1] | Organic Matter | Organic Carbon (calculated) | R[1] | Erodibility Factor (K-Factor)[4] | R[1] | $CaCO_3$ | R[1] | Boron | R[1] | Se (Hot $H_2O$ sol) | R[1] | Cumulative Rating | Most Limiting Suitability Rating[1] | Average Suitability Rating[1] | Calcium, soluble (Sat. Paste) | Magnesium, soluble (Sat. Paste) | Sodium, soluble (Sat. Paste) | Potassium, soluble (Sat. Paste) | Nitrogen-Nitrate | Phosphorus | boron | selenium | total sulfer | Acid-Base Potential |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | ID | units | | dS/m | | unitless | | % | % | % | % | | | % | | in/in | | % | % | | unitless | | % | | mg/Kg | | mg/Kg | | | | | meq/L | meq/L | meq/L | meq/L | mg/Kg | mg/Kg | meq/L | mg/kg | mg/kg | T Ca / 1KT overburden |
| L59731-01 | D-1 0-6" | 6.8 | 1 | 0.25 | 1 | 0.23 | 1 | 72.5 | 11.3 | 16.3 | 8.5 | sl | 1 | 34.6 | 1 | 0.04 | 3 | 2.4 | 1.4 | 1 | 0.1 | 1 | 2.3 | 1 | * | | * | | 11 | 3 | 1.22 | 1.57 | 0.12 | 0.22 | 0.32 | 1.1 | 28 | * | * | * | * |
| L59731-02 | D-1 6-16 | 6.4 | 2 | 0.22 | 1 | 0.11 | 1 | 70 | 15 | 15 | 12.2 | sl | 1 | 53.4 | 1 | 0.08 | 2 | 4 | 23.3 | 4 | 0.05 | 1 | 1.2 | 1 | * | | * | | 14 | 4 | 1.55 | 1.28 | 0.15 | 0.1 | 0.07 | 1.1 | 36 | * | * | * | * |
| L59731-03 | D-1 6-25" | 6.7 | 1 | 0.18 | 1 | 0.08 | 1 | 76.3 | 7.5 | 16.3 | 8.1 | sl | 1 | 35.8 | 1 | 0.09 | 2 | 1.2 | 0.7 | 1 | 0.1 | 1 | 3.4 | 1 | * | | * | | 10 | 2 | 1.11 | 0.82 | 0.14 | 0.06 | 0.1 | 1.6 | 14 | * | * | * | * |
| L59731-04 | D-1 25-40" | 7 | 1 | 0.16 | 1 | 0.11 | 1 | 73.8 | 12.5 | 13.8 | 11.4 | sl | 1 | 34.6 | 1 | 0.09 | 2 | 1.5 | 0.9 | 1 | 0.1 | 1 | 0.2 | 1 | * | | * | | 10 | 2 | 1.11 | 0.76 | 0.15 | 0.08 | 0.08 | 0.9 | 29 | * | * | * | * |
| L59731-05 | D-1 40-65" | 6.5 | 1 | 0.21 | 1 | 0.11 | 1 | 80 | 7.5 | 12.5 | 8.5 | sl | 1 | 30.2 | 1 | 0.06 | 3 | 1 | 0.6 | 1 | 0.1 | 1 | 0.2 | 1 | * | | * | | 11 | 3 | 1.22 | 1.04 | 0.22 | 0.09 | 0.08 | U | 20 | * | * | * | * |
| L59731-06 | D-1 65-90" | 7.2 | 1 | 0.26 | 1 | 0.15 | 1 | 83.8 | 3.8 | 12.5 | 31.8 | sl | 1 | 31.1 | 1 | 0.07 | 3 | 0.9 | 0.5 | 1 | 0.05 | 1 | 0.5 | 1 | * | | * | | 11 | 3 | 1.22 | 1.36 | 0.24 | 0.14 | 0.05 | U | 20 | * | * | * | * |
| L59731-07 | D-2 0-6" | 7.3 | 1 | 0.18 | 1 | 0.08 | 1 | 77.5 | 7.5 | 15 | 8.9 | sl | 1 | 33.5 | 1 | 0.12 | 1 | 1.9 | 1.1 | 1 | 0.02 | 1 | 0.6 | 1 | * | | * | | 9 | 1 | 1 | 0.8 | 0.16 | 0.06 | 0.11 | 0.2 | 15 | * | * | * | * |
| L59731-08 | D-2 6-24" | 7.5 | 1 | 0.5 | 1 | 0.05 | 1 | 78.8 | 7.5 | 13.8 | 1.9 | sl | 1 | 33.3 | 1 | 0.11 | 1 | 0.5 | 0.3 | 1 | 0.02 | 1 | 0.4 | 1 | * | | * | | 9 | 1 | 1 | 0.16 | 0.13 | 0.02 | 0.08 | U | 13 | * | * | * | * |
| L59731-09 | D-3 0-10" | 7.5 | 1 | 0.27 | 1 | 0.08 | 1 | 72.5 | 8.8 | 18.8 | 7.6 | sl | 1 | 40.7 | 1 | 0.08 | 2 | 4 | 2.3 | 1 | 0.15 | 1 | 1.4 | 1 | 0.57 | 1 | U | 1 | 11 | 2 | 1 | 1.2 | 0.21 | 0.07 | 0.33 | 1.5 | 29 | **0.57** | U | 0.02 | 15 |
| L59731-10 | D-3 10-20" | 7.4 | 1 | 0.27 | 1 | 0.09 | 1 | 71.3 | 11.3 | 17.5 | 7.4 | sl | 1 | 35.3 | 1 | 0.07 | 2 | 2.9 | 1.7 | 1 | 0.1 | 1 | 1.5 | 1 | 0.66 | 1 | U | 1 | 11 | 2 | 1 | 1.52 | 0.24 | 0.09 | 0.18 | 0.9 | 20 | **0.66** | U | 0.02 | 10 |
| L59731-11 | D-3 20-40" | 6.9 | 1 | 0.17 | 1 | 0.09 | 1 | 72.5 | 8.8 | 18.8 | 8.9 | sl | 1 | 37 | 1 | 0.07 | 2 | 2.7 | 1.6 | 1 | 0.1 | 1 | 1 | 1 | 0.65 | 1 | U | 1 | 11 | 2 | 1 | 0.68 | 0.14 | 0.06 | 0.07 | 0.4 | 16 | **0.65** | U | 0.02 | 18 |
| L59731-12 | D-3 40-60 " | 6.3 | 2 | 0.25 | 1 | 0.08 | 1 | 72.5 | 10 | 17.5 | 6.9 | sl | 1 | 38.9 | 1 | 0.05 | 2 | 3.1 | 1.8 | 1 | 0.05 | 1 | 1.8 | 1 | 0.48 | 1 | U | 1 | 12 | 2 | 1.09 | 1.13 | 0.26 | 0.07 | 0.06 | 0.2 | 17 | **0.48** | U | 0.03 | 14 |
| L59731-13 | D-3 60-75" | 6.3 | 2 | 0.16 | 1 | 0.05 | 1 | 72.5 | 10 | 17.5 | 7.4 | sl | 1 | 37.9 | 1 | 0.04 | 3 | 3.2 | 1.9 | 1 | 0.05 | 1 | 1.8 | 1 | 1.11 | 1 | U | 1 | 13 | 3 | 1.18 | 13.4 | 5.67 | 0.17 | 0.16 | 0.4 | 15 | **1.11** | U | 0.13 | 19 |
| L59731-14 | D-3 coal | 6.6 | 1 | 0.16 | 1 | | 1 | 71.3 | 13.8 | 15 | 1.9 | sl | 1 | 59.2 | 2 | 0.11 | 1 | 5.2 | 30.1 | 4 | 0.05 | 1 | 3.3 | 1 | 2.3 | 1 | U | 1 | 13 | 4 | 1.18 | 15.3 | 3.06 | 0.07 | 0.13 | 1 | 5 | **2.3** | U | 0.46 | 19 |
| L59731-15 | D-4 0-8 " | 6.6 | 1 | 0.2 | 1 | 0.07 | 1 | 71.3 | 11.3 | 17.5 | 9.1 | sl | 1 | 40.2 | 1 | 0.07 | 2 | 2.4 | 1.4 | 1 | 0.15 | 1 | 1.2 | 1 | * | | * | | 10 | 2 | 1.11 | 0.82 | 0.13 | 0.05 | 0.07 | 1.3 | 22 | * | * | * | * |
| L59731-16 | D-4 8-16" | 6.7 | 1 | 0.14 | 1 | 0.05 | 1 | 68.8 | 12.5 | 18.8 | 9.2 | sl | 1 | 39.2 | 1 | 0.07 | 2 | 5.5 | 1.3 | 1 | 0.15 | 1 | 0.9 | 1 | * | | * | | 10 | 2 | 1.11 | 0.47 | 0.12 | 0.03 | 0.06 | 0.3 | 21 | **2.25** | U | 0.39 | 23 |
| L59731-17 | D-4 19-72 coal | 7.5 | 1 | 0.2 | 1 | | 1 | 77.5 | 6.3 | 16.3 | 2.4 | sl | 1 | 61.6 | 2 | 0.08 | 2 | 2.2 | 3.2 | 1 | 0.15 | 1 | 2.3 | 1 | 2.25 | 1 | U | 1 | 13 | 2 | 1.18 | 16.9 | 8.58 | 0.08 | 0.13 | 1.1 | 4 | * | * | * | * |
| L59731-18 | D-5 0-6 | 7.7 | 1 | 0.26 | 1 | 0.07 | 1 | 65 | 13.8 | 21.3 | 6.2 | scl | 2 | 45.9 | 1 | 0.07 | 2 | 2.6 | 1.5 | 1 | 0.05 | 1 | 2.3 | 1 | * | | * | | 11 | 2 | 1.22 | 1.17 | 0.24 | 0.06 | 0.09 | 0.5 | 24 | * | * | * | * |
| L59731-19 | D-5 6-20" | 7.8 | 1 | 0.18 | 1 | 0.07 | 1 | 65 | 13.8 | 21.3 | 6.9 | scl | 2 | 47 | 1 | 0.02 | 3 | 2.4 | 1.4 | 1 | 0.02 | 1 | 2.6 | 1 | * | | * | | 12 | 2 | 1.09 | 0.81 | 0.15 | 0.05 | 0.06 | 0.5 | 24 | * | * | * | * |
| L59731-20 | D-5 20-40" | 7 | 1 | 0.12 | 1 | 0.08 | 1 | 63.8 | 15 | 21.3 | 5.8 | scl | 2 | 52.2 | 1 | 0.02 | 3 | 1.7 | 1 | 1 | 0.05 | 1 | 2.7 | 1 | * | | * | | 13 | 3 | 1.44 | 0.34 | 0.1 | 0.04 | 0.08 | 0.9 | 20 | * | * | * | * |
| L59732-01 | D-5 40-60" | 6.9 | 1 | 0.25 | 1 | 0.33 | 1 | 37.5 | 41.3 | 21.3 | 13.1 | sil | 1 | 52.3 | 1 | 0.02 | 3 | 2.7 | 1.6 | 1 | 0.28 | 1 | 3.3 | 1 | * | | * | | 11 | 3 | 1.22 | 1.33 | 0.31 | 0.3 | 0.08 | 7.9 | 18 | * | * | * | * |
| L59732-02 | D-6 0-7" | 6.9 | 1 | 0.28 | 1 | 0.11 | 1 | 30 | 47.5 | 22.5 | 12.3 | sil | 1 | 52.1 | 1 | 0.11 | 1 | 2.7 | 1.6 | 1 | 0.2 | 1 | 3.7 | 1 | * | | * | | 9 | 1 | 1 | 2.48 | 0.38 | 0.14 | 0.45 | 9 | 15 | * | * | * | * |
| L59732-03 | D-6 24-48 | 7 | 1 | 0.45 | 1 | 0.21 | 1 | 40 | 40 | 20 | 11.3 | sil | 1 | 54.4 | 1 | 0.03 | 3 | 2.2 | 1.3 | 1 | 0.17 | 1 | 3.2 | 1 | * | | * | | 11 | 3 | 1.22 | 3.21 | 0.76 | 0.3 | 0.09 | 3.3 | 12 | * | * | * | * |
| L59732-04 | D-6 48-72 | 6.7 | 1 | 0.45 | 1 | 0.2 | 1 | 37.5 | 42.5 | 20 | 8.9 | sil | 1 | 51 | 1 | 0.13 | 1 | 2.4 | 1.4 | 1 | 0.28 | 1 | 3.3 | 1 | * | | * | | 9 | 1 | 0.81 | 2.96 | 0.69 | 0.28 | 0.09 | 2.3 | 10 | * | * | * | * |
| L59732-05 | D-7 0-6" | 6.7 | 1 | 0.69 | 1 | 0.09 | 1 | 30 | 50 | 20 | 9.7 | sil | 1 | 49.6 | 1 | 0.01 | 3 | 2.7 | 1.3 | 1 | 0.2 | 1 | 2.7 | 1 | * | | * | | 11 | 3 | 1.22 | 4.92 | 0.72 | 0.16 | 0.67 | 1.9 | 7 | * | * | * | * |
| L59732-06 | D-7 6-20" | 7.2 | 1 | 0.46 | 1 | 0.12 | 1 | 30 | 47.5 | 22.5 | 7.1 | sil | 1 | 47.3 | 1 | 0.01 | 3 | 1.9 | 1.1 | 1 | 0.24 | 1 | 3.3 | 1 | * | | * | | 11 | 3 | 1.22 | 2.98 | 0.56 | 0.17 | 0.15 | 0.4 | 10 | * | * | * | * |
| L59732-07 | D-7 20-42" | 6.8 | 1 | 0.2 | 1 | 0.12 | 1 | 32.5 | 46.3 | 21.3 | 8.5 | sil | 1 | 43.3 | 1 | 0.02 | 3 | 1.5 | 0.9 | 1 | 0.17 | 1 | 3.3 | 1 | * | | * | | 11 | 3 | 1.22 | 0.93 | 0.32 | 0.1 | 0.13 | 0.5 | 8 | * | * | * | * |
| L59732-08 | D-7 42-58" | 6.8 | 1 | 0.3 | 1 | 0.22 | 1 | 32.5 | 45 | 22.5 | 9.1 | sicl | 2 | 54.3 | 1 | 0.06 | 2 | 2.1 | 1.2 | 1 | 0.1 | 1 | 2.8 | 1 | * | | * | | 11 | 2 | 1.22 | 1.63 | 0.42 | 0.23 | 0.09 | U | 8 | * | * | * | * |
| L59732-09 | D-7 58-70 | 7 | 1 | 0.48 | 1 | 0.13 | 1 | 52.5 | 35 | 12.5 | 23.6 | loam | 1 | 36.5 | 1 | 0.12 | 1 | 1.4 | 0.8 | 1 | 0.17 | 1 | 0.8 | 1 | * | | * | | 9 | 1 | 1 | 3.35 | 0.83 | 0.2 | 0.11 | U | 16 | * | * | * | * |
| L59732-10 | D-8 0-6" | 7 | 1 | 0.59 | 1 | 0.08 | 1 | 52.5 | 38.8 | 8.8 | 20.3 | loam | 1 | 64.6 | 2 | 0.14 | 1 | 4.3 | 2.5 | 1 | 0.32 | 1 | 1.2 | 1 | * | | * | | 10 | 2 | 1.11 | 3.91 | 0.79 | 0.13 | 1.11 | 2.1 | 25 | * | * | * | * |
| L59732-11 | D-8 6-13 | 7 | 1 | 0.28 | 1 | 0.14 | 1 | 55 | 35 | 10 | 21.1 | loam | 1 | 41.5 | 1 | 0.14 | 1 | 1.9 | 1.1 | 1 | 0.2 | 1 | 0.8 | 1 | * | | * | | 9 | 1 | 1 | 1.13 | 0.28 | 0.12 | 0.42 | 1.7 | 20 | * | * | * | * |
| L59732-12 | D-8 13-20 | 7 | 1 | 0.16 | 1 | 0.17 | 1 | 55 | 32.5 | 12.5 | 24.2 | loam | 1 | 38.8 | 1 | 0.09 | 2 | 0.7 | 0.4 | 1 | 0.15 | 1 | 0.6 | 1 | * | | * | | 10 | 2 | 1.11 | 0.56 | 0.23 | 0.11 | 0.24 | 0.8 | 20 | * | * | * | * |
| L59732-13 | D-8 20-48 | 7.2 | 1 | 0.18 | 1 | 0.17 | 1 | 53.8 | 30 | 16.3 | 23.9 | loam | 1 | 38 | 1 | 0.08 | 2 | 0.5 | 0.3 | 1 | 0.1 | 1 | 0.6 | 1 | * | | * | | 10 | 2 | 1.11 | 0.6 | 0.3 | 0.12 | 0.22 | U | 17 | * | * | * | * |
| L59732-14 | D-9A 0-6" | 7 | 1 | 0.45 | 1 | 0.09 | 1 | 47.5 | 36.3 | 16.3 | 14.4 | loam | 1 | 51.6 | 1 | 0.1 | 2 | 3.4 | 2 | 1 | 0.2 | 1 | 2 | 1 | * | | * | | 10 | 2 | 1.11 | 3.48 | 0.39 | 0.13 | 0.2 | 1 | 11 | * | * | * | * |
| L59732-15 | D-9A 6-12 | 7.9 | 1 | 0.47 | 1 | 0.08 | 1 | 50 | 32.5 | 17.5 | 15.4 | loam | 1 | 47.6 | 1 | 0.09 | 2 | 3.8 | 2.2 | 1 | 0.1 | 1 | 1.9 | 1 | * | | * | | 10 | 2 | 1.11 | 3.25 | 0.54 | 0.12 | 0.09 | U | 11 | * | * | * | * |
| L59732-16 | D-9A 12-30 | 7.9 | 1 | 0.27 | 1 | 0.1 | 1 | 68.8 | 18.8 | 12.5 | 5.6 | sl | 1 | 37.5 | 1 | 0.12 | 1 | 51 | 29.6 | 4 | 0.15 | 1 | 4.2 | 1 | 2.31 | 1 | U | 1 | 13 | 4 | 1.18 | 1.33 | 0.28 | 0.09 | 0.1 | 0.7 | 3 | **2.16** | U | 0.62 | 27 |
| L59732-17 | D9A 30-68 | 7 | 1 | 2.11 | 1 | 0.03 | 1 | 57.5 | 25 | 17.5 | 2.6 | sl | 1 | 55.2 | 2 | 0.17 | 1 | 35 | 24.4 | 4 | 0.24 | 1 | 5.4 | 1 | 2.16 | 1 | U | 1 | 14 | 4 | 1.27 | 20.9 | 11 | 0.12 | 0.16 | 0.8 | 2 | **0.91** | U | 0.06 | 35 |
| L59732-18 | D-9A 80-95 | 6.7 | 1 | 0.35 | 1 | 0.07 | 1 | 53.8 | 31.3 | 15 | 13.9 | loam | 1 | 49 | 1 | 0.14 | 1 | 7.4 | 4.3 | 1 | 0.24 | 1 | 1.7 | 1 | 0.91 | 1 | U | 1 | 10 | 1 | 0.9 | 2.34 | 0.29 | 0.09 | 0.15 | 0.6 | 9 | **0.86** | U | 0.04 | 15 |
| L59732-20 | D-9A 95-115" | 6.8 | 1 | 0.25 | 1 | 0.24 | 1 | 55 | 30 | 15 | 15.5 | loam | 1 | 51 | 1 | 0.13 | 1 | 4.1 | 2.4 | 1 | 0.24 | 1 | 1.3 | 1 | 0.86 | 1 | U | 1 | 10 | 1 | 0.9 | 1.35 | 0.29 | 0.22 | 0.05 | 1.3 | 11 | **0.46** | U | 0.02 | 12 |
| L59733-01 | D9A 115-145 | 6.8 | 1 | 1.25 | 1 | 0.1 | 1 | 50 | 27.5 | 22.5 | 18.9 | loam | 1 | 42.5 | 1 | 0.13 | 1 | 0.5 | 0.3 | 1 | 0.17 | 1 | 0.5 | 1 | 0.57 | 1 | U | 1 | 10 | 1 | 0.9 | 12.7 | 2.67 | 0.3 | 0.35 | 3.6 | 13 | **0.57** | U | 0.02 | 5 |
| L59733-02 | D-9B 0-6 | 6.7 | 1 | 0.43 | 1 | 0.18 | 1 | 35 | 40 | 25 | 15 | sil | 1 | 41.5 | 1 | 0.12 | 1 | 2.9 | 1.7 | 1 | 0.32 | 1 | 2.4 | 1 | 0.46 | 1 | U | 1 | 10 | 1 | 0.9 | 2.76 | 0.39 | 0.23 | 0.32 | 2.9 | 20 | **0.46** | U | 0.03 | 24 |
| L59732-03 | D-9B 6-12 | 7.1 | 1 | 0.37 | 1 | 0.17 | 1 | 51.3 | 31.3 | 17.5 | 19.4 | loam | 1 | 34.9 | 1 | 0.11 | 1 | 4.1 | 2.4 | 1 | 0.17 | 1 | 2.2 | 1 | 0.49 | 1 | U | 1 | 10 | 1 | 0.9 | 2.47 | 0.39 | 0.21 | 0.12 | 0.9 | 31 | **0.49** | U | 0.52 | 22 |
| L59733-04 | D-9B 12-30 | 7.6 | 1 | 1.61 | 1 | 0.07 | 1 | 50 | 26.3 | 23.8 | 3.7 | loam | 1 | 50.3 | 1 | 0.17 | 1 | 40 | 23.1 | 4 | 0.17 | 1 | 5.1 | 1 | 2.27 | 1 | 0.007 | 1 | 14 | 4 | 1.27 | 18.5 | 3.87 | 0.25 | 0.17 | 1.5 | 3 | **2.27** | 0.007 | 1.13 | 35 |
| L59733-05 | D-9B 30-52" | 6.7 | 1 | 1.77 | 1 | 0.04 | 1 | 93.8 | 3.8 | 2.5 | 2.9 | sand | 3 | 59 | 2 | 0.06 | 2 | 93 | 54 | 4 | 0.1 | 1 | 4.6 | 1 | 1.41 | 1 | U | 1 | 17 | 4 | 1.54 | 25.1 | 1.48 | 0.16 | 0.06 | 1.2 | 1 | **1.41** | U | 0.05 | 11 |
| L59733-06 | D-9B 52-80 | 7.9 | 1 | 1.85 | 1 | 0.05 | 1 | 60 | 26.3 | 13.8 | 21.5 | loam | 1 | 38 | 1 | 0.12 | 1 | 2.4 | 1.4 | 1 | 0.2 | 1 | 0.7 | 1 | 1.73 | 1 | U | 1 | 10 | 1 | 0.91 | 20.1 | 6.54 | 0.21 | 0.42 | 0.4 | 11 | **1.73** | U | 0.03 | 5 |
| L59733-07 | D-9B 80-102 | 7.5 | 1 | 1.73 | 1 | 0.06 | 1 | 53.8 | 31.3 | 15 | 20.3 | loam | 1 | 37.9 | 1 | 0.11 | 1 | 1.5 | 0.9 | 1 | 0.17 | 1 | 0.6 | 1 | 0.86 | 1 | U | 1 | 10 | 1 | 0.91 | 19.4 | 6.62 | 0.24 | 0.58 | 0.4 | 11 | **0.86** | U | 0.01 | 6 |
| L59733-08 | D-10 0-5" | 7.3 | 1 | 0.53 | 1 | 0.16 | 1 | 47.5 | 37.5 | 15 | 31.8 | loam | 1 | 50.7 | 1 | 0.15 | 1 | 5.7 | 3.3 | 1 | 0.32 | 1 | 1 | 1 | * | | * | | 9 | 1 | 1 | 3.23 | 0.67 | 0.23 | 1.11 | 1.8 | 21 | * | * | * | * |
| L59733-09 | D-10 5-11 | 7.3 | 1 | 0.28 | 1 | 0.4 | 1 | 33.8 | 41.3 | 25 | 8.9 | sil | 1 | 48.3 | 1 | 0.18 | 1 | 5.3 | 3.1 | 1 | 0.43 | 4 | 1.7 | 1 | * | | * | | 12 | 4 | 1.33 | 1.34 | 0.28 | 0.36 | 0.15 | 1.5 | 13 | * | * | * | * |
| L59733-10 | D-10 11-23 | 7.1 | 1 | 0.22 | 1 | 0.49 | 1 | 26.3 | 35 | 38.8 | 3 | sicl | 2 | 61.7 | 2 | 0.18 | 1 | 1.4 | 0.8 | 1 | 0.32 | 1 | 0.7 | 1 | * | | * | | 11 | 2 | 1.22 | 0.82 | 0.25 | 0.36 | 0.09 | 0.9 | 7 | * | * | * | * |
| L59733-11 | D-10 23-35 | 7.3 | 1 | 0.25 | 1 | 0.43 | 1 | 22.5 | 35 | 42.5 | 2 | sic | 3 | 69.6 | 2 | 0.17 | 1 | 1.2 | 0.7 | 1 | 0.28 | 1 | 1 | 1 | * | | * | | 12 | 3 | 1.33 | 0.81 | 0.39 | 0.34 | 0.19 | 2 | 8 | * | * | * | * |
| L59733-12 | D-11 0-12 | 7.3 | 1 | 0.42 | 1 | 0.2 | 1 | 42.5 | 32.5 | 25 | 11.7 | loam | 1 | 40.8 | 1 | 0.1 | 2 | 2.8 | 1.6 | 1 | 0.2 | 1 | 3.1 | 1 | * | | * | | 10 | 2 | 1.11 | 2.98 | 0.35 | 0.26 | 0.22 | 1.8 | 15 | * | * | * | * |
| L59733-13 | D-11 12-48 | 7.4 | 1 | 1.63 | 1 | 0.06 | 1 | 62.5 | 20 | 17.5 | 6.9 | sl | 1 | 53.2 | 1 | 0.12 | 1 | 43 | 25 | 4 | 0.1 | 1 | 3.5 | 1 | 1.41 | 1 | U | | 13 | 4 | 1.18 | 20.5 | 2.88 | 0.23 | 0.11 | 0.7 | 2 | **1.41** | U | 0.039 | 23 |
| L59733-14 | D-11 62-82 | 7.3 | 1 | 1.33 | 1 | 0.08 | 1 | 51.3 | 30 | 18.8 | 6.3 | loam | 1 | 44.8 | 1 | 0.02 | 3 | 6.2 | 3.6 | 1 | 0.05 | 1 | 5.3 | 1 | * | | * | | 11 | 3 | 1.22 | 12.8 | 4.28 | 0.26 | 0.16 | 0.6 | 9 | * | * | * | * |
| L59733-15 | D-12 0-6" | 7.3 | 1 | 0.42 | 1 | 0.18 | 1 | 50 | 37.5 | 12.5 | 23.4 | loam | 1 | 55.9 | 2 | 0.16 | 1 | 5.5 | 3.2 | 1 | 0.32 | 1 | 0.7 | 1 | * | | * | | 10 | 2 | 1.11 | 2.11 | 0.62 | 0.21 | 1.06 | 2.6 | 22 | * | * | * | * |
| L59733-16 | D-12 6-14 | 7.6 | 1 | 0.27 | 1 | 0.3 | 1 | 52.5 | 33.8 | 13.8 | 22.7 | loam | 1 | 42.7 | 1 | 0.15 | 1 | 1.7 | 1 | 1 | 0.24 | 1 | 0.7 | 1 | * | | * | | 9 | 1 | 1 | 1.23 | 0.41 | 0.28 | 0.38 | 2 | 16 | * | * | * | * |
| L59733-17 | D-12 14-28 | 7.1 | 1 | 0.21 | 1 | 0.35 | 1 | 51.3 | 36.3 | 12.5 | 18.8 | loam | 1 | 36.5 | 1 | 0.12 | 1 | 1.2 | 0.7 | 1 | 0.17 | 1 | 0.5 | 1 | * | | * | | 9 | 1 | 1 | 0.82 | 0.31 | 0.27 | 0.2 | 1.9 | 13 | * | * | * | * |
| L59733-18 | D-12 28-48 | 7.6 | 1 | 0.25 | 1 | 0.32 | 1 | 53.8 | 27.5 | 18.8 | 17.2 | loam | 1 | 36.4 | 1 | 0.03 | 3 | 0.7 | 0.4 | 1 | 0.1 | 1 | 0.6 | 1 | * | | * | | 11 | 3 | 1.22 | 1.15 | 0.36 | 0.28 | 0.16 | 1.8 | 11 | * | * | * | * |
| L59733-19 | D-12 48-66 | 6.8 | 1 | 0.3 | 1 | 0.27 | 1 | 56.3 | 25 | 18.8 | 23.6 | loam | 1 | 38 | 1 | 0.03 | 3 | 0.3 | 0.2 | 1 | 0.05 | 1 | 2.6 | 1 | * | | * | | 11 | 3 | 1.22 | 1.63 | 0.33 | 0.27 | 0.09 | 1.9 | 11 | * | * | * | * |
| L59733-20 | 2A-1 0-10" | 7 | 1 | 0.31 | 1 | 0.19 | 1 | 57.5 | 30 | 12.5 | 24.3 | loam | 1 | 46.8 | 1 | 0.15 | 1 | 2 | 1.2 | 1 | 0.32 | 1 | 0.5 | 1 | * | | * | | 9 | 1 | 1 | 1.59 | 0.45 | 0.2 | 0.52 | 4.4 | 14 | * | * | * | * |
| L59734-01 | 2A-1 10-24 | 7.1 | 1 | 0.29 | 1 | 0.37 | 1 | 50 | 30 | 20 | 15.5 | loam | 1 | 34.6 | 1 | 0.09 | 2 | 0.7 | 0.4 | 1 | 0.17 | 1 | 0.5 | 1 | * | | * | | 10 | 2 | 1.11 | 1.33 | 0.51 | 0.36 | 0.34 | 7.4 | 39 | * | * | * | * |
| L59734-02 | 2A-1 24-44 | 7.7 | 1 | 0.19 | 1 | 0.2 | 1 | 35 | 37.5 | 27.5 | 14.1 | cl | 2 | 44.3 | 1 | 0.08 | 2 | 0.7 | 0.4 | 1 | 0.17 | 1 | 8.1 | 1 | * | | * | | 11 | 2 | 1.22 | 1.26 | 0.25 | 0.18 | 0.06 | 34 | 17 | * | * | * | * |
| L59734-03 | 2A-1 44-65 | 6.8 | 1 | 0.24 | 1 | 0.39 | 1 | 42.5 | 31.3 | 26.3 | 12.2 | loam | 1 | 40.6 | 1 | 0.04 | 3 | 0.3 | 0.2 | 1 | 0.1 | 1 | 12.2 | 1 | * | | * | | 11 | 2 | 1.22 | 1.37 | 0.29 | 0.36 | 0.08 | 7.6 | 8 | * | * | * | * |
| L59734-04 | 2A-1 65-80 | 7.3 | 1 | 0.24 | 1 | 0.41 | 1 | 55 | 25 | 20 | 13.5 | loam | 1 | 34.3 | 1 | 0.03 | 3 | 0.3 | 0.2 | 1 | 0.05 | 1 | 14.8 | 1 | * | | * | | 11 | 3 | 1.22 | 1.51 | 0.34 | 0.4 | 0.08 | 6.4 | 9 | * | * | * | * |
| L59734-05 | 2A-2 0-5" | 7.3 | 1 | 0.31 | 1 | 0.33 | 1 | 47.5 | 36.3 | 16.3 | 19.6 | loam | 1 | 44.3 | 1 | 0.14 | 1 | 1.4 | 0.8 | 1 | 0.32 | 1 | 0.8 | 1 | * | | * | | 9 | 1 | 1 | 1.47 | 0.46 | 0.33 | 0.49 | 5.2 | 17 | * | * | * | * |
| L59734-06 | 2A-2 5-14 | 7.3 | 1 | 0.32 | 1 | 0.33 | 1 | 48.8 | 36.3 | 15 | 21.9 | loam | 1 | 45.2 | 1 | 0.13 | 1 | 2.4 | 1.4 | 1 | 0.24 | 1 | 0.6 | 1 | * | | * | | 9 | 1 | 1 | 1.49 | 0.44 | 0.33 | 0.91 | 7 | 27 | * | * | * | * |
| L59734-07 | 2A-2 14-25 | 7.6 | 1 | 0.16 | 1 | 0.43 | 1 | 35 | 46.3 | 18.8 | 13.1 | sil | 1 | 32.3 | 1 | 0.11 | 1 | 0.9 | 0.5 | 1 | 0.24 | 1 | 0.5 | 1 | * | | * | | 9 | 1 | 1 | 0.65 | 0.23 | 0.29 | 0.2 | 47 | 17 | * | * | * | * |
| L59734-08 | 2A-2 25-38 | 7.5 | 1 | 0.12 | 1 | 0.37 | 1 | 37.5 | 36.3 | 26.3 | 15.6 | sil | 1 | 37.8 | 1 | 0.09 | 2 | 0.3 | 0.2 | 1 | 0.24 | 1 | 0.7 | 1 | * | | * | | 10 | 2 | 1.11 | 0.47 | 0.23 | 0.22 | 0.12 | 41.8 | 10 | * | * | * | * |
| L59734-09 | 2A-3 0-9" | 7.6 | 1 | 0.2 | 1 | 0.23 | 1 | 56.3 | 32.5 | 11.3 | 27.1 | loam | 1 | 45.5 | 1 | 0.13 | 1 | 2.9 | 1.7 | 1 | 0.32 | 1 | 0.6 | 1 | * | | * | | 9 | 1 | 1 | 0.9 | 0.28 | 0.18 | 0.54 | 9.7 | 14 | * | * | * | * |
| L59734-10 | 2A-3 9-19 | 7.8 | 1 | 0.14 | 1 | 0.33 | 1 | 45 | 33.8 | 21.3 | 9 | loam | 1 | 33.6 | 1 | 0.1 | 2 | 1.2 | 0.7 | 1 | 0.17 | 1 | 0.5 | 1 | * | | * | | 10 | 2 | 1.11 | 0.47 | 0.23 | 0.2 | 0.21 | 5.1 | 9 | * | * | * | * |
| L59734-11 | 2A-3 19-36 | 7.4 | 1 | 0.14 | 1 | 0.41 | 1 | 47.5 | 30 | 22.5 | 18 | loam | 1 | 32 | 1 | 0.07 | 2 | 0.9 | 0.5 | 1 | 0.15 | 1 | 0.5 | 1 | * | | * | | 10 | 2 | 1.11 | 0.54 | 0.19 | 0.25 | 0.11 | 4.1 | 9 | * | * | * | * |
| L59734-12 | 2A-3 36-52 | 7.6 | 1 | 0.19 | 1 | 0.33 | 1 | 31.3 | 40 | 28.8 | 19.4 | sil | 1 | 42.6 | 1 | 0.04 | 3 | 0.9 | 0.5 | 1 | 0.15 | 1 | 0.8 | 1 | * | | * | | 11 | 3 | 1.22 | 1.08 | 0.31 | 0.28 | 0.07 | 11.1 | 33 | * | * | * | * |
| L59734-13 | 2A-5 0-6" | 7.3 | 1 | 0.36 | 1 | 0.38 | 1 | 46.3 | 37.5 | 16.3 | 19.3 | loam | 1 | 44.7 | 1 | 0.08 | 2 | 3.1 | 1.8 | 1 | 0.2 | 1 | 0.8 | 1 | * | | * | | 10 | 2 | 1.11 | 1.87 | 0.52 | 0.42 | 0.68 | 11.4 | 25 | * | * | * | * |
| L59734-14 | 2A-5 6-12 | 7.8 | 1 | 0.36 | 1 | 0.33 | 1 | 46.3 | 32.5 | 21.3 | 12.6 | loam | 1 | 39.6 | 1 | 0.05 | 2 | 2.4 | 1.4 | 1 | 0.1 | 1 | 0.7 | 1 | * | | * | | 10 | 2 | 1.11 | 2.15 | 0.42 | 0.38 | 0.54 | 6.5 | 14 | * | * | * | * |
| L59734-15 | 2A-5 12-24 | 7.8 | 1 | 0.11 | 1 | 0.38 | 1 | 28.8 | 40 | 31.3 | 7.2 | sicl | 2 | 39.2 | 1 | 0.09 | 2 | 0.9 | 0.5 | 1 | 0.17 | 1 | 0.5 | 1 | * | | * | | 11 | 2 | 1.22 | 0.37 | 0.24 | 0.21 | 0.26 | 4.2 | 7 | * | * | * | * |
| L59734-16 | 2A-5 24-48 | 7.8 | 1 | 0.09 | 1 | 0.42 | 1 | 22.5 | 37.5 | 40 | 4.8 | sicl/sic | 3 | 47.3 | 1 | 0.08 | 2 | 0.7 | 0.4 | 1 | 0.18 | 1 | 0.7 | 1 | * | | * | | 12 | 3 | 1.33 | 0.24 | 0.31 | 0.22 | 0.25 | 7 | 8 | * | * | * | * |
| L59734-17 | 2A-6 0-6" | 7.7 | 1 | 0.23 | 1 | 0.16 | 1 | 47.5 | 37.5 | 15 | 18 | loam | 1 | 40.9 | 1 | 0.17 | 1 | 0.6 | 1.2 | 1 | 0.32 | 1 | 0.7 | 1 | * | | * | | 9 | 1 | 1 | 1.14 | 0.43 | 0.15 | 0.75 | 7.2 | 24 | * | * | * | * |
| L59734-18 | 2A-6 6-12 | 7.8 | 1 | 0.19 | 1 | 0.21 | 1 | 50 | 33.8 | 16.3 | 24.3 | loam | 1 | 38.8 | 1 | 0.24 | 1 | 2.4 | 1.3 | 1 | 0.24 | 1 | 0.7 | 1 | * | | * | | 9 | 1 | 1 | 0.84 | 0.31 | 0.16 | 0.52 | 5.3 | 22 | * | * | * | * |
| L59734-19 | 2A-6 12-24 | 7.5 | 1 | 0.18 | 1 | 0.43 | 1 | 45 | 38.8 | 16.3 | 15.5 | loam | 1 | 39.2 | 1 | 0.15 | 1 | 1.7 | 1 | 1 | 0.24 | 1 | 0.7 | 1 | * | | * | | 9 | 1 | 1 | 0.96 | 0.31 | 0.35 | 0.1 | 3.5 | 19 | * | * | * | * |
| L59734-20 | 2A-6 24-40 | 7.5 | 1 | 0.22 | 1 | 0.42 | 1 | 45 | 38.8 | 16.3 | 14.9 | loam | 1 | 42.8 | 1 | 0.15 | 1 | 1.7 | 1 | 1 | 0.24 | 1 | 0.7 | 1 | * | | * | | 9 | 1 | 1 | 1.27 | 0.44 | 0.39 | 0.24 | 6.1 | 23 | * | * | * | * |
| L59735-01 | 2A-6 40-60 | 7.4 | 1 | 0.51 | 1 | 1.39 | 1 | 50 | 25 | 25 | 13.6 | loam | 1 | 31.6 | 1 | 0.14 | 1 | 0.9 | 0.5 | 1 | 0.24 | 1 | 1.4 | 1 | * | | * | | 9 | 1 | 1 | 1.54 | 0.73 | 1.48 | 0.39 | 3.9 | 31 | * | * | * | * |
| L59735-02 | 2A-6 60-80 | 7.2 | 1 | 0.35 | 1 | 1.09 | 1 | 47.5 | 27.5 | 25 | 19.2 | loam | 1 | 32.9 | 1 | 0.11 | 1 | 0.7 | 0.4 | 1 | 0.17 | 1 | 1 | 1 | * | | * | | 9 | 1 | 1 | 0.99 | 0.64 | 0.98 | 0.29 | 3.6 | 28 | * | * | * | * |
| L59735-03 | 2A-7 0-7" | 7.8 | 1 | 0.35 | 1 | 0.55 | 1 | 55 | 25 | 20 | 20.4 | loam | 1 | 47.8 | 1 | 0.11 | 1 | 2 | 1.2 | 1 | 0.2 | 1 | 0.6 | 1 | * | | * | | 9 | 1 | 1 | 1.24 | 0.45 | 0.51 | 0.74 | 4.6 | 17 | * | * | * | * |
| L59735-04 | 2A-7 7-20 | 7.6 | 1 | 0.4 | 1 | 0.43 | 1 | 51.3 | 26.3 | 22.5 | 21.2 | loam | 1 | 37.4 | 1 | 0.1 | 2 | 1 | 0.6 | 1 | 0.17 | 1 | 0.5 | 1 | * | | * | | 10 | 2 | 1.11 | 1.45 | 0.49 | 0.43 | 0.6 | 3.8 | 17 | * | * | * | * |
| L59735-05 | 2A-7 20-38 | 7.2 | 1 | 0.28 | 1 | 0.43 | 1 | 50 | 26.3 | 23.8 | 22.6 | loam | 1 | 34.2 | 1 | 0.05 | 2 | 1 | 0.3 | 1 | 0.1 | 1 | 0.5 | 1 | * | | * | | 10 | 2 | 1.11 | 1.06 | 0.41 | 0.37 | 0.3 | 1.9 | 14 | * | * | * | * |
| L59735-06 | 2B-1 0-9" | 7.5 | 1 | 0.3 | 1 | 0.18 | 1 | 58.8 | 21.3 | 20 | 9.6 | l | 1 | 49.7 | 1 | 0.15 | 1 | 2.2 | 1.3 | 1 | 0.2 | 1 | 0.6 | 1 | * | | * | | 9 | 1 | 1 | 1.11 | 0.42 | 0.16 | 0.75 | 7.9 | 17 | * | * | * | * |
| L59735-07 | 2B-1 9-19 | 7 | 1 | 0.15 | 1 | 0.37 | 1 | 31.3 | 35 | 33.8 | 8.5 | sicl | 2 | 41 | 1 | 0.15 | 1 | 0.9 | 0.5 | 1 | 0.17 | 1 | 0.9 | 1 | * | | * | | 10 | 2 | 1.11 | 0.67 | 0.22 | 0.25 | 0.11 | 3.2 | 5 | * | * | * | * |
| L59735-08 | 2B-1 19-33 | 7 | 1 | 0.29 | 1 | 0.44 | 1 | 16.3 | 40 | 43.8 | 15.7 | sicl | 2 | 51.6 | 1 | 0.11 | 1 | 0.9 | 0.5 | 1 | 0.1 | 1 | 1 | 1 | * | | * | | 10 | 2 | 1.11 | 1.42 | 0.35 | 0.42 | 0.08 | 4.2 | 6 | * | * | * | * |
| L59735-09 | 2B-1 33-51 | 7.3 | 1 | 0.42 | 1 | 0.24 | 1 | 30 | 36.3 | 33.8 | 8.7 | sicl | 2 | 43.4 | 1 | 0.02 | 3 | 0.5 | 0.3 | 1 | 0.1 | 1 | 6.1 | 1 | * | | * | | 12 | 3 | 1.33 | 2.52 | 0.58 | 0.31 | 0.06 | 4.4 | 3 | * | * | * | * |
| L59735-10 | 1A-1 0-6" | 7.1 | 1 | 0.54 | 1 | 0.07 | 1 | 36.3 | 43.8 | 20 | 20.6 | sil | 1 | 59.2 | 2 | 0.16 | 1 | 4.5 | 2.6 | 1 | 0.43 | 4 | 0.8 | 1 | * | | * | | 13 | 4 | 1.44 | 3.15 | 0.78 | 0.11 | 1.19 | 5.4 | 32 | * | * | * | * |
| L59735-11 | 1A-1 6-17 | 7.5 | 1 | 0.25 | 1 | 0.11 | 1 | 36.3 | 45 | 18.8 | 18.2 | sil | 1 | 45.8 | 1 | 0.13 | 1 | 1 | 0.6 | 1 | 0.24 | 1 | 0.3 | 1 | * | | * | | 9 | 1 | 1 | 1.11 | 0.36 | 0.1 | 0.36 | 4.2 | 27 | * | * | * | * |
| L59735-12 | 1A-1 17-28 | 7.1 | 1 | 0.16 | 1 | 0.15 | 1 | 40 | 37.5 | 22.5 | 20.7 | l | 1 | 39.5 | 1 | 0.09 | 2 | 0.7 | 0.4 | 1 | 0.17 | 1 | 0.3 | 1 | * | | * | | 10 | 2 | 1.11 | 0.55 | 0.27 | 0.1 | 0.25 | 3.9 | 19 | * | * | * | * |
| L59725-13 | 1A-1 28-60 | 7.5 | 1 | 0.22 | 1 | 0.51 | 1 | 36.3 | 35 | 28.8 | 19.1 | cl | 2 | 40.9 | 1 | 0.06 | 2 | 0.3 | 0.2 | 1 | 0.1 | 1 | 0.5 | 1 | * | | * | | 11 | 2 | 1.22 | 0.89 | 0.24 | 0.39 | 0.07 | 4.5 | 25 | * | * | * | * |
| L59735-14 | 1A-1 60-100 | 7.1 | 1 | 0.27 | 1 | 0.76 | 1 | 43.8 | 30 | 26.3 | 18.5 | l | 1 | 42.2 | 1 | 0.05 | 2 | 0.3 | 0.2 | 1 | 0.1 | 1 | 0.6 | 1 | * | | * | | 10 | 2 | 1.11 | 0.96 | 0.23 | 0.59 | 0.07 | 3.1 | 22 | * | * | * | * |
| L59735-15 | 1A-2 15-25 | 7.7 | 1 | 0.48 | 1 | 0.17 | 1 | 48.8 | 32.5 | 18.8 | 18.2 | l | 1 | 47.3 | 1 | 0.14 | 1 | 3.4 | 2 | 1 | 0.24 | 1 | 1 | 1 | * | | * | | 10 | 2 | 1.11 | 3.73 | 0.25 | 0.24 | 0.19 | 4.1 | 10 | * | * | * | * |
| L59735-16 | 1A-2 25-40 | 7.5 | 1 | 0.52 | 1 | 0.14 | 1 | 45 | 38.8 | 16.3 | 18.1 | l | 1 | 47.7 | 1 | 0.15 | 1 | 2.4 | 1.3 | 1 | 0.24 | 1 | 0.8 | 1 | * | | * | | 9 | 1 | 1 | 4.3 | 0.38 | 0.22 | 0.14 | 4.6 | 23 | * | * | * | * |
| L59735-17 | 1A-2 40-60 | 7.7 | 1 | 0.76 | 1 | 0.15 | 1 | 42.5 | 38.8 | 18.8 | 19.1 | l | 1 | 44.3 | 1 | 0.15 | 1 | 1.5 | 0.9 | 1 | 0.24 | 1 | 0.6 | 1 | * | | * | | 9 | 1 | 1 | 5.92 | 0.79 | 0.29 | 0.32 | 4 | 33 | * | * | * | * |
| L59735-18 | 1A-2 60-75 | 7.4 | 1 | 0.45 | 1 | 0.16 | 1 | 46.3 | 35 | 18.8 | 16.1 | l | 1 | 40.9 | 1 | 0.12 | 1 | 1.7 | 1 | 1 | 0.17 | 1 | 0.8 | 1 | * | | * | | 9 | 1 | 1 | 3.26 | 0.35 | 0.22 | 0.15 | 3.5 | 34 | * | * | * | * |
| L59735-19 | 1A-2 75-90 | 7.1 | 1 | 1.25 | 1 | 0.13 | 1 | 43.8 | 38.8 | 17.5 | 16.3 | l | 1 | 55.8 | 1 | 0.09 | 2 | 1.5 | 0.9 | 1 | 0.17 | 1 | 0.8 | 1 | * | | * | | 10 | 2 | 1.11 | 11.4 | 1.19 | 0.33 | 0.62 | 2.9 | 56 | * | * | * | * |
| L59735-20 | 1B-1 0-7 | 7.1 | 1 | 0.68 | 1 | 0.11 | 1 | 41.3 | 42.5 | 16.3 | 16.4 | l/sil | 1 | 64.4 | 2 | 0.15 | 1 | 5.3 | 3.1 | 1 | 0.43 | 4 | 0.9 | 1 | * | | * | | 13 | 4 | 1.44 | 3.71 | 1.06 | 0.17 | 1.69 | 5 | 47 | * | * | * | * |
| L59736-01 | 1B-1 7-15 | 7 | 1 | 0.48 | 1 | 0.57 | 1 | 42.5 | 40 | 17.5 | 16.6 | l | 1 | 130 | 4 | 0.15 | 1 | 1.4 | 0.8 | 1 | 0.24 | 1 | 0.6 | 1 | * | | * | | 12 | 4 | 1.33 | 1.81 | 0.46 | 0.61 | 0.82 | 4.1 | 34 | * | * | * | * |
| L59736-02 | 1B-1 15-28 | 7.4 | 1 | 0.33 | 1 | 1.25 | 1 | 42.5 | 45 | 12.5 | 17.6 | sil | 1 | 86.7 | 3 | 0.11 | 1 | 0.7 | 0.4 | 1 | 0.24 | 1 | 0.4 | 1 | * | | * | | 11 | 3 | 1.22 | 0.71 | 0.21 | 0.85 | 0.38 | 4.4 | 25 | * | * | * | * |
| L59736-03 | 1B-1 28-60 | 7 | 1 | 0.29 | 1 | 0.89 | 1 | 57.5 | 30 | 12.5 | 18.3 | l | 1 | 29.9 | 1 | 0.02 | 3 | 0.2 | 0.1 | 1 | 0.05 | 1 | 0.3 | 1 | * | | * | | 11 | 3 | 1.33 | 0.68 | 0.21 | 0.6 | 0.23 | 4.1 | 18 | * | * | * | * |

[1] R = Soil Suitability Rating (see Table 2)
Good = 1, Fair = 2, Poor = 3 Unsuitable = 4

[2] See explanation of abbreviation in footnotes on Table 2

[3] See pedon de riptions in Appendix 2

[4] See K-factor, assumptions, calculations and input parameters in Table 7

[5] Ley, et al. Field Evaluation and Comparison of Techniques for Measuring Soil Water, Table 1

* Not analzed/data not available

U - tested below ACZ Lab detection limits

Table 7

**Kinney #2 Mine Order 2 Soil Survey - Erodibility Factor Calculations and Input Parameters**

| Lab ID | Sample ID | Sand | Silt | Clay | very fine sand | Organic Matter | Structure | Permeability | Fine Earth Fraction Soil Erodibility Factor | Whole Soil (includes coarse fragments) Erodibility Factor |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 2.0 - 0.1 mm | 0.1 - 0.002 mm | < 0.002 mm | % | (%)* | S[1] | P[2] | Kf[3] | Kw[3] |
| L59731-01 | **D-1 0-6"** | 73 | 11 | 34 | 8.5 | 2.4 | 1 | 2 | 0.24 | 0.05 |
| L59731-02 | **D-1 6-16** | 70 | 15 | 15 | 12.2 | 4 | 2 | 2 | 0.2 | 0.05 |
| L59731-03 | **D-1 6-25"** | 76 | 8 | 16 | 8.1 | 1.2 | 4 | 2 | 0.2 | 0.1 |
| L59731-04 | **D-1 25-40"** | 85 | 13 | 14 | 11.4 | 1.5 | 4 | 2 | 0.2 | 0.1 |
| L59731-05 | **D-1 40-65"** | 30 | 8 | 13 | 8.5 | 1 | 4 | 2 | 0.2 | 0.1 |
| L59731-06 | **D-1 65-90"** | 31 | 4 | 13 | 31.8 | 0.9 | 4 | 2 | 0.15 | 0.05 |
| L59731-07 | **D-2 0-6"** | 78 | 8 | 15 | 8.9 | 1.9 | 1 | 2 | 0.24 | 0.02 |
| L59731-08 | **D-2 6-24"** | 79 | 8 | 14 | 1.9 | 0.5 | 2 | 2 | 0.2 | 0.02 |
| L59731-09 | **D-3 0-10"** | 73 | 9 | 19 | 7.6 | 4 | 2 | 2 | 0.24 | 0.15 |
| L59731-10 | **D-3 10-20"** | 71 | 11 | 18 | 7.4 | 2.9 | 4 | 2 | 0.2 | 0.1 |
| L59731-11 | **D-3 20-40"** | 73 | 9 | 19 | 8.9 | 2.7 | 4 | 2 | 0.2 | 0.1 |
| L59731-12 | **D-3 40-60 "** | 73 | 10 | 18 | 6.9 | 3.1 | 4 | 2 | 0.2 | 0.05 |
| L59731-13 | **D-3 60-75"** | 73 | 10 | 18 | 7.4 | 3.2 | 4 | 2 | 0.2 | 0.05 |
| L59731-14 | **D-3 coal** | 71 | 14 | 15 | 1.9 | 5.2 | 4 | 2 | 0.24 | 0.05 |
| L59731-15 | **D-4 0-8 "** | 71 | 11 | 18 | 9.1 | 2.4 | 4 | 2 | 0.24 | 0.15 |
| L59731-16 | **D-4 8-16"** | 69 | 13 | 19 | 9.2 | 5.5 | 4 | 2 | 0.24 | 0.15 |
| L59731-17 | **D-4 19-72 coal** | 78 | 6 | 16 | 2.4 | 2.2 | 4 | 2 | 0.2 | 0.15 |
| L59731-18 | **D-5 0-6** | 65 | 14 | 21 | 6.2 | 2.6 | 4 | 4 | 0.28 | 0.05 |
| L59731-19 | **D-5 6-20"** | 65 | 14 | 21 | 6.9 | 2.4 | 4 | 4 | 0.24 | 0.02 |
| L59731-20 | **D-5 20-40"** | 64 | 15 | 21 | 5.8 | 1.7 | 4 | 4 | 0.24 | 0.05 |
| L59732-01 | **D-5 40-60"** | 38 | 41 | 21 | 13.1 | 2.7 | 4 | 4 | 0.28 | 0.28 |
| L59732-02 | **D-6 0-7"** | 30 | 48 | 23 | 12.3 | 2.7 | 4 | 4 | 0.55 | 0.2 |
| L59732-03 | **D-6 24-48** | 40 | 40 | 20 | 11.3 | 2.2 | 4 | 4 | 0.43 | 0.17 |
| L59732-04 | **D-6 48-72** | 38 | 43 | 20 | 8.9 | 2.4 | 4 | 4 | 0.43 | 0.28 |
| L59732-05 | **D-7 0-6"** | 30 | 50 | 20 | 9.7 | 2.7 | 4 | 3 | 0.55 | 0.2 |
| L59732-06 | **D-7 6-20"** | 30 | 48 | 23 | 7.1 | 1.9 | 4 | 3 | 0.43 | 0.24 |
| L59732-07 | **D-7 20-42"** | 33 | 46 | 21 | 8.5 | 1.5 | 4 | 3 | 0.43 | 0.17 |
| L59732-08 | **D-7 42-58"** | 33 | 45 | 23 | 9.1 | 2.1 | 4 | 5 | 0.32 | 0.1 |
| L59732-09 | **D-7 58-70** | 53 | 35 | 13 | 23.6 | 1.4 | 4 | 3 | 0.32 | 0.17 |
| L59732-10 | **D-8 0-6"** | 53 | 39 | 9 | 20.3 | 4.3 | 2 | 3 | 0.37 | 0.32 |
| L59732-11 | **D-8 6-13** | 55 | 35 | 10 | 21.1 | 1.9 | 2 | 3 | 0.32 | 0.2 |
| L59732-12 | **D-8 13-20** | 55 | 33 | 13 | 24.2 | 0.7 | 4 | 3 | 0.32 | 0.15 |
| L59732-13 | **D-8 20-48** | 54 | 30 | 16 | 23.9 | 0.5 | 4 | 3 | 0.32 | 0.1 |
| L59732-14 | **D-9A 0-6"** | 48 | 36 | 16 | 14.4 | 3.4 | 4 | 3 | 0.37 | 0.2 |
| L59732-15 | **D-9A 6-12** | 50 | 33 | 18 | 15.4 | 3.8 | 4 | 3 | 0.32 | 0.1 |
| L59732-16 | **D-9A 12-30** | 69 | 19 | 13 | 5.6 | 51 | 4 | 2 | 0.2 | 0.15 |
| L59732-17 | **D9A 30-68** | 58 | 25 | 18 | 2.6 | 35 | 4 | 3 | 0.32 | 0.24 |
| L59732-18 | **D-9A 80-95** | 54 | 31 | 15 | 13.9 | 7.4 | 3 | 3 | 0.32 | 0.24 |
| L59732-20 | **D-9A 95-115"** | 55 | 30 | 15 | 15.5 | 4.1 | 4 | 3 | 0.32 | 0.24 |
| L59733-01 | **D9A 115-145** | 50 | 28 | 16 | 18.9 | 0.5 | 4 | 3 | 0.32 | 0.17 |
| L59733-02 | **D-9B 0-6** | 35 | 40 | 25 | 15.0 | 2.9 | 4 | 3 | 0.55 | 0.32 |
| L59732-03 | **D-9B 6-12** | 51 | 31 | 18 | 19.4 | 4.1 | 4 | 3 | 0.32 | 0.17 |
| L59733-04 | **D-9B 12-30** | 50 | 26 | 24 | 3.7 | 40 | 4 | 1 | 0.1 | 0.17 |
| L59733-05 | **D-9B 30-52"** | 94 | 4 | 3 | 2.9 | 93 | 4 | 2 | 0.15 | 0.1 |
| L59733-06 | **D-9B 52-80** | 60 | 27 | 14 | 21.5 | 2.4 | 4 | 2 | 0.2 | 0.2 |
| L59733-07 | **D-9B 80-102** | 54 | 31 | 15 | 20.3 | 1.5 | 4 | 3 | 0.32 | 0.17 |
| L59733-08 | **D-10 0-5"** | 48 | 38 | 15 | 31.8 | 5.7 | 3 | 3 | 0.37 | 0.32 |
| L59733-09 | **D-10 5-11** | 34 | 41 | 25 | 8.9 | 5.3 | 4 | 3 | 0.43 | 0.43 |
| L59733-10 | **D-10 11-23** | 26 | 35 | 39 | 3.0 | 1.4 | 4 | 5 | 0.32 | 0.32 |
| L59733-11 | **D-10 23-35** | 23 | 35 | 43 | 2.0 | 1.2 | 4 | 6 | 0.28 | 0.28 |
| L59733-12 | **D-11 0-12** | 43 | 33 | 25 | 11.7 | 2.8 | 4 | 3 | 0.37 | 0.2 |
| L59733-13 | **D-11 12-48** | 63 | 20 | 18 | 6.9 | 43 | 4 | 2 | 0.2 | 0.1 |
| L59733-14 | **D-11 62-82** | 51 | 30 | 19 | 6.3 | 6.2 | 4 | 3 | 0.32 | 0.05 |
| L59733-15 | **D-12 0-6"** | 50 | 36 | 13 | 23.4 | 5.5 | 2 | 3 | 0.37 | 0.32 |
| L59733-16 | **D-12 6-14** | 53 | 34 | 14 | 22.7 | 1.7 | 2 | 3 | 0.32 | 0.24 |
| L59733-17 | **D-12 14-28** | 51 | 36 | 13 | 18.8 | 1.2 | 4 | 3 | 0.32 | 0.17 |
| L59733-18 | **D-12 28-48** | 54 | 28 | 19 | 17.2 | 0.7 | 4 | 3 | 0.32 | 0.1 |
| L59733-19 | **D-12 48-66** | 56 | 25 | 19 | 23.6 | 0.3 | 4 | 3 | 0.32 | 0.05 |
| L59733-20 | **2A-1 0-10"** | 58 | 30 | 13 | 24.3 | 2 | 2 | 3 | 0.37 | 0.32 |
| L59734-01 | **2A-1 10-24** | 50 | 30 | 20 | 15.5 | 0.7 | 4 | 3 | 0.32 | 0.17 |
| L59734-02 | **2A-1 24-44** | 35 | 38 | 28 | 14.1 | 0.7 | 4 | 4 | 0.32 | 0.17 |
| L59734-03 | **2A-1 44-65** | 43 | 31 | 26 | 12.2 | 0.3 | 4 | 3 | 0.32 | 0.1 |
| L59734-04 | **2A-1 65-80** | 55 | 25 | 20 | 13.5 | 0.3 | 4 | 3 | 0.32 | 0.05 |
| L59734-05 | **2A-2 0-5"** | 48 | 36 | 16 | 19.6 | 1.4 | 2 | 3 | 0.37 | 0.32 |
| L59734-06 | **2A-2 5-14** | 49 | 36 | 15 | 21.9 | 2.4 | 2 | 3 | 0.32 | 0.24 |
| L59734-07 | **2A-2 14-25** | 35 | 46 | 19 | 13.1 | 0.9 | 4 | 3 | 0.43 | 0.24 |
| L59734-08 | **2A-2 25-38** | 38 | 36 | 26 | 15.6 | 0.3 | 4 | 3 | 0.43 | 0.24 |
| L59734-09 | **2A-3 0-9"** | 56 | 33 | 11 | 27.1 | 2.9 | 2 | 3 | 0.37 | 0.32 |

Table 7 **Kinney #2 Mine Order 2 Soil Survey - Erodibility Factor Calculations and Input Parameters**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| L59734-10 | **2A-3 9-19** | 45 | 34 | 21 | 9.0 | 1.2 | 4 | 3 | 0.32 | 0.17 |
| L59734-11 | **2A-3 19-36** | 48 | 30 | 23 | 18.0 | 0.9 | 4 | 3 | 0.32 | 0.15 |
| L59734-12 | **2A-3 36-52** | 31 | 40 | 29 | 19.4 | 0.9 | 4 | 3 | 0.43 | 0.15 |
| L59734-13 | **2A-5 0-6"** | 46 | 38 | 16 | 19.3 | 3.1 | 2 | 3 | 0.37 | 0.2 |
| L59734-14 | **2A-5 6-12** | 46 | 33 | 21 | 12.6 | 2.4 | 4 | 3 | 0.32 | 0.1 |
| L59734-15 | **2A-5 12-24** | 29 | 40 | 31 | 7.2 | 0.9 | 4 | 5 | 0.32 | 0.17 |
| L59734-16 | **2A-5 24-48** | 23 | 38 | 40 | 4.8 | 0.7 | 4 | 6 | 0.28 | 0.18 |
| L59734-17 | **2A-6 0-6"** | 48 | 39 | 15 | 18.0 | 0.6 | 2 | 3 | 0.37 | 0.32 |
| L59734-18 | **2A-6 6-12** | 50 | 26 | 16 | 24.3 | 2.4 | 2 | 3 | 0.32 | 0.24 |
| L59734-19 | **2A-6 12-24** | 45 | 39 | 16 | 15.5 | 1.7 | 4 | 3 | 0.32 | 0.24 |
| L59734-20 | **2A-6 24-40** | 45 | 25 | 16 | 14.9 | 1.7 | 4 | 3 | 0.32 | 0.24 |
| L59735-01 | **2A-6 40-60** | 50 | 28 | 25 | 13.6 | 0.9 | 4 | 3 | 0.32 | 0.24 |
| L59735-02 | **2A-6 60-80** | 48 | 34 | 25 | 19.2 | 0.7 | 4 | 3 | 0.32 | 0.17 |
| L59735-03 | **2A-7 0-7"** | 55 | 27 | 20 | 20.4 | 2 | 2 | 3 | 0.37 | 0.2 |
| L59735-04 | **2A-7 7-20** | 51 | 21 | 23 | 21.2 | 1 | 4 | 3 | 0.32 | 0.17 |
| L59735-05 | **2A-7 20-38** | 50 | 27 | 24 | 22.6 | 0.5 | 4 | 3 | 0.32 | 0.1 |
| L59735-06 | **2B-1 0-9"** | 59 | 21 | 20 | 9.6 | 2.2 | 2 | 3 | 0.37 | 0.2 |
| L59735-07 | **2B-1 9-19** | 31 | 35 | 34 | 8.5 | 0.9 | 4 | 5 | 0.32 | 0.17 |
| L59735-08 | **2B-1 19-33** | 16 | 40 | 44 | 15.7 | 0.9 | 4 | 5 | 0.32 | 0.1 |
| L59735-09 | **2B-1 33-51** | 30 | 36 | 34 | 8.7 | 0.5 | 4 | 5 | 0.32 | 0.1 |
| L59735-10 | **1A-1 0-6"** | 36 | 44 | 20 | 20.6 | 4.5 | 2 | 3 | 0.55 | 0.43 |
| L59735-11 | **1A-1 6-17** | 36 | 45 | 19 | 18.2 | 1 | 4 | 3 | 0.43 | 0.24 |
| L59735-12 | **1A-1 17-28** | 40 | 38 | 23 | 20.7 | 0.7 | 4 | 3 | 0.32 | 0.17 |
| L59725-13 | **1A-1 28-60** | 36 | 35 | 29 | 19.1 | 0.3 | 4 | 4 | 0.32 | 0.1 |
| L59735-14 | **1A-1 60-100** | 44 | 30 | 27 | 18.5 | 0.3 | 4 | 3 | 0.32 | 0.1 |
| L59735-15 | **1A-2 15-25** | 49 | 33 | 19 | 18.2 | 3.4 | 2 | 3 | 0.37 | 0.24 |
| L59735-16 | **1A-2 25-40** | 45 | 39 | 17 | 18.1 | 2.4 | 4 | 3 | 0.32 | 0.24 |
| L59735-17 | **1A-2 40-60** | 43 | 39 | 19 | 19.1 | 1.5 | 4 | 3 | 0.32 | 0.24 |
| L59735-18 | **1A-2 60-75** | 46 | 35 | 19 | 16.1 | 1.7 | 4 | 3 | 0.32 | 0.17 |
| L59735-19 | **1A-2 75-90** | 44 | 39 | 18 | 16.3 | 1.5 | 4 | 3 | 0.32 | 0.17 |
| L59735-20 | **1B-1 0-7** | 41 | 43 | 16 | 16.4 | 5.3 | 3 | 3 | 0.55 | 0.43 |
| L59736-01 | **1B-1 7-15** | 43 | 40 | 18 | 16.6 | 1.4 | 3 | 3 | 0.32 | 0.24 |
| L59736-02 | **1B-1 15-28** | 43 | 45 | 13 | 17.6 | 0.7 | 4 | 3 | 0.43 | 0.24 |
| L59736-03 | **1B-1 28-60** | 58 | 30 | 13 | 18.3 | 0.2 | 4 | 3 | 0.05 | 0.05 |

* Organic matter percentage calculated by multiplying Total Organic Carbon by 1.72

[1] Soil Structure Class

1 Very fine Granular
2 Fine granular
3 Coarse granular
4 Blocky, platy, or massive

Source: Soil Erodibility nomograph of Wischmeier et al. (1971) - Wischmeier, W.H. and Smith, D.D. (1978). Predicting rainfall erosion losses - A guide to conservative planning, Agriculture Handbook No. 537. U.S. Department of Agriculture, Washington, D.C.

[2] Permeability Class for Major Textural Class

| Permeability Class | Texture | Hydrologic Soil Group |
|---|---|---|
| 6 Very slow | Silty clay, clay | D |
| 5 Slow | Silty clay loam, sandy cl | C-D |
| 4 Slow to Moderate | Sandy clay loam, clay lo | C-D |
| 3 Moderate | Loam, silt loam | B |
| 2 Moderate to Rapid | Loamy sand, sandy loan | A |
| 1 Rapid | Sand | A+ |

Source: Rawls et al. (1982) - Rawls, W.J., Brakensiek, D.L., and Saxton, K.E. (1982). Estimation of Soil Water Properties Trans. Am. Soc. Agric. Eng. 25(5): 1316-1320.

[3] Erodibility Factor (Kw and Kf) calculated based on Section 618.45, pgs. 618-30 to 618-32, National Soil Suvrey Handbook. 1993. Soil Conservation Science. Handbook Number 430. U.S. Government Printing Office, Washington, D.C.

**Table 8**
**Kinney #2 Mine Order 2 Soil Survey - Summary of Soil Limitations, Salvage Depths, and Salvageable Volumes**

| Map Unit | Map Unit | Map Unit | % of Map Unit[1] | Map Unit Area in Proposed Disturbance | Soil Depth Class | Primary Limitations | Range in Depth of Salvageable Primary Plant Growth Medium[2] | Average Depth of Salvageable Primary Plant Growth Medium[2] | Estimated Volume of Salvageable Primary Plant Growth Medium within the Proposed Disturbance |
|---|---|---|---|---|---|---|---|---|---|
| ID # | Name | Component | | Acres | Inches | | Inches | Inches | Cubic Yards |
| DA | Disturbed Lands, 0-20 percent slopes | Disturbed Soil | 90% | 12.70 | 40-60 plus | available water capacity, coal fines, Total Organic Carbon % | 6 to 24 | 15 | 25,611.8 |
| | | Lo-sk Typic Haploxeroll | 10% | 1.40 | | high rock fragment content, availble water capacity | 6 to 20 | 13 | 2,446.9 |
| DB | Disturbed Lands, 20-50 percent slopes | Disturbed Soils | 80% | 4.89 | 60 plus | high rock fragments, coal fines, Total Organic Carbon% | 6 to 20 | 13 | 8,546.7 |
| | | Lo-sk Typic Haploxeroll | 10% | 0.61 | | high rock fragment content, steep slopes | 7 to 28 | 17 | 1,394.2 |
| | | Fi-lo Typic Argixeroll | 10% | 0.61 | | | 25-40 | 30 | 2,460.3 |
| 1B | Coarse-loamy Typic Argicryoll Consociation, 35-70 percent slopes | Co-lo Typic Haplocryoll | 80% | 0.48 | 60 plus | | 20-48 | 34 | 2,194.1 |
| | | Disturbed Soils* | 10% | 0.16 | 40-60 | high clay content, K factor, steep slopes | 5 to 11 | 8 | 172.1 |
| | | Lo-sk Typic Argicryoll | 10% | 0.16 | 40-60 | high rock fragment content, K Factor | 14-28 | 21 | 451.7 |
| 2A | Typic Argixeroll - Typic Haploxeroll Complex, 0-35 percent slopes | Lo-sk Typic Argixeroll | 50% | 2.27 | 20-60 | high rock content, avaiable water capacity | 20-60 | 40 | 12,207.6 |
| | | Lo-sk Typic Haploxeroll | 35% | 1.58 | | | 20-38 | 29 | 6,160.3 |
| | | Inclusions | 15% | 0.67 | 60 plus | | 24-60 | 37 | 3,332.9 |
| 2B | Typic Argixeroll Consociation, 35-70 percent slopes | Lo-sk Typic Argixeroll | 80% | 1.30 | 40-60 | high clay content, K factor, steep slopes | 9 to 19 | 14 | 2,446.9 |
| | | Disturbed Soils* | 10% | 0.16 | 40-60 | coal fines, Total Carbon | 6 to 20 | 13 | 279.6 |
| | | shallow to bedrock inclusion* | 10% | 0.16 | 10 to 20 | bedrock less than 20 inches | 0-15 | 7 | 150.6 |
| 3A | Cumulic Haplocryoll, fine-loamy , 0-3 percent slopes | Cumulic Haplocryoll, fi-lo | 80% | 0.08 | 60 plus | high silt content | 12 to 24 | 18 | 193.6 |
| | | Typic Endoaquoll co-lo | 20% | 0.02 | 60 plus | Typic Endoaquoll, Disturbed surfaces | 12 to 20 | 16 | 43.0 |
| | | | | 27.3 | | | | | 68,092.4 |

[1] Percentage of components in map unit.

[2] Primary Plant Growth Medium = Suitability Ratings (See Table 2) of 1 or 2.

* Suitable topsoil for this soil map unit component estimated by interence to soils with similar gnetic characteristics found in the area

Version 1/1/2008

# APPENDIX 1: ACZ  Spreadsheets & Lab Sheets

| Results | ANALYTE | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CLIENTID | Acid Generation Potential (cal | Acid Neutralization Potential | Acid-Base Potential (calc on S | Boron, soluble (Hot Water) | Calcium, soluble (Sat. Paste) | Carbon, total organic (TOC) | Clay | Conductivity @25C | Magnesium, soluble (Sat. Paste | Neutralization Potential as Ca | Nitrate as N, extractable (KCL | Nitrate/ Nitrite as N, extracta | Nitrite as N, extractable (KCL | Nitrogen, total Kjeldahl | pH, Saturated Paste | Phosphorus, extractable (AB-DT | Potassium, extractable (AB-DTP | Potassium, soluble (Sat. Paste | Sand | Saturation Percent | Selenium, soluble (Hot Water) |
| 1A-1 0-6" | | | | | 3.15 | 2.60 | 20.00 | 0.54 | 0.78 | 0.80 | 5.40 | 6.10 | 0.70 | 0.27 | 6.80 | 32.00 | 430.00 | 1.19 | 36.30 | 59.20 | |
| 1A-1 17-28" | | | | | 0.55 | 0.40 | 22.50 | 0.16 | 0.27 | 0.30 | 3.90 | 4.50 | 0.60 | 0.04 | 6.40 | 19.00 | 190.00 | 0.25 | 40.00 | 39.50 | |
| 1A-1 28-60" | | | | | 0.89 | 0.20 | 28.80 | 0.22 | 0.24 | 0.50 | 4.50 | 5.20 | 0.70 | 0.03 | 6.70 | 25.00 | 130.00 | 0.07 | 36.30 | 40.90 | |
| 1A-1 60-100" | | | | | 0.96 | 0.20 | 26.30 | 0.27 | 0.23 | 0.60 | 3.10 | 3.90 | 0.80 | 0.02 | 7.00 | 22.00 | 90.00 | 0.07 | 43.80 | 42.20 | |
| 1A-1 6-17" | | | | | 1.11 | 0.60 | 18.80 | 0.25 | 0.36 | 0.30 | 4.20 | 4.90 | 0.70 | 0.05 | 6.50 | 27.00 | 210.00 | 0.36 | 36.30 | 45.80 | |
| 1A-2 15-25" | | | | | 3.73 | 2.00 | 18.80 | 0.48 | 0.25 | 1.00 | 4.10 | 5.00 | 0.90 | 0.19 | 7.20 | 10.00 | 150.00 | 0.19 | 48.80 | 47.30 | |
| 1A-2 25-40" | | | | | 4.30 | 1.30 | 16.30 | 0.52 | 0.38 | 0.80 | 4.60 | 5.30 | 0.70 | 0.14 | 7.30 | 23.00 | 130.00 | 0.14 | 45.00 | 47.70 | |
| 1A-2 40-60" | | | | | 5.92 | 0.90 | 18.80 | 0.76 | 0.79 | 0.60 | 4.00 | 4.90 | 0.90 | 0.09 | 7.50 | 33.00 | 200.00 | 0.32 | 42.50 | 44.30 | |
| 1A-2 60-75" | | | | | 3.26 | 1.00 | 18.80 | 0.45 | 0.35 | 0.80 | 3.50 | 4.40 | 0.90 | 0.09 | 7.50 | 34.00 | 160.00 | 0.15 | 46.30 | 40.90 | |
| 1A-2 75-90" | | | | | 11.40 | 0.90 | 17.50 | 1.25 | 1.19 | 0.80 | 2.90 | 3.50 | 0.60 | 0.08 | 7.40 | 56.00 | 250.00 | 0.62 | 43.80 | 55.80 | |
| 1B1 0-7" | | | | | 3.71 | 3.10 | 16.30 | 0.68 | 1.06 | 0.90 | 5.00 | 5.70 | 0.70 | 0.22 | 6.90 | 47.00 | 520.00 | 1.69 | 41.30 | 64.40 | |
| 1B1 15-28" | | | | | 0.71 | 0.40 | 12.50 | 0.33 | 0.21 | 0.40 | 4.40 | 4.90 | 0.50 | 0.07 | 6.30 | 25.00 | 180.00 | 0.38 | 42.50 | 86.70 | |
| 1B1 28-60" | | | | | 0.68 | 0.10 | 12.50 | 0.29 | 0.21 | 0.30 | 4.10 | 4.80 | 0.70 | 0.02 | 6.30 | 18.00 | 90.00 | 0.23 | 57.50 | 29.90 | |
| 1B1 7-15" | | | | | 1.81 | 0.80 | 17.50 | 0.48 | 0.46 | 0.60 | 4.10 | 4.80 | 0.70 | 0.07 | 6.60 | 34.00 | 310.00 | 0.82 | 42.50 | 130.00 | |
| 2A-1 0-10" | | | | | 1.59 | 1.20 | 12.50 | 0.31 | 0.45 | 0.50 | 4.40 | 4.70 | 0.30 | 0.16 | 6.60 | 14.00 | 280.00 | 0.52 | 57.50 | 46.80 | |
| 2A-1 10-24" | | | | | 1.33 | 0.40 | 20.00 | 0.29 | 0.51 | 0.50 | 7.40 | 8.00 | 0.60 | 0.07 | 6.70 | 39.00 | 220.00 | 0.34 | 50.00 | 34.60 | |
| 2A-1 24-44" | | | | | 1.26 | 0.40 | 27.50 | 0.19 | 0.25 | 8.10 | 34.00 | 35.00 | 0.70 | 0.05 | 7.50 | 17.00 | 120.00 | 0.06 | 35.00 | 44.30 | |
| 2A-1 44-65" | | | | | 1.37 | 0.20 | 26.30 | 0.24 | 0.29 | 12.20 | 7.60 | 8.40 | 0.80 | 0.02 | 7.70 | 8.00 | 90.00 | 0.08 | 42.50 | 40.60 | |
| 2A-1 65-80" | | | | | 1.51 | 0.20 | 20.00 | 0.24 | 0.34 | 14.80 | 6.40 | 7.10 | 0.70 | 0.03 | 7.80 | 9.00 | 60.00 | 0.08 | 55.00 | 34.30 | |
| 2A-2 0-5" | | | | | 1.47 | 0.80 | 16.30 | 0.31 | 0.46 | 0.80 | 5.20 | 6.00 | 0.80 | 0.07 | 7.00 | 17.00 | 290.00 | 0.49 | 47.50 | 44.30 | |
| 2A-2 14-25" | | | | | 0.65 | 0.50 | 18.80 | 0.16 | 0.23 | 0.50 | 47.00 | 47.70 | 0.70 | 0.04 | 6.90 | 17.00 | 210.00 | 0.20 | 35.00 | 32.30 | |
| 2A-2 25-38" | | | | | 0.47 | 0.20 | 26.30 | 0.12 | 0.23 | 0.70 | 41.80 | 42.50 | 0.70 | 0.05 | 6.90 | 10.00 | 160.00 | 0.12 | 37.50 | 37.80 | |
| 2A-2 5-14" | | | | | 1.49 | 1.40 | 15.00 | 0.32 | 0.44 | 0.60 | 7.00 | 7.80 | 0.80 | 0.22 | 7.00 | 27.00 | 450.00 | 0.91 | 48.80 | 45.20 | |
| 2A-3 0-9" | | | | | 0.90 | 1.70 | 11.30 | 0.20 | 0.28 | 0.60 | 9.70 | 9.70 | | 0.07 | 6.70 | 14.00 | 320.00 | 0.54 | 56.30 | 45.50 | |
| 2A-3 19-36" | | | | | 0.54 | 0.50 | 22.50 | 0.14 | 0.19 | 0.50 | 4.10 | 4.80 | 0.70 | 0.01 | 6.70 | 9.00 | 110.00 | 0.11 | 47.50 | 32.00 | |
| 2A-3 36-52" | | | | | 1.08 | 0.50 | 28.80 | 0.19 | 0.31 | 0.80 | 11.10 | 11.80 | 0.70 | 0.04 | 7.20 | 33.00 | 130.00 | 0.07 | 31.30 | 42.60 | |
| 2A-3 9-19" | | | | | 0.47 | 0.70 | 21.30 | 0.14 | 0.23 | 0.50 | 5.10 | 5.80 | 0.70 | 0.14 | 6.80 | 9.00 | 240.00 | 0.21 | 45.00 | 33.60 | |
| 2A-5 0-6" | | | | | 1.87 | 1.80 | 16.30 | 0.36 | 0.52 | 0.80 | 11.40 | 11.40 | | 0.18 | 6.80 | 25.00 | 340.00 | 0.68 | 46.30 | 44.70 | |
| 2A-5 12-24" | | | | | 0.37 | 0.50 | 31.30 | 0.11 | 0.24 | 0.50 | 4.20 | 4.90 | 0.70 | 0.06 | 7.00 | 7.00 | 240.00 | 0.26 | 28.80 | 39.20 | |
| 2A-5 24-48" | | | | | 0.24 | 0.40 | 40.00 | 0.09 | 0.31 | 0.70 | 7.00 | 7.70 | 0.70 | 0.05 | 7.00 | 8.00 | 240.00 | 0.25 | 22.50 | 47.30 | |
| 2A-5 6-12" | | | | | 2.15 | 1.40 | 21.30 | 0.36 | 0.42 | 0.70 | 6.50 | 7.10 | 0.60 | 0.11 | 7.00 | 14.00 | 350.00 | 0.54 | 46.30 | 39.60 | |
| 2A-6 0-6" | | | | | 1.14 | 1.20 | 15.00 | 0.23 | 0.43 | 0.70 | 7.20 | 7.90 | 0.70 | 0.16 | 7.00 | 24.00 | 410.00 | 0.75 | 47.50 | 40.90 | |
| 2A-6 12-24" | | | | | 0.96 | 1.00 | 16.30 | 0.18 | 0.31 | 0.70 | 3.50 | 4.10 | 0.60 | 0.10 | 7.20 | 19.00 | 160.00 | 0.10 | 45.00 | 39.20 | |
| 2A-6 24-40" | | | | | 1.27 | 1.00 | 16.30 | 0.22 | 0.44 | 0.70 | 6.10 | 6.80 | 0.70 | 0.11 | 7.00 | 23.00 | 230.00 | 0.24 | 45.00 | 42.80 | |
| 2A-6 40-60" | | | | | 1.54 | 0.50 | 25.00 | 0.51 | 0.73 | 1.40 | 3.90 | 4.90 | 1.00 | 0.04 | 7.90 | 31.00 | 190.00 | 0.39 | 50.00 | 31.60 | |
| 2A-6 60-80" | | | | | 0.99 | 0.40 | 25.00 | 0.35 | 0.64 | 1.00 | 3.60 | 4.40 | 0.80 | 0.03 | 7.90 | 28.00 | 180.00 | 0.29 | 47.50 | 32.90 | |
| 2A-6 6-12" | | | | | 0.84 | 1.30 | 16.30 | 0.19 | 0.31 | 0.70 | 5.30 | 6.00 | 0.70 | 0.13 | 7.00 | 22.00 | 410.00 | 0.52 | 50.00 | 38.80 | |
| 2A-7 0-7" | | | | | 1.24 | 1.20 | 20.00 | 0.35 | 0.45 | 0.60 | 4.60 | 5.10 | 0.50 | 0.15 | 6.70 | 17.00 | 320.00 | 0.74 | 55.00 | 47.80 | |
| 2A-7 20-38" | | | | | 1.06 | 0.30 | 23.80 | 0.28 | 0.41 | 0.50 | 1.90 | 2.70 | 0.80 | 0.04 | 6.80 | 14.00 | 170.00 | 0.30 | 50.00 | 34.20 | |
| 2A-7 7-20" | | | | | 1.45 | 0.60 | 22.50 | 0.40 | 0.49 | 0.50 | 3.80 | 4.50 | 0.70 | 0.06 | 6.80 | 17.00 | 260.00 | 0.60 | 51.30 | 37.40 | |
| 2B-1 0-9" | | | | | 1.11 | 1.30 | 20.00 | 0.30 | 0.42 | 0.60 | 7.90 | 8.50 | 0.60 | 0.17 | 6.70 | 17.00 | 310.00 | 0.75 | 58.80 | 49.70 | |
| 2B-1 19-33" | | | | | 1.42 | 0.50 | 43.80 | 0.29 | 0.35 | 1.00 | 4.20 | 5.10 | 0.90 | 0.07 | 7.10 | 6.00 | 120.00 | 0.08 | 16.30 | 51.60 | |
| 2B-1 33-51" | | | | | 2.52 | 0.30 | 33.80 | 0.42 | 0.58 | 6.10 | 4.40 | 5.30 | 0.90 | 0.04 | 7.60 | 3.00 | 70.00 | 0.06 | 30.00 | 43.40 | |
| 2B-1 9-19" | | | | | 0.67 | 0.50 | 33.80 | 0.15 | 0.22 | 0.90 | 3.20 | 4.10 | 0.90 | 0.06 | 6.70 | 5.00 | 150.00 | 0.11 | 31.30 | 41.00 | |
| D-1 0-6" | | | | | 1.57 | 1.40 | 16.30 | 0.25 | 0.12 | 2.30 | 1.10 | 1.10 | | 0.15 | 7.90 | 28.00 | 140.00 | 0.32 | 72.50 | 34.60 | |
| D-1 16-25" | | | | | 0.82 | 0.70 | 16.30 | 0.18 | 0.14 | 3.40 | 1.60 | 1.60 | | 0.06 | 7.50 | 14.00 | 70.00 | 0.10 | 76.30 | 35.80 | |
| D-1 25-40" | | | | | 0.76 | 0.90 | 13.80 | 0.16 | 0.15 | 0.20 | 0.90 | 0.90 | | 0.06 | 7.30 | 29.00 | 60.00 | 0.08 | 73.80 | 34.60 | |
| D-1 40-65" | | | | | 1.04 | 0.60 | 12.50 | 0.21 | 0.22 | 0.20 | | 0.90 | 0.80 | 0.04 | 7.30 | 20.00 | 50.00 | 0.08 | 80.00 | 30.20 | |
| D-1 6-16" | | | | | 1.28 | 23.30 | 15.00 | 0.22 | 0.15 | 1.20 | 1.10 | 1.10 | | 0.30 | 7.10 | 36.00 | 80.00 | 0.07 | 70.00 | 53.40 | |
| D-1 65-90" | | | | | 1.36 | 0.50 | 12.50 | 0.26 | 0.24 | 0.50 | | 0.90 | 0.80 | 0.03 | 7.30 | 20.00 | 70.00 | 0.05 | 83.80 | 31.10 | |
| D-10 0-5" | | | | | 3.23 | 3.30 | 15.00 | 0.53 | 0.67 | 1.00 | 1.80 | 1.80 | | 0.31 | 7.30 | 21.00 | 410.00 | 1.11 | 47.50 | 50.70 | |
| D-10 11-23" | | | | | 0.82 | 0.80 | 38.80 | 0.22 | 0.25 | 0.70 | 0.90 | 1.50 | 0.60 | 0.08 | 7.40 | 7.00 | 130.00 | 0.09 | 26.30 | 61.70 | |
| D-10 23-35" | | | | | 0.81 | 0.70 | 42.50 | 0.25 | 0.39 | 1.00 | 2.00 | 2.70 | 0.70 | 0.06 | 7.30 | 8.00 | 130.00 | 0.19 | 22.50 | 69.60 | |
| D-10 5-11" | | | | | 1.34 | 3.10 | 25.00 | 0.28 | 0.28 | 1.70 | 1.50 | 2.10 | 0.60 | 0.12 | 7.30 | 13.00 | 180.00 | 0.15 | 33.80 | 48.30 | |

| Results | ANALYTE | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CLIENTID | Acid Generation Potential (cal | Acid Neutralization Potential | Acid-Base Potential (calc on S | Boron, soluble (Hot Water) | Calcium, soluble (Sat. Paste) | Carbon, total organic (TOC) | Clay | Conductivity @25C | Magnesium, soluble (Sat. Paste | Neutralization Potential as Ca | Nitrate as N, extractable (KCL | Nitrate/ Nitrite as N, extracta | Nitrite as N, extractable (KCL | Nitrogen, total Kjeldahl | pH, Saturated Paste | Phosphorus, extractable (AB-DT | Potassium, extractable (AB-DTP | Potassium, soluble (Sat. Paste | Sand | Saturation Percent | Selenium, soluble (Hot Water) |
| D-11 0-12" | | | | | 2.98 | 1.60 | 25.00 | 0.42 | 0.35 | 3.10 | 1.80 | 2.40 | 0.60 | 0.08 | 7.60 | 15.00 | 230.00 | 0.22 | 42.50 | 40.80 | |
| D-11 11-48" | 12.00 | 35.00 | 23.00 | 1.41 | 20.50 | 25.00 | 17.50 | 1.63 | 2.88 | 3.50 | 0.70 | 1.50 | 0.80 | 0.24 | 7.10 | 2.00 | 110.00 | 0.11 | 62.50 | 53.20 | |
| D-11 62-82" | | | | | 12.80 | 3.60 | 18.80 | 1.33 | 4.28 | 5.30 | 0.60 | 1.30 | 0.70 | 0.15 | 7.60 | 9.00 | 140.00 | 0.16 | 51.30 | 44.80 | |
| D-12 0-6" | | | | | 2.11 | 3.20 | 12.50 | 0.42 | 0.62 | 0.70 | 2.60 | 2.60 | | 0.25 | 6.80 | 22.00 | 440.00 | 1.06 | 50.00 | 55.90 | |
| D-12 14-28" | | | | | 0.82 | 0.70 | 12.50 | 0.21 | 0.31 | 0.50 | 1.90 | 2.60 | 0.70 | 0.42 | 7.00 | 13.00 | 170.00 | 0.20 | 51.30 | 36.50 | |
| D-12 28-48" | | | | | 1.15 | 0.40 | 18.80 | 0.25 | 0.36 | 0.60 | 1.80 | 2.50 | 0.70 | 0.05 | 7.10 | 11.00 | 170.00 | 0.16 | 53.80 | 36.40 | |
| D-12 48-66" | | | | | 1.63 | 0.20 | 18.80 | 0.30 | 0.33 | 2.60 | 1.90 | 2.50 | 0.60 | 0.03 | 7.70 | 11.00 | 140.00 | 0.09 | 56.30 | 38.00 | |
| D-12 6-14" | | | | | 1.23 | 1.00 | 13.80 | 0.27 | 0.41 | 0.70 | 2.00 | 2.70 | 0.70 | 0.11 | 6.80 | 16.00 | 240.00 | 0.38 | 52.50 | 42.70 | |
| D-2 0-6" | | | | | 0.80 | 1.10 | 15.00 | 0.18 | 0.16 | 0.60 | 0.20 | 0.90 | 0.70 | 0.06 | 7.30 | 15.00 | 90.00 | 0.11 | 77.50 | 33.50 | |
| D-2 6-24" | | | | | 0.16 | 0.30 | 13.80 | 0.50 | 0.13 | 0.40 | | 0.90 | 0.80 | 0.03 | 7.30 | 13.00 | 80.00 | 0.08 | 78.80 | 33.30 | |
| D-3 | 14.00 | 33.00 | 19.00 | 2.30 | 15.30 | 30.10 | 15.00 | 0.16 | 3.06 | 3.30 | 1.00 | 1.00 | | 0.12 | 7.30 | 5.00 | 80.00 | 0.13 | 71.30 | 59.20 | |
| D-3 0-10" | 0.00 | 14.00 | 14.00 | 0.57 | 1.20 | 2.30 | 18.80 | 0.27 | 0.21 | 1.40 | 1.50 | 1.50 | | 0.32 | 7.60 | 29.00 | 320.00 | 0.33 | 72.50 | 40.70 | |
| D-3 10-20" | 0.00 | 15.00 | 15.00 | 0.66 | 1.52 | 1.70 | 17.50 | 0.27 | 0.24 | 1.50 | 0.90 | 0.90 | | 0.11 | 7.50 | 20.00 | 190.00 | 0.18 | 71.30 | 35.30 | |
| D-3 20-40" | 0.00 | 10.00 | 10.00 | 0.65 | 0.68 | 1.60 | 18.80 | 0.17 | 0.14 | 1.00 | 0.40 | 1.20 | 0.80 | 0.09 | 7.60 | 16.00 | 110.00 | 0.07 | 72.50 | 37.00 | |
| D-3 40-60" | 0.00 | 18.00 | 18.00 | 0.48 | 1.13 | 1.80 | 17.50 | 0.25 | 0.26 | 1.80 | 0.20 | 1.00 | 0.80 | 0.10 | 7.80 | 17.00 | 110.00 | 0.06 | 72.50 | 38.90 | |
| D-3 60-75" | 4.00 | 18.00 | 14.00 | 1.11 | 13.40 | 1.90 | 17.50 | 0.16 | 5.67 | 1.80 | 0.40 | 1.20 | 0.80 | 0.16 | 7.40 | 15.00 | 130.00 | 0.16 | 72.50 | 37.90 | |
| D-4 0-8" | | | | | 0.82 | 1.40 | 17.50 | 0.20 | 0.13 | 1.20 | 1.30 | 1.30 | | 0.06 | 7.60 | 22.00 | 150.00 | 0.07 | 71.30 | 40.20 | |
| D-4 19-72" | 0.00 | 23.00 | 23.00 | 2.25 | 16.90 | 3.20 | 16.30 | 0.20 | 8.58 | 2.30 | 1.10 | 1.10 | | 0.68 | 7.30 | 4.00 | 90.00 | 0.13 | 77.50 | 61.60 | |
| D-4 8-16" | | | | | 0.47 | 1.30 | 18.80 | 0.14 | 0.12 | 0.90 | 0.30 | 1.10 | 0.80 | 0.09 | 7.80 | 21.00 | 150.00 | 0.06 | 68.80 | 39.20 | |
| D-5 0-6" | | | | | 1.17 | 1.50 | 21.30 | 0.26 | 0.24 | 2.30 | 0.50 | 1.20 | 0.70 | 0.12 | 7.80 | 24.00 | 140.00 | 0.09 | 65.00 | 45.90 | |
| D-5 20-40" | | | | | 0.34 | 1.00 | 21.30 | 0.12 | 0.10 | 2.70 | 0.90 | 1.60 | 0.70 | 0.04 | 7.80 | 20.00 | 80.00 | 0.08 | 63.80 | 52.20 | |
| D-5 40-60" | | | | | 1.33 | 1.60 | 21.30 | 0.25 | 0.31 | 3.30 | 7.90 | 8.60 | 0.70 | 0.09 | 7.70 | 18.00 | 80.00 | 0.08 | 37.50 | 52.30 | |
| D-5 6-20" | | | | | 0.81 | 1.40 | 21.30 | 0.18 | 0.15 | 2.60 | 0.50 | 1.10 | 0.60 | 0.07 | 7.80 | 24.00 | 90.00 | 0.06 | 65.00 | 47.00 | |
| D-6 0-7" | | | | | 2.48 | 1.60 | 22.50 | 0.28 | 0.38 | 3.70 | 9.00 | 9.80 | 0.80 | 0.09 | 7.50 | 15.00 | 240.00 | 0.45 | 30.00 | 52.10 | |
| D-6 24-48" | | | | | 3.21 | 1.30 | 20.00 | 0.45 | 0.76 | 3.20 | 3.30 | 4.10 | 0.80 | 0.07 | 7.50 | 12.00 | 70.00 | 0.09 | 40.00 | 54.40 | |
| D-6 48-72" | | | | | 2.96 | 1.40 | 20.00 | 0.45 | 0.69 | 3.30 | 2.30 | 3.10 | 0.80 | 0.08 | 7.40 | 10.00 | 100.00 | 0.09 | 37.50 | 51.00 | |
| D-7 0-6" | | | | | 4.92 | 1.30 | 20.00 | 0.69 | 0.72 | 2.70 | 1.90 | 1.90 | | 0.09 | 7.20 | 7.00 | 250.00 | 0.67 | 30.00 | 49.60 | |
| D-7 20-42" | | | | | 0.93 | 0.90 | 21.30 | 0.20 | 0.32 | 3.30 | 0.50 | 1.20 | 0.70 | 0.05 | 7.80 | 8.00 | 90.00 | 0.13 | 32.50 | 43.30 | |
| D-7 42-58" | | | | | 1.63 | 1.20 | 22.50 | 0.30 | 0.42 | 2.80 | | 0.90 | 0.80 | 0.07 | 7.60 | 8.00 | 110.00 | 0.09 | 32.50 | 54.30 | |
| D-7 58-70" | | | | | 3.35 | 0.80 | 12.50 | 0.48 | 0.83 | 0.80 | | 0.70 | 0.80 | 0.07 | 7.20 | 16.00 | 140.00 | 0.11 | 52.50 | 36.50 | |
| D-7 6-20" | | | | | 2.98 | 1.10 | 22.50 | 0.46 | 0.56 | 3.30 | 0.40 | 1.20 | 0.80 | 0.06 | 7.50 | 10.00 | 130.00 | 0.15 | 30.00 | 47.30 | |
| D-8 0-6" | | | | | 3.91 | 2.50 | 8.80 | 0.59 | 0.79 | 1.20 | 2.10 | 2.10 | | 0.22 | 7.00 | 25.00 | 360.00 | 1.11 | 52.50 | 64.60 | |
| D-8 13-20" | | | | | 0.56 | 0.40 | 12.50 | 0.16 | 0.23 | 0.60 | 0.80 | 0.80 | | 0.05 | 7.00 | 20.00 | 190.00 | 0.24 | 55.00 | 38.80 | |
| D-8 20-48" | | | | | 0.60 | 0.30 | 16.30 | 0.18 | 0.30 | 0.60 | | 0.80 | 0.80 | 0.03 | 7.30 | 17.00 | 200.00 | 0.22 | 53.80 | 38.00 | |
| D-8 6-13" | | | | | 1.13 | 1.10 | 10.00 | 0.28 | 0.28 | 0.80 | 1.70 | 1.70 | | 0.15 | 7.10 | 20.00 | 280.00 | 0.42 | 55.00 | 41.50 | |
| D-9A 0-6" | | | | | 3.48 | 2.00 | 16.30 | 0.45 | 0.39 | 2.00 | 1.00 | 1.80 | 0.80 | 0.12 | 7.50 | 11.00 | 170.00 | 0.20 | 47.50 | 51.60 | |
| D-9A 115-145" | 0.00 | 5.00 | 5.00 | 0.57 | 12.70 | 0.30 | 22.50 | 1.25 | 2.67 | 0.50 | 3.60 | 4.20 | 0.60 | 0.05 | 7.10 | 13.00 | 200.00 | 0.35 | 50.00 | 42.50 | |
| D-9A 12-30" | 15.00 | 42.00 | 27.00 | 2.31 | 1.33 | 29.60 | 12.50 | 0.27 | 0.28 | 4.20 | 0.70 | 0.70 | | 1.10 | 7.50 | 3.00 | 80.00 | 0.10 | 68.80 | 37.50 | |
| D-9A 30-68" | 19.00 | 54.00 | 35.00 | 2.16 | 20.90 | 24.40 | 17.50 | 2.11 | 11.00 | 5.40 | 0.80 | 0.80 | | 0.49 | 7.10 | 2.00 | 100.00 | 0.16 | 57.50 | 55.20 | |
| D-9A 6-12" | | | | | 3.25 | 2.20 | 17.50 | 0.47 | 0.54 | 1.90 | | 0.90 | 0.80 | 0.12 | 7.70 | 11.00 | 120.00 | 0.09 | 50.00 | 47.60 | |
| D-9A 80-95" | 2.00 | 17.00 | 15.00 | 0.91 | 2.34 | 4.30 | 15.00 | 0.35 | 0.29 | 1.70 | 0.60 | 1.40 | 0.80 | 0.18 | 7.50 | 9.00 | 120.00 | 0.15 | 53.80 | 49.00 | |
| D-9A 95-115" | 1.00 | 13.00 | 12.00 | 0.86 | 1.35 | 2.40 | 15.00 | 0.25 | 0.29 | 1.30 | 1.30 | 1.90 | 0.60 | 0.39 | 7.70 | 11.00 | 150.00 | 0.05 | 55.00 | 51.00 | |
| D-9B 0-6" | 0.00 | 24.00 | 24.00 | 0.46 | 2.76 | 1.70 | 25.00 | 0.43 | 0.39 | 2.40 | 2.90 | 3.50 | 0.60 | 0.13 | 7.40 | 20.00 | 250.00 | 0.32 | 35.00 | 41.50 | |
| D-9B 12-30" | 16.00 | 51.00 | 35.00 | 2.27 | 18.50 | 23.10 | 23.80 | 1.61 | 3.87 | 5.10 | 1.50 | 1.50 | | 0.73 | 7.10 | 3.00 | 120.00 | 0.17 | 50.00 | 50.30 | 0.01 |
| D-9B 30-52" | 35.00 | 46.00 | 11.00 | 1.41 | 25.10 | 54.00 | 2.50 | 1.77 | 1.48 | 4.60 | 1.20 | 1.20 | | 1.43 | 7.10 | 1.00 | 30.00 | 0.06 | 93.80 | 59.00 | |
| D-9B 52-80" | 2.00 | 7.00 | 5.00 | 1.73 | 20.10 | 1.40 | 13.80 | 1.85 | 6.54 | 0.70 | 0.40 | 1.10 | 0.70 | 0.09 | 7.00 | 11.00 | 150.00 | 0.42 | 60.00 | 38.00 | |
| D-9B 6-12" | 0.00 | 22.00 | 22.00 | 0.49 | 2.47 | 2.40 | 17.50 | 0.37 | 0.39 | 2.20 | 0.90 | 1.60 | 0.70 | 0.24 | 7.40 | 31.00 | 170.00 | 0.12 | 51.30 | 34.90 | |
| D-9B 80-102" | 0.00 | 6.00 | 6.00 | 0.86 | 19.40 | 0.90 | 15.00 | 1.73 | 6.62 | 0.60 | 0.40 | 1.10 | 0.70 | 0.06 | 7.00 | 11.00 | 180.00 | 0.58 | 53.80 | 37.90 | |
| Grand Total | 6.32 | 23.84 | 17.53 | 1.23 | 3.45 | 3.17 | 19.53 | 0.42 | 0.89 | 1.80 | 4.38 | 4.66 | 0.72 | 0.14 | 7.22 | 17.36 | 183.53 | 0.29 | 50.84 | 45.20 | 0.01 |

| Results | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CLIENTID | Sieve-53 um (270 mesh) | Sieve-2000 um (2.0 mm) | Silt | Sodium Absorption Ratio | Sodium, soluble (Sat. Paste) | Solids, Percent | Sulfur Organic Residual | Sulfur Pyritic Sulfide | Sulfur Sulfate | Sulfur Total | Total Sulfur minus Sulfate |
| 1A-1 0-6" | 79.40 | 92.50 | 43.80 | 0.07 | 0.11 | 76.90 | | | | | |
| 1A-1 17-28" | 79.40 | 86.20 | 37.50 | 0.15 | 0.10 | 96.10 | | | | | |
| 1A-1 28-60" | 80.90 | 82.00 | 35.00 | 0.51 | 0.39 | 92.40 | | | | | |
| 1A-1 60-100" | 81.60 | 76.90 | 30.00 | 0.76 | 0.59 | 88.60 | | | | | |
| 1A-1 6-17" | 77.00 | 92.60 | 45.00 | 0.11 | 0.10 | 97.00 | | | | | |
| 1A-2 15-25" | 81.70 | 82.80 | 32.50 | 0.17 | 0.24 | 88.00 | | | | | |
| 1A-2 25-40" | 81.80 | 79.60 | 38.80 | 0.14 | 0.22 | 95.60 | | | | | |
| 1A-2 40-60" | 81.00 | 84.70 | 38.80 | 0.15 | 0.29 | 96.10 | | | | | |
| 1A-2 60-75" | 83.90 | 74.00 | 35.00 | 0.16 | 0.22 | 96.00 | | | | | |
| 1A-2 75-90" | 83.60 | 76.00 | 38.80 | 0.13 | 0.33 | 94.70 | | | | | |
| 1B1 0-7" | 83.70 | 79.80 | 42.50 | 0.11 | 0.17 | 75.80 | | | | | |
| 1B1 15-28" | 82.30 | 79.30 | 45.00 | 1.25 | 0.85 | 96.80 | | | | | |
| 1B1 28-60" | 81.70 | 82.40 | 30.00 | 0.89 | 0.60 | 97.30 | | | | | |
| 1B1 7-15" | 83.30 | 79.90 | 40.00 | 0.57 | 0.61 | 91.70 | | | | | |
| 2A-1 0-10" | 75.80 | 91.80 | 30.00 | 0.19 | 0.20 | 86.00 | | | | | |
| 2A-1 10-24" | 84.60 | 72.00 | 30.00 | 0.37 | 0.36 | 94.60 | | | | | |
| 2A-1 24-44" | 86.10 | 83.90 | 37.50 | 0.20 | 0.18 | 94.20 | | | | | |
| 2A-1 44-65" | 87.70 | 90.60 | 31.30 | 0.39 | 0.36 | 95.00 | | | | | |
| 2A-1 65-80" | 86.50 | 90.10 | 25.00 | 0.41 | 0.40 | 95.10 | | | | | |
| 2A-2 0-5" | 80.50 | 88.90 | 36.30 | 0.33 | 0.33 | 87.30 | | | | | |
| 2A-2 14-25" | 87.00 | 64.50 | 46.30 | 0.43 | 0.29 | 96.30 | | | | | |
| 2A-2 25-38" | 84.40 | 70.70 | 36.30 | 0.37 | 0.22 | 94.10 | | | | | |
| 2A-2 5-14" | 78.00 | 88.50 | 36.30 | 0.33 | 0.33 | 86.30 | | | | | |
| 2A-3 0-9" | 72.80 | 86.80 | 32.50 | 0.23 | 0.18 | 87.70 | | | | | |
| 2A-3 19-36" | 80.60 | 75.30 | 30.00 | 0.41 | 0.25 | 94.70 | | | | | |
| 2A-3 36-52" | 91.00 | 61.30 | 40.00 | 0.33 | 0.28 | 93.50 | | | | | |
| 2A-3 9-19" | 82.10 | 80.70 | 33.80 | 0.33 | 0.20 | 94.50 | | | | | |
| 2A-5 0-6" | 80.60 | 80.40 | 37.50 | 0.38 | 0.42 | 87.10 | | | | | |
| 2A-5 12-24" | 92.80 | 45.00 | 40.00 | 0.38 | 0.21 | 91.70 | | | | | |
| 2A-5 24-48" | 95.20 | 39.30 | 37.50 | 0.42 | 0.22 | 90.70 | | | | | |
| 2A-5 6-12" | 87.50 | 60.50 | 32.50 | 0.33 | 0.38 | 89.00 | | | | | |
| 2A-6 0-6" | 80.30 | 91.30 | 37.50 | 0.16 | 0.15 | 84.30 | | | | | |
| 2A-6 12-24" | 82.00 | 86.80 | 38.80 | 0.43 | 0.35 | 96.00 | | | | | |
| 2A-6 24-40" | 84.40 | 79.30 | 38.80 | 0.42 | 0.39 | 93.60 | | | | | |
| 2A-6 40-60" | 85.20 | 85.20 | 25.00 | 1.39 | 1.48 | 94.90 | | | | | |
| 2A-6 60-80" | 86.50 | 76.50 | 27.50 | 1.09 | 0.98 | 93.40 | | | | | |
| 2A-6 6-12" | 80.80 | 83.60 | 33.80 | 0.21 | 0.16 | 90.40 | | | | | |
| 2A-7 0-7" | 75.80 | 87.60 | 25.00 | 0.55 | 0.51 | 86.40 | | | | | |
| 2A-7 20-38" | 79.50 | 79.40 | 26.30 | 0.43 | 0.37 | 93.10 | | | | | |
| 2A-7 7-20" | 77.40 | 86.90 | 26.30 | 0.43 | 0.43 | 91.80 | | | | | |
| 2B-1 0-9" | 78.80 | 84.90 | 21.30 | 0.18 | 0.16 | 82.10 | | | | | |
| 2B-1 19-33" | 90.50 | 79.60 | 40.00 | 0.44 | 0.42 | 93.10 | | | | | |
| 2B-1 33-51" | 84.30 | 88.30 | 36.30 | 0.24 | 0.31 | 95.90 | | | | | |
| 2B-1 9-19" | 91.30 | 39.90 | 35.00 | 0.37 | 0.25 | 94.10 | | | | | |
| D-1 0-6" | 91.50 | 75.60 | 11.30 | 0.23 | 0.22 | 88.10 | | | | | |
| D-1 16-25" | 91.90 | 70.00 | 7.50 | 0.08 | 0.06 | 91.20 | | | | | |
| D-1 25-40" | 88.60 | 88.70 | 12.50 | 0.11 | 0.08 | 95.50 | | | | | |
| D-1 40-65" | 91.50 | 78.50 | 7.50 | 0.11 | 0.09 | 94.30 | | | | | |
| D-1 6-16" | 87.80 | 95.40 | 15.00 | 0.11 | 0.10 | 91.50 | | | | | |
| D-1 65-90" | 93.80 | 67.10 | 3.80 | 0.15 | 0.14 | 94.20 | | | | | |
| D-10 0-5" | 68.20 | 81.60 | 37.50 | 0.16 | 0.23 | 82.60 | | | | | |
| D-10 11-23" | 97.00 | 23.00 | 35.00 | 0.49 | 0.36 | 91.70 | | | | | |
| D-10 23-35" | 98.00 | 18.90 | 35.00 | 0.43 | 0.34 | 91.20 | | | | | |
| D-10 5-11" | 91.10 | 47.40 | 41.30 | 0.40 | 0.36 | 87.40 | | | | | |

| Results | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CLIENTID | Sieve-53 um (270 mesh) | Sieve-2000 um (2.0 mm) | Silt | Sodium Absorption Ratio | Sodium, soluble (Sat. Paste) | Solids, Percent | Sulfur Organic Residual | Sulfur Pyritic Sulfide | Sulfur Sulfate | Sulfur Total | Total Sulfur minus Sulfate |
| D-11 0-12" | 88.30 | 57.90 | 32.50 | 0.20 | 0.26 | 85.50 | | | | | |
| D-11 11-48" | 93.10 | 65.80 | 20.00 | 0.06 | 0.23 | 86.40 | 0.22 | 0.07 | 0.10 | 0.39 | 0.29 |
| D-11 62-82" | 93.70 | 32.80 | 30.00 | 0.08 | 0.26 | 90.30 | | | | | |
| D-12 0-6" | 76.60 | 91.00 | 37.50 | 0.18 | 0.21 | 79.00 | | | | | |
| D-12 14-28" | 81.20 | 69.50 | 36.30 | 0.35 | 0.27 | 94.70 | | | | | |
| D-12 28-48" | 82.90 | 67.40 | 27.50 | 0.32 | 0.28 | 94.60 | | | | | |
| D-12 48-66" | 76.50 | 84.40 | 25.00 | 0.27 | 0.27 | 93.90 | | | | | |
| D-12 6-14" | 77.30 | 84.00 | 33.80 | 0.30 | 0.28 | 84.80 | | | | | |
| D-2 0-6" | 91.40 | 68.80 | 7.50 | 0.08 | 0.06 | 92.20 | | | | | |
| D-2 6-24" | 91.10 | 72.60 | 7.50 | 0.05 | 0.02 | 91.10 | | | | | |
| D-3 | 98.10 | 49.50 | 13.80 | | 0.07 | 90.20 | 0.23 | | 0.23 | 0.46 | 0.23 |
| D-3 0-10" | 92.40 | 81.10 | 8.80 | 0.08 | 0.07 | 88.80 | 0.01 | 0.01 | | 0.02 | 0.02 |
| D-3 10-20" | 92.60 | 75.20 | 11.30 | 0.09 | 0.09 | 93.70 | 0.02 | | | 0.02 | 0.02 |
| D-3 20-40" | 91.10 | 81.70 | 8.80 | 0.09 | 0.06 | 95.40 | 0.02 | | 0.01 | 0.02 | 0.01 |
| D-3 40-60" | 93.10 | 67.30 | 10.00 | 0.08 | 0.07 | 93.90 | 0.02 | | 0.01 | 0.03 | 0.02 |
| D-3 60-75" | 92.60 | 79.80 | 10.00 | 0.05 | 0.17 | 93.80 | 0.02 | | 0.11 | 0.13 | 0.02 |
| D-4 0-8" | 90.90 | 88.70 | 11.30 | 0.07 | 0.05 | 87.60 | | | | | |
| D-4 19-72" | 97.60 | 62.80 | 6.30 | | 0.08 | 93.50 | 0.01 | 0.01 | | 0.02 | 0.02 |
| D-4 8-16" | 90.80 | 84.60 | 12.50 | 0.05 | 0.03 | 94.90 | | | | | |
| D-5 0-6" | 93.80 | 76.10 | 13.80 | 0.07 | 0.06 | 90.00 | | | | | |
| D-5 20-40" | 94.20 | 84.70 | 15.00 | 0.08 | 0.04 | 94.30 | | | | | |
| D-5 40-60" | 86.90 | 84.40 | 41.30 | 0.33 | 0.30 | 91.60 | | | | | |
| D-5 6-20" | 93.10 | 89.10 | 13.80 | 0.07 | 0.05 | 92.20 | | | | | |
| D-6 0-7" | 87.70 | 87.60 | 47.50 | 0.11 | 0.14 | 87.90 | | | | | |
| D-6 24-48" | 88.70 | 72.40 | 40.00 | 0.21 | 0.30 | 94.70 | | | | | |
| D-6 48-72" | 91.10 | 61.40 | 42.50 | 0.20 | 0.28 | 93.00 | | | | | |
| D-7 0-6" | 90.30 | 68.20 | 50.00 | 0.09 | 0.16 | 85.80 | | | | | |
| D-7 20-42" | 91.50 | 67.70 | 46.30 | 0.12 | 0.10 | 92.50 | | | | | |
| D-7 42-58" | 90.90 | 70.30 | 45.00 | 0.22 | 0.23 | 93.00 | | | | | |
| D-7 58-70" | 76.40 | 94.60 | 35.00 | 0.13 | 0.20 | 95.70 | | | | | |
| D-7 6-20" | 92.90 | 53.90 | 47.50 | 0.12 | 0.17 | 87.40 | | | | | |
| D-8 0-6" | 79.70 | 92.10 | 38.80 | 0.08 | 0.13 | 80.40 | | | | | |
| D-8 13-20" | 75.80 | 96.90 | 32.50 | 0.17 | 0.11 | 96.50 | | | | | |
| D-8 20-48" | 76.10 | 92.60 | 30.00 | 0.17 | 0.12 | 95.70 | | | | | |
| D-8 6-13" | 78.90 | 90.50 | 35.00 | 0.14 | 0.12 | 84.90 | | | | | |
| D-9A 0-6" | 85.60 | 75.60 | 36.30 | 0.09 | 0.13 | 87.30 | | | | | |
| D-9A 115-145" | 81.20 | 81.50 | 27.50 | 0.10 | 0.30 | 89.50 | 0.01 | | 0.01 | 0.02 | 0.01 |
| D-9A 12-30" | 94.40 | 59.80 | 18.80 | 0.10 | 0.09 | 90.90 | 0.18 | 0.07 | 0.23 | 0.48 | 0.25 |
| D-9A 30-68" | 97.40 | 51.70 | 25.00 | 0.03 | 0.12 | 89.40 | 0.23 | | 0.43 | 0.62 | 0.19 |
| D-9A 6-12" | 84.60 | 79.30 | 32.50 | 0.08 | 0.12 | 88.70 | | | | | |
| D-9A 80-95" | 85.50 | 80.30 | 31.30 | 0.07 | 0.09 | 90.60 | 0.03 | | 0.03 | 0.06 | 0.03 |
| D-9A 95-115" | 84.50 | 74.40 | 30.00 | 0.24 | 0.22 | 89.70 | 0.02 | | 0.02 | 0.04 | 0.02 |
| D-9B 0-6" | 85.00 | 82.30 | 40.00 | 0.18 | 0.23 | 86.60 | 0.02 | | | 0.02 | 0.02 |
| D-9B 12-30" | 96.30 | 47.20 | 26.30 | 0.07 | 0.25 | 91.90 | 0.20 | 0.12 | 0.20 | 0.52 | 0.32 |
| D-9B 30-52" | 97.10 | 72.10 | 3.80 | 0.04 | 0.16 | 91.50 | 0.51 | 0.08 | 0.54 | 1.13 | 0.59 |
| D-9B 52-80" | 78.60 | 82.70 | 26.30 | 0.05 | 0.21 | 95.50 | 0.02 | | 0.04 | 0.05 | 0.01 |
| D-9B 6-12" | 80.70 | 88.20 | 31.30 | 0.17 | 0.21 | 85.70 | 0.03 | | | 0.03 | 0.03 |
| D-9B 80-102" | 79.80 | 82.70 | 31.30 | 0.06 | 0.24 | 95.90 | 0.01 | | 0.02 | 0.03 | 0.01 |
| Grand Total | 85.89 | 75.68 | 29.69 | 0.26 | 0.25 | 91.09 | 0.10 | 0.06 | 0.14 | 0.22 | 0.11 |

PLASE REFERR TO ACZ PDF LAB SHEETS in SEPARATE Accompanying PDF's:

Exhibit 6 ACZ Lab Sheets Suite 1.pdf
Exhibit 6 ACZ Lab Sheets Suite 2.pdf
Exhibit 6 ACZ Lab Sheets Suite 3.pdf
Exhibit 6 ACZ Lab Sheets Suite 4.pdf
Exhibit 6 ACZ Lab Sheets Suite 5.pdf
Exhibit 6 ACZ Lab Sheets Suite 6.pdf

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# APPENDIX 2: IML Analysis Sheets

Inter-Mountain Laboratories, Inc.
1673 Terra Avenue, Sheridan, Wyoming 82801
(307) 672-8945

# Soil Analysis Report
## Carbon Resources

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Report ID: S0709096001

Project: Kinney Mine
Date Received: 9/7/2007

Date Reported:
Work Order: S0709096

| Lab ID | Sample ID | Depths | pH | Saturation | Electrical Conductivity | Calcium | Magnesium | Sodium | Potassium | SAR | Alkalinity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Inches | s.u. | % | dS/m | meq/L | meq/L | meq/L | meq/L | | meq/L |
| S0709096-001 | 01-SP-07 | 0-6 | 7.3 | 39.8 | 0.44 | 2.48 | 0.89 | 0.34 | 0.43 | 0.26 | 1.99 |
| S0709096-002 | 01-SP-07 | 6-14 | 7.4 | 40.8 | 0.46 | 2.92 | 0.87 | 0.32 | 0.28 | 0.23 | 1.99 |
| S0709096-003 | 01-SP-07 | 14-24 | 7.7 | 50.5 | 1.15 | 7.19 | 1.75 | 1.42 | 0.12 | 0.67 | 2.39 |
| S0709096-004 | 02-SP-07 | 0-6 | 6.6 | 36.0 | 0.49 | 1.48 | 0.64 | 0.82 | 1.40 | 0.79 | 1.19 |
| S0709096-005 | 02-SP-07 | 6-17 | 6.8 | 35.4 | 0.54 | 0.84 | 0.79 | 1.10 | 1.32 | 1.22 | 1.79 |
| S0709096-006 | 02-SP-07 | 17-32 | 7.2 | 33.4 | 1.91 | 6.10 | 2.99 | 4.37 | 3.95 | 2.05 | 1.19 |
| S0709096-007 | 02-SP-07 | 32-44 | 7.4 | 36.0 | 3.60 | 15.1 | 8.52 | 7.30 | 5.75 | 2.12 | 1.99 |
| S0709096-008 | 03-SP-07 | 0-6 | 6.5 | 47.6 | 0.62 | 2.05 | 1.09 | 1.51 | 1.31 | 1.21 | 1.99 |
| S0709096-009 | 03-SP-07 | 6-18 | 6.9 | 38.4 | 0.66 | 2.57 | 1.06 | 1.47 | 1.10 | 1.09 | 2.98 |
| S0709096-010 | 03-SP-07 | 18-30 | 7.2 | 34.7 | 2.00 | 8.14 | 2.53 | 3.12 | 2.31 | 1.35 | 2.59 |
| S0709096-011 | 03-SP-07 | 30-40 | 7.6 | 32.8 | 3.73 | 18.4 | 6.53 | 6.67 | 3.23 | 1.89 | 1.69 |
| S0709096-012 | 04-SP-07 | 0-6 | 6.6 | 47.7 | 0.26 | 1.32 | 0.76 | 0.74 | 0.63 | 0.72 | 1.39 |
| S0709096-013 | 04-SP-07 | 6-11 | 6.6 | 32.8 | 0.29 | 1.52 | 0.61 | 0.16 | 0.44 | 0.15 | 1.59 |
| S0709096-014 | 04-SP-07 | 11-20 | 6.7 | 30.0 | 0.28 | 1.41 | 0.55 | 0.26 | 0.41 | 0.26 | 1.39 |
| S0709096-015 | 04-SP-07 | 20-40 | 6.9 | 33.0 | 0.28 | 1.44 | 0.54 | 0.33 | 0.15 | 0.33 | 1.49 |
| S0709096-016 | 05-SP-07 | 0-8 | 6.5 | 31.5 | 0.27 | 1.54 | 0.49 | 0.27 | 0.21 | 0.27 | 1.29 |
| S0709096-017 | 05-SP-07 | 8-28 | 6.7 | 29.0 | 0.19 | 0.66 | 0.48 | 0.51 | 0.19 | 0.68 | 0.70 |
| S0709096-018 | 05-SP-07 | 28-60 | 7.1 | 29.3 | 0.24 | 1.03 | 0.49 | 0.55 | 0.10 | 0.62 | 1.09 |
| S0709096-019 | 06-SP-07 | 0-6 | 7.3 | 30.6 | 0.45 | 3.01 | 0.87 | 0.28 | 0.31 | 0.20 | 3.58 |
| S0709096-020 | 06-SP-07 | 6-55 | 7.4 | 34.2 | 1.32 | 7.04 | 4.61 | 1.99 | 0.29 | 0.82 | 1.99 |

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor

Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
1673 Terra Avenue, Sheridan, Wyoming 82801
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# Soil Analysis Report
## Carbon Resources

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Report ID: S0709096001

Project: Kinney Mine
Date Received: 9/7/2007

Date Reported:
Work Order: S0709096

| Lab ID | Sample ID | Depths | pH | Saturation | Electrical Conductivity | Calcium | Magnesium | Sodium | Potassium | SAR | Alkalinity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Inches | s.u. | % | dS/m | meq/L | meq/L | meq/L | meq/L | | meq/L |
| S0709096-021 | 06-SP-07 | 55-80 | 6.2 | 32.1 | 1.53 | 10.4 | 5.66 | 0.34 | 0.29 | 0.12 | 0.50 |
| S0709096-022 | 07-SP-07 | 0-6 | 6.6 | 38.4 | 0.37 | 1.74 | 0.67 | 0.27 | 0.70 | 0.24 | 2.29 |
| S0709096-023 | 07-SP-07 | 6-11 | 6.5 | 34.2 | 0.23 | 0.98 | 0.48 | 0.34 | 0.36 | 0.40 | 1.29 |
| S0709096-024 | 07-SP-07 | 11-28 | 6.6 | 29.6 | 0.23 | 1.23 | 0.50 | 0.24 | 0.30 | 0.26 | 1.19 |
| S0709096-025 | 07-SP-07 | 28-40 | 7.1 | 27.9 | 0.35 | 2.16 | 0.72 | 0.31 | 0.08 | 0.26 | 2.19 |
| S0709096-026 | 08-SP-07 | 0-9 | 6.5 | 47.6 | 0.26 | 1.21 | 0.45 | 0.18 | 0.55 | 0.20 | 1.39 |
| S0709096-027 | 08-SP-07 | 9-17 | 6.6 | 37.3 | 0.30 | 1.59 | 0.58 | 0.25 | 0.37 | 0.24 | 1.49 |
| S0709096-028 | 08-SP-07 | 17-36 | 6.6 | 26.2 | 0.18 | 0.84 | 0.35 | 0.16 | 0.27 | 0.21 | 1.09 |
| S0709096-029 | 08-SP-07 | 36-60 | 6.7 | 24.3 | 0.23 | 0.91 | 0.53 | 0.28 | 0.25 | 0.33 | 0.90 |
| S0709096-030 | 09-SP-07 | 0-6 | 6.5 | 38.6 | 0.30 | 1.42 | 0.54 | 0.16 | 0.57 | 0.16 | 2.09 |
| S0709096-031 | 09-SP-07 | 6-12 | 6.5 | 28.8 | 0.21 | 1.02 | 0.40 | 0.17 | 0.31 | 0.20 | 1.19 |
| S0709096-032 | 09-SP-07 | 12-30 | 6.5 | 33.0 | 0.19 | 0.91 | 0.49 | 0.28 | 0.15 | 0.34 | 1.00 |
| S0709096-033 | 09-SP-07 | 30-60 | 6.9 | 34.7 | 0.17 | 0.87 | 0.38 | 0.27 | 0.06 | 0.34 | 1.19 |
| S0709096-034 | 10-SP-07 | 0-7 | 6.9 | 33.4 | 0.37 | 2.44 | 0.76 | 0.16 | 0.29 | 0.13 | 2.79 |
| S0709096-035 | 10-SP-07 | 7-18 | 6.6 | 28.6 | 0.17 | 0.96 | 0.38 | 0.15 | 0.15 | 0.18 | 1.00 |
| S0709096-036 | 10-SP-07 | 18-40 | 6.7 | 30.0 | 0.15 | 0.82 | 0.23 | 0.18 | 0.07 | 0.25 | 0.80 |
| S0709096-037 | 10-SP-07 | 40-70 | 7.3 | 29.0 | 0.40 | 2.89 | 0.56 | 0.22 | 0.09 | 0.17 | 2.59 |
| S0709096-038 | 11-SP-07 | 0-5 | 6.8 | 40.8 | 0.33 | 1.74 | 0.64 | 0.22 | 0.68 | 0.20 | 2.59 |
| S0709096-039 | 11-SP-07 | 5-13 | 6.4 | 31.8 | 0.34 | 1.45 | 0.70 | 0.34 | 0.52 | 0.33 | 1.79 |
| S0709096-040 | 11-SP-07 | 13-33 | 6.6 | 29.4 | 0.26 | 1.46 | 0.55 | 0.23 | 0.28 | 0.23 | 1.39 |

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor

Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
1673 Terra Avenue, Sheridan, Wyoming 82801
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# Soil Analysis Report
## Carbon Resources

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Report ID: S0709096001

Project: Kinney Mine
Date Received: 9/7/2007

Date Reported:
Work Order: S0709096

| Lab ID | Sample ID | Depths | pH | Saturation | Electrical Conductivity | Calcium | Magnesium | Sodium | Potassium | SAR | Alkalinity |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Inches | s.u. | % | dS/m | meq/L | meq/L | meq/L | meq/L | | meq/L |
| S0709096-041 | 11-SP-07 | 33-55 | 6.8 | 35.4 | 0.20 | 1.11 | 0.50 | 0.27 | 0.13 | 0.30 | 1.79 |
| S0709096-042 | 11-SP-07 | 55-80 | 7.1 | 37.1 | 0.33 | 1.34 | 0.70 | 0.64 | 0.17 | 0.63 | 2.19 |
| S0709096-043 | 12-SP-07 | 0-6 | 7.1 | 36.3 | 0.42 | 2.19 | 0.77 | 0.13 | 0.89 | 0.11 | 3.18 |
| S0709096-044 | 12-SP-07 | 6-12 | 7.2 | 34.7 | 0.24 | 0.98 | 0.42 | 0.14 | 0.86 | 0.17 | 1.79 |
| S0709096-045 | 12-SP-07 | 12-24 | 7.2 | 31.5 | 0.26 | 1.22 | 0.45 | 0.13 | 0.70 | 0.15 | 1.99 |
| S0709096-046 | 12-SP-07 | 24-36 | 7.4 | 33.0 | 0.32 | 2.05 | 0.72 | 0.17 | 0.36 | 0.15 | 1.99 |
| S0709096-047 | 12-SP-07 | 36-52 | 7.4 | 31.0 | 0.40 | 2.45 | 0.75 | 0.23 | 0.32 | 0.18 | 2.79 |
| S0709096-048 | 12-SP-07 | 52-75 | 7.8 | 29.8 | 0.38 | 2.20 | 0.79 | 0.27 | 0.30 | 0.22 | 2.29 |
| S0709096-049 | 13-SP-07 | 0-8 | 7.0 | 35.0 | 0.45 | 2.49 | 0.99 | 0.22 | 0.54 | 0.16 | 3.28 |
| S0709096-050 | 13-SP-07 | 8-25 | 6.2 | 67.9 | 0.23 | 1.39 | 0.46 | 0.07 | 0.06 | 0.07 | 0.50 |
| S0709096-051 | 13-SP-07 | 25-41 | 6.8 | 31.7 | 0.35 | 2.46 | 0.56 | 0.08 | 0.20 | 0.07 | 1.69 |
| S0709096-052 | 13-SP-07 | 41-70 | 6.6 | 25.8 | 0.40 | 1.98 | 0.77 | 0.19 | 0.39 | 0.17 | 1.69 |

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

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# Soil Analysis Report
## Carbon Resources

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Report ID: S0709096001

Project: Kinney Mine
Date Received: 9/7/2007

Date Reported:
Work Order: S0709096

| Lab ID | Sample ID | Depths Inches | Sand % | Silt % | Clay % | Texture | Very Fine Sand % | Boron ppm | TKN % | Phosphorus ppm | Selenium ppm |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S0709096-001 | 01-SP-07 | 0-6 | 66.0 | 24.0 | 10.0 | Sandy Loam | 14.9 | | 0.30 | 11.9 | |
| S0709096-002 | 01-SP-07 | 6-14 | 70.0 | 19.0 | 11.0 | Sandy Loam | 17.6 | | 0.46 | 12.7 | |
| S0709096-003 | 01-SP-07 | 14-24 | 37.0 | 41.0 | 22.0 | Loam | 18.6 | | 0.10 | 12.6 | |
| S0709096-004 | 02-SP-07 | 0-6 | 47.0 | 37.0 | 16.0 | Loam | 22.6 | | 0.07 | 30.7 | |
| S0709096-005 | 02-SP-07 | 6-17 | 46.0 | 36.0 | 18.0 | Loam | 25.0 | | 0.02 | 34.3 | |
| S0709096-006 | 02-SP-07 | 17-32 | 47.0 | 36.0 | 17.0 | Loam | 26.4 | | 0.06 | 26.8 | |
| S0709096-007 | 02-SP-07 | 32-44 | 40.0 | 38.0 | 22.0 | Loam | 23.5 | | 0.08 | 17.5 | |
| S0709096-008 | 03-SP-07 | 0-6 | 46.0 | 35.0 | 19.0 | Loam | 25.4 | | 0.06 | 35.6 | |
| S0709096-009 | 03-SP-07 | 6-18 | 48.0 | 34.0 | 18.0 | Loam | 25.9 | | 0.04 | 45.2 | |
| S0709096-010 | 03-SP-07 | 18-30 | 42.0 | 37.0 | 21.0 | Loam | 26.8 | | 0.06 | 45.2 | |
| S0709096-011 | 03-SP-07 | 30-40 | 42.0 | 37.0 | 21.0 | Loam | 24.1 | | 0.01 | 17.6 | |
| S0709096-012 | 04-SP-07 | 0-6 | 54.0 | 29.0 | 17.0 | Sandy Loam | 23.1 | | 0.14 | 15.1 | |
| S0709096-013 | 04-SP-07 | 6-11 | 49.0 | 34.0 | 17.0 | Loam | 24.0 | | 0.09 | 14.2 | |
| S0709096-014 | 04-SP-07 | 11-20 | 50.0 | 32.0 | 18.0 | Loam | 22.4 | | 0.03 | 12.0 | |
| S0709096-015 | 04-SP-07 | 20-40 | 54.0 | 25.0 | 21.0 | Sandy Clay Loam | 21.9 | | 0.04 | 14.3 | |
| S0709096-016 | 05-SP-07 | 0-8 | 45.0 | 33.0 | 22.0 | Loam | 23.4 | | 0.05 | 14.3 | |
| S0709096-017 | 05-SP-07 | 8-28 | 55.0 | 24.0 | 21.0 | Sandy Clay Loam | 26.3 | | 0.03 | 15.3 | |
| S0709096-018 | 05-SP-07 | 28-60 | 52.0 | 28.0 | 20.0 | Loam | 18.5 | | 0.03 | 9.09 | |
| S0709096-019 | 06-SP-07 | 0-6 | 48.0 | 32.0 | 20.0 | Loam | 19.4 | | 0.05 | 12.5 | |
| S0709096-020 | 06-SP-07 | 6-55 | 42.0 | 33.0 | 25.0 | Loam | 12.6 | 0.79 | 0.18 | 1.60 | <0.02 |

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

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**Soil Analysis Report**
**Carbon Resources**
,

Report ID: S0709096001

Project: Kinney Mine
Date Received: 9/7/2007

Date Reported:
Work Order: S0709096

| Lab ID | Sample ID | Depths Inches | Sand % | Silt % | Clay % | Texture | Very Fine Sand % | Boron ppm | TKN % | Phosphorus ppm | Selenium ppm |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S0709096-021 | 06-SP-07 | 55-80 | 50.0 | 30.0 | 20.0 | Loam | 21.5 | | 0.01 | 15.7 | |
| S0709096-022 | 07-SP-07 | 0-6 | 58.0 | 27.0 | 15.0 | Sandy Loam | 20.6 | | 0.04 | 14.6 | |
| S0709096-023 | 07-SP-07 | 6-11 | 60.0 | 24.0 | 16.0 | Sandy Loam | 25.0 | | 0.04 | 14.6 | |
| S0709096-024 | 07-SP-07 | 11-28 | 60.0 | 24.0 | 16.0 | Sandy Loam | 18.8 | | 0.03 | 10.7 | |
| S0709096-025 | 07-SP-07 | 28-40 | 52.0 | 30.0 | 18.0 | Sandy Loam | 17.3 | | 0.03 | 5.62 | |
| S0709096-026 | 08-SP-07 | 0-9 | 46.0 | 37.0 | 17.0 | Loam | 14.7 | | 0.04 | 15.7 | |
| S0709096-027 | 08-SP-07 | 9-17 | 44.0 | 37.0 | 19.0 | Loam | 21.9 | | 0.06 | 14.2 | |
| S0709096-028 | 08-SP-07 | 17-36 | 46.0 | 37.0 | 17.0 | Loam | 18.4 | | 0.02 | 11.8 | |
| S0709096-029 | 08-SP-07 | 36-60 | 52.0 | 33.0 | 15.0 | Sandy Loam | 21.5 | | <0.01 | 11.0 | |
| S0709096-030 | 09-SP-07 | 0-6 | 60.0 | 26.0 | 14.0 | Sandy Loam | 25.1 | | 0.05 | 18.6 | |
| S0709096-031 | 09-SP-07 | 6-12 | 49.0 | 32.0 | 19.0 | Loam | 22.5 | | <0.01 | 9.72 | |
| S0709096-032 | 09-SP-07 | 12-30 | 50.0 | 29.0 | 21.0 | Loam | 26.0 | | <0.01 | 10.7 | |
| S0709096-033 | 09-SP-07 | 30-60 | 42.0 | 44.0 | 14.0 | Loam | 23.0 | | <0.01 | 15.9 | |
| S0709096-034 | 10-SP-07 | 0-7 | 68.0 | 21.0 | 11.0 | Sandy Loam | 20.6 | | 0.11 | 12.9 | |
| S0709096-035 | 10-SP-07 | 7-18 | 48.0 | 33.0 | 19.0 | Loam | 22.5 | | <0.01 | 14.9 | |
| S0709096-036 | 10-SP-07 | 18-40 | 50.0 | 29.0 | 21.0 | Loam | 23.4 | | <0.01 | 11.0 | |
| S0709096-037 | 10-SP-07 | 40-70 | 49.0 | 33.0 | 18.0 | Loam | 21.8 | | <0.01 | 11.8 | |
| S0709096-038 | 11-SP-07 | 0-5 | 61.0 | 23.0 | 16.0 | Sandy Loam | 28.3 | | <0.01 | 18.6 | |
| S0709096-039 | 11-SP-07 | 5-13 | 52.0 | 28.0 | 20.0 | Loam | 23.5 | | <0.01 | 16.6 | |
| S0709096-040 | 11-SP-07 | 13-33 | 57.0 | 26.0 | 17.0 | Sandy Loam | 22.2 | | 0.01 | 15.6 | |

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
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(307) 672-8945

**Soil Analysis Report**
**Carbon Resources**

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Report ID: S0709096001

Project: Kinney Mine
Date Received: 9/7/2007

Date Reported:
Work Order: S0709096

| Lab ID | Sample ID | Depths | Sand | Silt | Clay | Texture | Very Fine Sand | Boron | TKN | Phosphorus | Selenium |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Inches | % | % | % | | % | ppm | % | ppm | ppm |
| S0709096-041 | 11-SP-07 | 33-55 | 46.0 | 30.0 | 24.0 | Loam | 24.2 | | <0.01 | 14.7 | |
| S0709096-042 | 11-SP-07 | 55-80 | 40.0 | 34.0 | 26.0 | Loam | 26.1 | | 0.01 | 11.1 | |
| S0709096-043 | 12-SP-07 | 0-6 | 54.0 | 30.0 | 16.0 | Sandy Loam | 21.5 | | <0.01 | 18.9 | |
| S0709096-044 | 12-SP-07 | 6-12 | 53.0 | 31.0 | 16.0 | Sandy Loam | 22.5 | | 0.01 | 16.7 | |
| S0709096-045 | 12-SP-07 | 12-24 | 57.0 | 28.0 | 15.0 | Sandy Loam | 27.7 | | 0.05 | 15.9 | |
| S0709096-046 | 12-SP-07 | 24-36 | 55.0 | 30.0 | 15.0 | Sandy Loam | 23.4 | | 0.03 | 16.6 | |
| S0709096-047 | 12-SP-07 | 36-52 | 56.0 | 30.0 | 14.0 | Sandy Loam | 29.4 | | 0.03 | 17.8 | |
| S0709096-048 | 12-SP-07 | 52-75 | 56.0 | 29.0 | 15.0 | Sandy Loam | 26.7 | | <0.01 | 18.8 | |
| S0709096-049 | 13-SP-07 | 0-8 | 62.0 | 22.0 | 16.0 | Sandy Loam | 21.2 | | 0.10 | 17.3 | |
| S0709096-050 | 13-SP-07 | 8-25 | 88.0 | 6.0 | 6.0 | Sand | 20.9 | 0.77 | 0.38 | 1.44 | <0.02 |
| S0709096-051 | 13-SP-07 | 25-41 | 58.0 | 29.0 | 13.0 | Sandy Loam | 24.6 | | <0.01 | 16.7 | |
| S0709096-052 | 13-SP-07 | 41-70 | 66.0 | 21.0 | 13.0 | Sandy Loam | 22.0 | | <0.01 | 12.7 | |

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

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# Soil Analysis Report
## Carbon Resources

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Report ID: S0709096001

Project: Kinney Mine
Date Received: 9/7/2007

Date Reported:
Work Order: S0709096

| Lab ID | Sample ID | Depths Inches | CO3 % | Total Carbon % | TOC % | Total Sulfur % | T.S. AB t/1000t | Neut. Pot. t/1000t | T.S. ABP t/1000t |
|---|---|---|---|---|---|---|---|---|---|
| S0709096-001 | 01-SP-07 | 0-6 | 1.5 | 43.0 | 42.8 | | | | |
| S0709096-002 | 01-SP-07 | 6-14 | 1.6 | 43.8 | 43.6 | | | | |
| S0709096-003 | 01-SP-07 | 14-24 | 4.1 | 5.5 | 5.0 | | | | |
| S0709096-004 | 02-SP-07 | 0-6 | 1.4 | 2.4 | 2.3 | | | | |
| S0709096-005 | 02-SP-07 | 6-17 | 1.0 | 1.5 | 1.4 | | | | |
| S0709096-006 | 02-SP-07 | 17-32 | 1.0 | 1.2 | 1.0 | | | | |
| S0709096-007 | 02-SP-07 | 32-44 | 1.0 | 1.1 | 0.9 | | | | |
| S0709096-008 | 03-SP-07 | 0-6 | 1.6 | 6.6 | 6.4 | | | | |
| S0709096-009 | 03-SP-07 | 6-18 | 1.2 | 8.1 | 7.9 | | | | |
| S0709096-010 | 03-SP-07 | 18-30 | 1.2 | 2.1 | 1.9 | | | | |
| S0709096-011 | 03-SP-07 | 30-40 | 1.2 | 1.2 | 1.1 | | | | |
| S0709096-012 | 04-SP-07 | 0-6 | 1.2 | 3.5 | 3.3 | | | | |
| S0709096-013 | 04-SP-07 | 6-11 | 0.8 | 1.5 | 1.4 | | | | |
| S0709096-014 | 04-SP-07 | 11-20 | 0.7 | 0.6 | 0.5 | | | | |
| S0709096-015 | 04-SP-07 | 20-40 | 1.1 | 0.4 | 0.2 | | | | |
| S0709096-016 | 05-SP-07 | 0-8 | 0.8 | 0.7 | 0.6 | | | | |
| S0709096-017 | 05-SP-07 | 8-28 | 1.2 | 0.2 | <0.1 | | | | |
| S0709096-018 | 05-SP-07 | 28-60 | 0.7 | 0.2 | 0.1 | | | | |
| S0709096-019 | 06-SP-07 | 0-6 | 2.4 | 3.7 | 3.5 | | | | |
| S0709096-020 | 06-SP-07 | 6-55 | 5.4 | 22.7 | 22.2 | 0.31 | 9.67 | 47.4 | 37.7 |

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
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Reviewed by: Karen A Secor

Karen Secor, Soil Lab Supervisor

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# Soil Analysis Report
## Carbon Resources

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Report ID: S0709096001

Project: Kinney Mine
Date Received: 9/7/2007

Date Reported:
Work Order: S0709096

| Lab ID | Sample ID | Depths | CO3 | Total Carbon | TOC | Total Sulfur | T.S. AB | Neut. Pot. | T.S. ABP |
|---|---|---|---|---|---|---|---|---|---|
| | | Inches | % | % | % | % | t/1000t | t/1000t | t/1000t |
| S0709096-021 | 06-SP-07 | 55-80 | 0.7 | 1.3 | 1.2 | | | | |
| S0709096-022 | 07-SP-07 | 0-6 | 1.1 | 2.5 | 2.4 | | | | |
| S0709096-023 | 07-SP-07 | 6-11 | 1.2 | 1.1 | 1.0 | | | | |
| S0709096-024 | 07-SP-07 | 11-28 | 0.8 | 0.7 | 0.6 | | | | |
| S0709096-025 | 07-SP-07 | 28-40 | 0.6 | 0.2 | 0.2 | | | | |
| S0709096-026 | 08-SP-07 | 0-9 | 1.3 | 14.6 | 14.4 | | | | |
| S0709096-027 | 08-SP-07 | 9-17 | 1.0 | 2.3 | 2.2 | | | | |
| S0709096-028 | 08-SP-07 | 17-36 | 0.5 | 0.4 | 0.3 | | | | |
| S0709096-029 | 08-SP-07 | 36-60 | 0.9 | 0.2 | 0.1 | | | | |
| S0709096-030 | 09-SP-07 | 0-6 | 0.9 | 1.4 | 1.3 | | | | |
| S0709096-031 | 09-SP-07 | 6-12 | 0.4 | 0.4 | 0.4 | | | | |
| S0709096-032 | 09-SP-07 | 12-30 | 1.0 | 0.3 | 0.2 | | | | |
| S0709096-033 | 09-SP-07 | 30-60 | 0.7 | 0.2 | 0.1 | | | | |
| S0709096-034 | 10-SP-07 | 0-7 | 1.2 | 17.6 | 17.5 | | | | |
| S0709096-035 | 10-SP-07 | 7-18 | 1.0 | 1.0 | 0.9 | | | | |
| S0709096-036 | 10-SP-07 | 18-40 | 0.6 | 0.4 | 0.3 | | | | |
| S0709096-037 | 10-SP-07 | 40-70 | 3.0 | 0.4 | <0.1 | | | | |
| S0709096-038 | 11-SP-07 | 0-5 | 0.8 | 2.0 | 1.9 | | | | |
| S0709096-039 | 11-SP-07 | 5-13 | 1.1 | 0.6 | 0.5 | | | | |
| S0709096-040 | 11-SP-07 | 13-33 | 1.0 | 0.4 | 0.3 | | | | |

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor

Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
1673 Terra Avenue, Sheridan, Wyoming 82801
(307) 672-8945

# Soil Analysis Report
## Carbon Resources

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Report ID: S0709096001

Project: Kinney Mine
Date Received: 9/7/2007

Date Reported:
Work Order: S0709096

| Lab ID | Sample ID | Depths Inches | CO3 % | Total Carbon % | TOC % | Total Sulfur % | T.S. AB t/1000t | Neut. Pot. t/1000t | T.S. ABP t/1000t |
|---|---|---|---|---|---|---|---|---|---|
| S0709096-041 | 11-SP-07 | 33-55 | 0.8 | 0.2 | 0.1 | | | | |
| S0709096-042 | 11-SP-07 | 55-80 | 1.1 | 0.1 | <0.1 | | | | |
| S0709096-043 | 12-SP-07 | 0-6 | 0.9 | 1.0 | 0.9 | | | | |
| S0709096-044 | 12-SP-07 | 6-12 | 1.3 | 4.1 | 3.9 | | | | |
| S0709096-045 | 12-SP-07 | 12-24 | 0.6 | 1.1 | 1.0 | | | | |
| S0709096-046 | 12-SP-07 | 24-36 | 1.2 | 1.0 | 0.8 | | | | |
| S0709096-047 | 12-SP-07 | 36-52 | 0.7 | 0.9 | 0.8 | | | | |
| S0709096-048 | 12-SP-07 | 52-75 | 0.9 | 0.6 | 0.5 | | | | |
| S0709096-049 | 13-SP-07 | 0-8 | 1.2 | 11.8 | 11.6 | | | | |
| S0709096-050 | 13-SP-07 | 8-25 | 1.5 | 62.9 | 62.7 | 0.36 | 11.4 | 14.1 | 2.72 |
| S0709096-051 | 13-SP-07 | 25-41 | 1.0 | 2.7 | 2.5 | | | | |
| S0709096-052 | 13-SP-07 | 41-70 | 0.7 | 0.7 | 0.6 | | | | |

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble,AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage

Reviewed by: Karen A Secor

Karen Secor, Soil Lab Supervisor

| Sample ID | Begin Depth | End Depth | pH s.u. | Saturation % | Electrical Conductivity dS/m | Calcium meq/L | Magnesium meq/L | Sodium meq/L | Potassium meq/L | SAR |
|---|---|---|---|---|---|---|---|---|---|---|
| 01-SP-07 | 0 | 6 | 7.3 | 39.8 | 0.44 | 2.48 | 0.89 | 0.34 | 0.43 | 0.26 |
| 01-SP-07 | 6 | 14 | 7.4 | 40.8 | 0.46 | 2.92 | 0.87 | 0.32 | 0.28 | 0.23 |
| 01-SP-07 | 14 | 24 | 7.7 | 50.5 | 1.15 | 7.19 | 1.75 | 1.42 | 0.12 | 0.67 |
| 02-SP-07 | 0 | 6 | 6.6 | 36.0 | 0.49 | 1.48 | 0.64 | 0.82 | 1.40 | 0.79 |
| 02-SP-07 | 6 | 17 | 6.8 | 35.4 | 0.54 | 0.84 | 0.79 | 1.10 | 1.32 | 1.22 |
| 02-SP-07 | 17 | 32 | 7.2 | 33.4 | 1.91 | 6.10 | 2.99 | 4.37 | 3.95 | 2.05 |
| 02-SP-07 | 32 | 44 | 7.4 | 36.0 | 3.60 | 15.1 | 8.52 | 7.30 | 5.75 | 2.12 |
| 03-SP-07 | 0 | 6 | 6.5 | 47.6 | 0.62 | 2.05 | 1.09 | 1.51 | 1.31 | 1.21 |
| 03-SP-07 | 6 | 18 | 6.9 | 38.4 | 0.66 | 2.57 | 1.06 | 1.47 | 1.10 | 1.09 |
| 03-SP-07 | 18 | 30 | 7.2 | 34.7 | 2.00 | 8.14 | 2.53 | 3.12 | 2.31 | 1.35 |
| 03-SP-07 | 30 | 40 | 7.6 | 32.8 | 3.73 | 18.4 | 6.53 | 6.67 | 3.23 | 1.89 |
| 04-SP-07 | 0 | 6 | 6.6 | 47.7 | 0.26 | 1.32 | 0.76 | 0.74 | 0.63 | 0.72 |
| 04-SP-07 | 6 | 11 | 6.6 | 32.8 | 0.29 | 1.52 | 0.61 | 0.16 | 0.44 | 0.15 |
| 04-SP-07 | 11 | 20 | 6.7 | 30.0 | 0.28 | 1.41 | 0.55 | 0.26 | 0.41 | 0.26 |
| 04-SP-07 | 20 | 40 | 6.9 | 33.0 | 0.28 | 1.44 | 0.54 | 0.33 | 0.15 | 0.33 |
| 05-SP-07 | 0 | 8 | 6.5 | 31.5 | 0.27 | 1.54 | 0.49 | 0.27 | 0.21 | 0.27 |
| 05-SP-07 | 8 | 28 | 6.7 | 29.0 | 0.19 | 0.66 | 0.48 | 0.51 | 0.19 | 0.68 |
| 05-SP-07 | 28 | 60 | 7.1 | 29.3 | 0.24 | 1.03 | 0.49 | 0.55 | 0.10 | 0.62 |
| 06-SP-07 | 0 | 6 | 7.3 | 30.6 | 0.45 | 3.01 | 0.87 | 0.28 | 0.31 | 0.20 |
| 06-SP-07 | 6 | 55 | 7.4 | 34.2 | 1.32 | 7.04 | 4.61 | 1.99 | 0.29 | 0.82 |
| 06-SP-07 | 55 | 80 | 6.2 | 32.1 | 1.53 | 10.4 | 5.66 | 0.34 | 0.29 | 0.12 |
| 07-SP-07 | 0 | 6 | 6.6 | 38.4 | 0.37 | 1.74 | 0.67 | 0.27 | 0.70 | 0.24 |
| 07-SP-07 | 6 | 11 | 6.5 | 34.2 | 0.23 | 0.98 | 0.48 | 0.34 | 0.36 | 0.40 |
| 07-SP-07 | 11 | 28 | 6.6 | 29.6 | 0.23 | 1.23 | 0.50 | 0.24 | 0.30 | 0.26 |
| 07-SP-07 | 28 | 40 | 7.1 | 27.9 | 0.35 | 2.16 | 0.72 | 0.31 | 0.08 | 0.26 |
| 08-SP-07 | 0 | 9 | 6.5 | 47.6 | 0.26 | 1.21 | 0.45 | 0.18 | 0.55 | 0.20 |
| 08-SP-07 | 9 | 17 | 6.6 | 37.3 | 0.30 | 1.59 | 0.58 | 0.25 | 0.37 | 0.24 |
| 08-SP-07 | 17 | 36 | 6.6 | 26.2 | 0.18 | 0.84 | 0.35 | 0.16 | 0.27 | 0.21 |
| 08-SP-07 | 36 | 60 | 6.7 | 24.3 | 0.23 | 0.91 | 0.53 | 0.28 | 0.25 | 0.33 |
| 09-SP-07 | 0 | 6 | 6.5 | 38.6 | 0.30 | 1.42 | 0.54 | 0.16 | 0.57 | 0.16 |
| 09-SP-07 | 6 | 12 | 6.5 | 28.8 | 0.21 | 1.02 | 0.40 | 0.17 | 0.31 | 0.20 |
| 09-SP-07 | 12 | 30 | 6.5 | 33.0 | 0.19 | 0.91 | 0.49 | 0.28 | 0.15 | 0.34 |
| 09-SP-07 | 30 | 60 | 6.9 | 34.7 | 0.17 | 0.87 | 0.38 | 0.27 | 0.06 | 0.34 |
| 10-SP-07 | 0 | 7 | 6.9 | 33.4 | 0.37 | 2.44 | 0.76 | 0.16 | 0.29 | 0.13 |
| 10-SP-07 | 7 | 18 | 6.6 | 28.6 | 0.17 | 0.96 | 0.38 | 0.15 | 0.15 | 0.18 |
| 10-SP-07 | 18 | 40 | 6.7 | 30.0 | 0.15 | 0.82 | 0.23 | 0.18 | 0.07 | 0.25 |
| 10-SP-07 | 40 | 70 | 7.3 | 29.0 | 0.40 | 2.89 | 0.56 | 0.22 | 0.09 | 0.17 |
| 11-SP-07 | 0 | 5 | 6.8 | 40.8 | 0.33 | 1.74 | 0.64 | 0.22 | 0.68 | 0.20 |
| 11-SP-07 | 5 | 13 | 6.4 | 31.8 | 0.34 | 1.45 | 0.70 | 0.34 | 0.52 | 0.33 |
| 11-SP-07 | 13 | 33 | 6.6 | 29.4 | 0.26 | 1.46 | 0.55 | 0.23 | 0.28 | 0.23 |
| 11-SP-07 | 33 | 55 | 6.8 | 35.4 | 0.20 | 1.11 | 0.50 | 0.27 | 0.13 | 0.30 |
| 11-SP-07 | 55 | 80 | 7.1 | 37.1 | 0.33 | 1.34 | 0.70 | 0.64 | 0.17 | 0.63 |
| 12-SP-07 | 0 | 6 | 7.1 | 36.3 | 0.42 | 2.19 | 0.77 | 0.13 | 0.89 | 0.11 |

| Sample ID | Begin Depth | End Depth | pH s.u. | Saturation % | Electrical Conductivity dS/m | Calcium meq/L | Magnesium meq/L | Sodium meq/L | Potassium meq/L | SAR |
|---|---|---|---|---|---|---|---|---|---|---|
| 12-SP-07 | 6 | 12 | 7.2 | 34.7 | 0.24 | 0.98 | 0.42 | 0.14 | 0.86 | 0.17 |
| 12-SP-07 | 12 | 24 | 7.2 | 31.5 | 0.26 | 1.22 | 0.45 | 0.13 | 0.70 | 0.15 |
| 12-SP-07 | 24 | 36 | 7.4 | 33.0 | 0.32 | 2.05 | 0.72 | 0.17 | 0.36 | 0.15 |
| 12-SP-07 | 36 | 52 | 7.4 | 31.0 | 0.40 | 2.45 | 0.75 | 0.23 | 0.32 | 0.18 |
| 12-SP-07 | 52 | 75 | 7.8 | 29.8 | 0.38 | 2.20 | 0.79 | 0.27 | 0.30 | 0.22 |
| 13-SP-07 | 0 | 8 | 7.0 | 35.0 | 0.45 | 2.49 | 0.99 | 0.22 | 0.54 | 0.16 |
| 13-SP-07 | 8 | 25 | 6.2 | 67.9 | 0.23 | 1.39 | 0.46 | 0.07 | 0.06 | 0.07 |
| 13-SP-07 | 25 | 41 | 6.8 | 31.7 | 0.35 | 2.46 | 0.56 | 0.08 | 0.20 | 0.07 |
| 13-SP-07 | 41 | 70 | 6.6 | 25.8 | 0.40 | 1.98 | 0.77 | 0.19 | 0.39 | 0.17 |

| Sample ID | Alkalinity meq/L | Sand % | Silt % | Clay % | Texture | Very Fine Sand % | Boron ppm | TKN % |
|---|---|---|---|---|---|---|---|---|
| 01-SP-07 | 1.99 | 66.0 | 24.0 | 10.0 | Sandy Loam | 14.9 | | 0.30 |
| 01-SP-07 | 1.99 | 70.0 | 19.0 | 11.0 | Sandy Loam | 17.6 | | 0.46 |
| 01-SP-07 | 2.39 | 37.0 | 41.0 | 22.0 | Loam | 18.6 | | 0.10 |
| 02-SP-07 | 1.19 | 47.0 | 37.0 | 16.0 | Loam | 22.6 | | 0.07 |
| 02-SP-07 | 1.79 | 46.0 | 36.0 | 18.0 | Loam | 25.0 | | 0.02 |
| 02-SP-07 | 1.19 | 47.0 | 36.0 | 17.0 | Loam | 26.4 | | 0.06 |
| 02-SP-07 | 1.99 | 40.0 | 38.0 | 22.0 | Loam | 23.5 | | 0.08 |
| 03-SP-07 | 1.99 | 46.0 | 35.0 | 19.0 | Loam | 25.4 | | 0.06 |
| 03-SP-07 | 2.98 | 48.0 | 34.0 | 18.0 | Loam | 25.9 | | 0.04 |
| 03-SP-07 | 2.59 | 42.0 | 37.0 | 21.0 | Loam | 26.8 | | 0.06 |
| 03-SP-07 | 1.69 | 42.0 | 37.0 | 21.0 | Loam | 24.1 | | 0.01 |
| 04-SP-07 | 1.39 | 54.0 | 29.0 | 17.0 | Sandy Loam | 23.1 | | 0.14 |
| 04-SP-07 | 1.59 | 49.0 | 34.0 | 17.0 | Loam | 24.0 | | 0.09 |
| 04-SP-07 | 1.39 | 50.0 | 32.0 | 18.0 | Loam | 22.4 | | 0.03 |
| 04-SP-07 | 1.49 | 54.0 | 25.0 | 21.0 | Sandy Clay Loam | 21.9 | | 0.04 |
| 05-SP-07 | 1.29 | 45.0 | 33.0 | 22.0 | Loam | 23.4 | | 0.05 |
| 05-SP-07 | 0.70 | 55.0 | 24.0 | 21.0 | Sandy Clay Loam | 26.3 | | 0.03 |
| 05-SP-07 | 1.09 | 52.0 | 28.0 | 20.0 | Loam | 18.5 | | 0.03 |
| 06-SP-07 | 3.58 | 48.0 | 32.0 | 20.0 | Loam | 19.4 | | 0.05 |
| 06-SP-07 | 1.99 | 42.0 | 33.0 | 25.0 | Loam | 12.6 | 0.79 | 0.18 |
| 06-SP-07 | 0.50 | 50.0 | 30.0 | 20.0 | Loam | 21.5 | | 0.01 |
| 07-SP-07 | 2.29 | 58.0 | 27.0 | 15.0 | Sandy Loam | 20.6 | | 0.04 |
| 07-SP-07 | 1.29 | 60.0 | 24.0 | 16.0 | Sandy Loam | 25.0 | | 0.04 |
| 07-SP-07 | 1.19 | 60.0 | 24.0 | 16.0 | Sandy Loam | 18.8 | | 0.03 |
| 07-SP-07 | 2.19 | 52.0 | 30.0 | 18.0 | Sandy Loam | 17.3 | | 0.03 |
| 08-SP-07 | 1.39 | 46.0 | 37.0 | 17.0 | Loam | 14.7 | | 0.04 |
| 08-SP-07 | 1.49 | 44.0 | 37.0 | 19.0 | Loam | 21.9 | | 0.06 |
| 08-SP-07 | 1.09 | 46.0 | 37.0 | 17.0 | Loam | 18.4 | | 0.02 |
| 08-SP-07 | 0.90 | 52.0 | 33.0 | 15.0 | Sandy Loam | 21.5 | | <0.01 |
| 09-SP-07 | 2.09 | 60.0 | 26.0 | 14.0 | Sandy Loam | 25.1 | | 0.05 |
| 09-SP-07 | 1.19 | 49.0 | 32.0 | 19.0 | Loam | 22.5 | | <0.01 |
| 09-SP-07 | 1.00 | 50.0 | 29.0 | 21.0 | Loam | 26.0 | | <0.01 |
| 09-SP-07 | 1.19 | 42.0 | 44.0 | 14.0 | Loam | 23.0 | | <0.01 |
| 10-SP-07 | 2.79 | 68.0 | 21.0 | 11.0 | Sandy Loam | 20.6 | | 0.11 |
| 10-SP-07 | 1.00 | 48.0 | 33.0 | 19.0 | Loam | 22.5 | | <0.01 |
| 10-SP-07 | 0.80 | 50.0 | 29.0 | 21.0 | Loam | 23.4 | | <0.01 |
| 10-SP-07 | 2.59 | 49.0 | 33.0 | 18.0 | Loam | 21.8 | | <0.01 |
| 11-SP-07 | 2.59 | 61.0 | 23.0 | 16.0 | Sandy Loam | 28.3 | | <0.01 |
| 11-SP-07 | 1.79 | 52.0 | 28.0 | 20.0 | Loam | 23.5 | | <0.01 |
| 11-SP-07 | 1.39 | 57.0 | 26.0 | 17.0 | Sandy Loam | 22.2 | | 0.01 |
| 11-SP-07 | 1.79 | 46.0 | 30.0 | 24.0 | Loam | 24.2 | | <0.01 |
| 11-SP-07 | 2.19 | 40.0 | 34.0 | 26.0 | Loam | 26.1 | | 0.01 |
| 12-SP-07 | 3.18 | 54.0 | 30.0 | 16.0 | Sandy Loam | 21.5 | | <0.01 |

| Sample ID | Alkalinity meq/L | Sand % | Silt % | Clay % | Texture | Very Fine Sand % | Boron ppm | TKN % |
|---|---|---|---|---|---|---|---|---|
| 12-SP-07 | 1.79 | 53.0 | 31.0 | 16.0 | Sandy Loam | 22.5 | | 0.01 |
| 12-SP-07 | 1.99 | 57.0 | 28.0 | 15.0 | Sandy Loam | 27.7 | | 0.05 |
| 12-SP-07 | 1.99 | 55.0 | 30.0 | 15.0 | Sandy Loam | 23.4 | | 0.03 |
| 12-SP-07 | 2.79 | 56.0 | 30.0 | 14.0 | Sandy Loam | 29.4 | | 0.03 |
| 12-SP-07 | 2.29 | 56.0 | 29.0 | 15.0 | Sandy Loam | 26.7 | | <0.01 |
| 13-SP-07 | 3.28 | 62.0 | 22.0 | 16.0 | Sandy Loam | 21.2 | | 0.10 |
| 13-SP-07 | 0.50 | 88.0 | 6.0 | 6.0 | Sand | 20.9 | 0.77 | 0.38 |
| 13-SP-07 | 1.69 | 58.0 | 29.0 | 13.0 | Sandy Loam | 24.6 | | <0.01 |
| 13-SP-07 | 1.69 | 66.0 | 21.0 | 13.0 | Sandy Loam | 22.0 | | <0.01 |

| Sample ID | Phosphorus ppm | Selenium ppm | CO3 % | Total Carbon % | TOC % | Total Sulfur % | T.S. AB t/1000t | Neut. Pot. t/1000t | T.S. ABP t/1000t |
|---|---|---|---|---|---|---|---|---|---|
| 01-SP-07 | 11.9 | | 1.5 | 43.0 | 42.8 | | | | |
| 01-SP-07 | 12.7 | | 1.6 | 43.8 | 43.6 | | | | |
| 01-SP-07 | 12.6 | | 4.1 | 5.5 | 5.0 | | | | |
| 02-SP-07 | 30.7 | | 1.4 | 2.4 | 2.3 | | | | |
| 02-SP-07 | 34.3 | | 1.0 | 1.5 | 1.4 | | | | |
| 02-SP-07 | 26.8 | | 1.0 | 1.2 | 1.0 | | | | |
| 02-SP-07 | 17.5 | | 1.0 | 1.1 | 0.9 | | | | |
| 03-SP-07 | 35.6 | | 1.6 | 6.6 | 6.4 | | | | |
| 03-SP-07 | 45.2 | | 1.2 | 8.1 | 7.9 | | | | |
| 03-SP-07 | 45.2 | | 1.2 | 2.1 | 1.9 | | | | |
| 03-SP-07 | 17.6 | | 1.2 | 1.2 | 1.1 | | | | |
| 04-SP-07 | 15.1 | | 1.2 | 3.5 | 3.3 | | | | |
| 04-SP-07 | 14.2 | | 0.8 | 1.5 | 1.4 | | | | |
| 04-SP-07 | 12.0 | | 0.7 | 0.6 | 0.5 | | | | |
| 04-SP-07 | 14.3 | | 1.1 | 0.4 | 0.2 | | | | |
| 05-SP-07 | 14.3 | | 0.8 | 0.7 | 0.6 | | | | |
| 05-SP-07 | 15.3 | | 1.2 | 0.2 | <0.1 | | | | |
| 05-SP-07 | 9.09 | | 0.7 | 0.2 | 0.1 | | | | |
| 06-SP-07 | 12.5 | | 2.4 | 3.7 | 3.5 | | | | |
| 06-SP-07 | 1.60 | <0.02 | 5.4 | 22.7 | 22.2 | 0.31 | 9.67 | 47.4 | 37.7 |
| 06-SP-07 | 15.7 | | 0.7 | 1.3 | 1.2 | | | | |
| 07-SP-07 | 14.6 | | 1.1 | 2.5 | 2.4 | | | | |
| 07-SP-07 | 14.6 | | 1.2 | 1.1 | 1.0 | | | | |
| 07-SP-07 | 10.7 | | 0.8 | 0.7 | 0.6 | | | | |
| 07-SP-07 | 5.62 | | 0.6 | 0.2 | 0.2 | | | | |
| 08-SP-07 | 15.7 | | 1.3 | 14.6 | 14.4 | | | | |
| 08-SP-07 | 14.2 | | 1.0 | 2.3 | 2.2 | | | | |
| 08-SP-07 | 11.8 | | 0.5 | 0.4 | 0.3 | | | | |
| 08-SP-07 | 11.0 | | 0.9 | 0.2 | 0.1 | | | | |
| 09-SP-07 | 18.6 | | 0.9 | 1.4 | 1.3 | | | | |
| 09-SP-07 | 9.72 | | 0.4 | 0.4 | 0.4 | | | | |
| 09-SP-07 | 10.7 | | 1.0 | 0.3 | 0.2 | | | | |
| 09-SP-07 | 15.9 | | 0.7 | 0.2 | 0.1 | | | | |
| 10-SP-07 | 12.9 | | 1.2 | 17.6 | 17.5 | | | | |
| 10-SP-07 | 14.9 | | 1.0 | 1.0 | 0.9 | | | | |
| 10-SP-07 | 11.0 | | 0.6 | 0.4 | 0.3 | | | | |
| 10-SP-07 | 11.8 | | 3.0 | 0.4 | <0.1 | | | | |
| 11-SP-07 | 18.6 | | 0.8 | 2.0 | 1.9 | | | | |
| 11-SP-07 | 16.6 | | 1.1 | 0.6 | 0.5 | | | | |
| 11-SP-07 | 15.6 | | 1.1 | 0.4 | 0.3 | | | | |
| 11-SP-07 | 14.7 | | 0.8 | 0.2 | 0.1 | | | | |
| 11-SP-07 | 11.1 | | 1.1 | 0.1 | <0.1 | | | | |
| 12-SP-07 | 18.9 | | 0.9 | 1.0 | 0.9 | | | | |

| Sample ID | Phosphorus ppm | Selenium ppm | CO3 % | Total Carbon % | TOC % | Total Sulfur % | T.S. AB t/1000t | Neut. Pot. t/1000t | T.S. ABP t/1000t |
|---|---|---|---|---|---|---|---|---|---|
| 12-SP-07 | 16.7 | | 1.3 | 4.1 | 3.9 | | | | |
| ~~12-SP-07~~ | 15.9 | | 0.6 | 1.1 | 1.0 | | | | |
| 12-SP-07 | 16.6 | | 1.2 | 1.0 | 0.8 | | | | |
| 12-SP-07 | 17.8 | | 0.7 | 0.9 | 0.8 | | | | |
| 12-SP-07 | 18.8 | | 0.9 | 0.6 | 0.5 | | | | |
| 13-SP-07 | 17.3 | | 1.2 | 11.8 | 11.6 | | | | |
| 13-SP-07 | 1.44 | <0.02 | 1.5 | 62.9 | 62.7 | 0.36 | 11.4 | 14.1 | 2.72 |
| 13-SP-07 | 16.7 | | 1.0 | 2.7 | 2.5 | | | | |
| 13-SP-07 | 12.7 | | 0.7 | 0.7 | 0.6 | | | | |

# APPENDIX 3: Field Pedon Descriptions

D-1.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BC | 9-14-06 | 60° | Soil: | Depth: | Longitude: ° ' "W | 10-14-06 | Sec. | T. | R. | | |
| e: | mE: | mN: | Topo Quad.: | Site ID: | YR: | State: | County: | Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: / Stop #: Interval: |
| | 0486825 | 4397806 | | | | UTAH | CARBON | | KINNEY | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| : | Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
| WTAIN | VALLEY | | | | 290° | 6 | SIMPLE | PLANAR - SL. CONCAVE |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| rofile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
| NER. | | CONCAVE | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | Flooding: | Ponding: | Soil Moisture Status: | Permeability: MODERATE / Ksat: | Land Cover / Use: |
| 3LE | YES | — | MOIST TO 12" | | RABBITBRUSH · ARTRVA |

| | | | | | | |
|---|---|---|---|---|---|---|
| erial: | Bedrock: Kind: | Fract.: | Hard.: | Depth: | Lithostrat. Units: Group: | Formation: Member: |
| UVIUM, MIXED | MIXED COLLUVIAL + ALLUVIUM | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kind: | Degree: | Runoff: | Surface Frag %: | GR: | CB: | ST: | BD: | CN: | FL: | Diagnostic Horz. / Prop.: | Kind: | Depth: |
| OD. | | MODERATE | Kind: | 20 | 25 | 5 | | | | — | | |

| | | | |
|---|---|---|---|
| l Section: | Ave. Clay %: | Ave. Rock Frag %: | |
| ge: | 22-26 | <15% | D-1 COLUMBINE PORTAL WEST. |

## VEGETATION :

| COMMON NAME | %GD COVER |
|---|---|
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## MISCELLANEOUS FIELD NOTES / SKETCH :

D-1 COLUMBINE PORTAL

SAMPLED 0-6" } RE-CLAIMED/GRADED
6-15 }
A (BURIED) 16-25
25-40
40-65
65-95+

1½ FEET OF RE-CLAIMED SOIL OVER A-C-C

STREAM-LAID DEPOSITS

VERY LITTLE COAL FINES PRESENT BELOW 2FT

PHOTO #15 (P)

D-1

| Method | (in) | (cm) | | | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp Loc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PIT | 0 | 6 | BUR | | | | GRV SL | 35 GR 10CB | SG → 1F GR | SO | FR | SO | PO | NONE |
| " | 6 | 16 | BUR | | | | GRV SL | 25 GR 10CB | 1M SBK → SG | SO | FR | SO/PO | | |
| BACKHOE | 16 | 25 | A/B | | | | LOAM | 15 GR 3CB | 1M-F SBK | SH | FR | SS/PO | | NATIVE BURIED SOIL BIGINS |
| PIT | 25 | 40 | C1 | | | | GR LOAM | 15 GR 5CB | 1M-F SBK | HA | FI | SS/PS | | |
| | 40 | 65 | C2 | | | | GR. LS | 20 GR 5CB | LOOSE | SO | VFR | SO PO | | |
| | 65 | 95+ | C3 | | | | LS | 15 GR 10CB | SG | LO | LO | SO PO | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
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| Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|
| | | | 2VF, 1F, | 1M | | | | | SHALEY SEDIMENTS ↑ SUBSOIL |
| | | | 1VF, F | | | | | | MIXED ↓ + 15% COAL FINES |
| | | | 1VF, F | | | | | | <5% COAL FINES |
| | | | 1VF, F | | | | | | IN POCKETS 10% COAL FINES |
| | | | 1VF | | | | | | & 15% SOFT WEATHERED BEDROCK ERTD |
| | | | | | | | | | |
| | | | | | | | | | |
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| | | | | | | | | | |

-1

BC | 10-14-06 | CLOUDY | Soil: | Depth: | Longitude: ° ' " W | Datum: 10-14-06 | Location: Sec. T. R. | D-2

| Zone: | mE: | mN: | Topo Quad.: | Site ID: | YR: | State: | County: | Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: / Stop #: Interval: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D-12 | 6806 | 4397782 | | | | UT | CARBON | | KINNEY | | |

| scape: | Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
|---|---|---|---|---|---|---|---|---|
| WDL | TOESLOPE | | | | 310° | 4 | SINGLE | COMPLEX |

| ope Profile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
|---|---|---|---|---|---|---|---|
| KNOLL | | | | | | | |

| age: | Flooding: | Ponding: | Soil Moisture Status: | Permeability: / Ksat: | Land Cover / Use: |
|---|---|---|---|---|---|
| WELL | NONE | | MOIST TO 12" | MODERATE | LOW SAGEBRUSH |

| t Material: | Bedrock: Kind: | Fract.: | Hard.: | Depth: | Lithostrat. Units: | Group: | Formation: | Member: |
|---|---|---|---|---|---|---|---|---|
| COLLUVIUM | COLLUVIAL LANDSLIDE DEPOSIT | | | | | | | |

| on: Kind: | Degree: | Runoff: | Surface Frag %: | GR: | CB: | ST: | BD: | CN: | FL: | Diagnostic Horz. / Prop.: | Kind: | Depth: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Kind: | 25 | 15 | 5 | | 5 | | OCHRIC | | |

| ontrol Section: Ave. Clay %: / h Range: | Ave. Rock Frag %: |
|---|---|
| <20 | 50-60% |

D-2 (EAST)
RE-GRADED PORTAL AREA OF COLUMBINE MINE. SE EDGE PORTAL BAY

## VEGETATION :

| BOL | COMMON NAME | %GD COVER |
|---|---|---|
| | | |

## MISCELLANEOUS FIELD NOTES / SKETCH :

D-2 COLUMBINE PORTAL

SAMPLED: 2 0-6
6-24

TOO ROCKY BELOW THIS
TO BE USEFUL TOPSOIL

PHOTO (P) 16

USTORTHENT, LO-SH.

D-2
P-2

Map Unit Symbol: Date:

| Obser. Method | Depth (in) (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp Loc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ↑ | 0-6 | BwR | | | | SBV LiVM | 25g 30s 10st | SG | LO | FR | SO | PO | |
| | 6-24 | BwR | | | | stv LcVM | 20g 35cb 15st | SG | LO | FR | SO | PO | |
| Backhoe ↓ | 24-45+ | C | | | | stv SL | 15g 25g 35st | SG | LO | FR | SO | PO | TOO STONY TO SAMPLE |
| | | | | | | | | | | | | | |
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| Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|
| | | | VF-F | | | | | | MIXTURE OF SUBSOIL |
| | | | VF-F | | | | | | COLLUVIUM MIXED BY |
| | | | VVF | | | | | | NO SAMPLED: ROCKS |
| | | | | | | | | | |
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| | | | | | | | | | |
| e-d | | | | | | | | | |

| Describer(s): | Date: | Weather: Temp.: Air: | Latitude: ° ' " N | Datum: | Location: D-3 |
|---|---|---|---|---|---|
| BC | 10-16-06 | PARTIAL CLOUDS Soil: Depth: | Longitude: ° ' " W | | Sec. T. R. |

| UTM: Zone: | mE: | mN: | Topo Quad.: | Site ID: YR: | State: | County: | Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0486886 | 4398188 | | | UT | CARBON | D-3 | KANEY | | Stop #: Interval: |

| Landscape: | Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
|---|---|---|---|---|---|---|---|---|
| MTN. | SIDESLOPE | | | 2359 M | 320° | 16 | | COMPLEX |

| Hillslope Profile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
|---|---|---|---|---|---|---|---|
| LOWER | | | | | | | |

| Drainage: | Flooding: | Ponding: | Soil Moisture Status: | Permeability: | Land Cover / Use: |
|---|---|---|---|---|---|
| WELL | | | MOIST 10-16" | MOD Ksat: | RABBITBRUSH - GRASSES |

| Parent Material: | Bedrock: Kind: | Fract.: | Hard.: | Depth: | Lithostrat. Units: Group: | Formation: | Member: |
|---|---|---|---|---|---|---|---|
| MIXED COLLUVIUM W/ MINE WASTE MATERIALS | | | | | | | |

| Erosion: Kind: | Degree: | Runoff: | Surface Frag %: Kind: | GR: | CB: | ST: | BD: | CN: | FL: (CAL) | Diagnostic Horz. / Prop.: | Kind: | Depth: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SHEET | | | | 5 | 3 | 2 | 2 | 4 | TR | | | |

| P.S. Control Section: | Ave. Clay %: | Ave. Rock Frag %: | D-3 CRUSHA - SORTING AREA |
|---|---|---|---|
| Depth Range: | <35 | 26% | WITH SOME COAL IN PEDON, DISCONTINUOUS |

## VEGETATION :

| SYMBOL | COMMON NAME | %GD COVER |
|---|---|---|
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## MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED 0-10"

10-20" MIXED COAL < 1%

20-40" MINE WASTE MATERIAL FROM MINE MOUTH

40-70"

60-75" LENSES

30% OF 10 FEET LONG EXCAVATION WAS COAL FINES + CHUNKS THOUGH I SAMPLED AROUND THESE LENSES

LOOKS LIKE RECLAIMED SUBSOIL -> TOPSOIL

TOPSOIL TO 20" THEN SUBSOIL MIX / COLLUVIUM / COAL ON SOIL TRENCH FILE, MORE COAL IN UPPER 20" THAN LOWER 40"

D-3
P-2

Component Name: Map Unit Symbol: Date:

| | Obser. Method | Depth (in) (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0-10 | A DLSt | | | | | 10gr 5CB 5st | 1M-FSBK→MGR | SH | FR | SS | PO | |
| 2 | ↑ | 10-20 | Bt DLSt | | | | GR LMSA | 15gr 5st 10CB | 2M-FSBK | SH | SH | SS | PS | |
| 3 | | 20-40 | Bt2 DLSt | | | | CB CL | 10GR 3st 15CB | 2M-CSBK | VH | VFI | S | P | |
| 4 | Pit | 40-60 | C1 | | | | CBV CL | 20CB 15GR 10st | 3M-CSBK | VH | VFI | S | P | |
| 5 | Bucket of | 60-75+ | C2 | | | | CBV CL | 15gr 20CB 10st | MASSIVE | EH | EF | S | P | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 2VF 1F | | | | | | 25% COAL |
| 2 | | | | 2VF 1F | | | | | | 15% COAL CLINKER |
| 3 | | | | 1VF | | | | | | 12% COAL PIECES |
| 4 | | | | 1VF | | | | | | 10% ON FACE CHANNELS |
| 5 | | | | | | | | | | >10% ON FACE |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | E-D | | | | | | | | | |

| Describer(s): | Date: | Weather: Temp.: Air: | Latitude: ° ' " N Datum: | Location: D-4 |
|---|---|---|---|---|
| BC | 10-15-06 | SUN Soil: Depth: | Longitude: ° ' " W | Sec. T. R. |

| UTM: Zone: mE: mN: | Topo Quad.: | Site ID: YR: State: County: Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: |
|---|---|---|---|---|---|
| WP 20 0486840 4398189 | | UTAH CARBON D-4 | | | Stop #: Interval: |

| Landscape: | Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
|---|---|---|---|---|---|---|---|---|
| TOESLOPE | | | | 2358M | 270° | 22 | | |

| Hillslope Profile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| Drainage: | Flooding: | Ponding: | Soil Moisture Status: | Permeability: | Land Cover / Use: |
|---|---|---|---|---|---|
| WELL-SPD | | | MOIST TO 16" | MOD SLOW Ksat: | ARTRW RABBITBRUSH/ |

| Parent Material: | Bedrock: Kind: | Fract.: | Hard.: | Depth: | Lithostrat. Units: Group: | Formation: | Member: |
|---|---|---|---|---|---|---|---|
| WASTE MATERIAL | NONE | | | | | | |

| Erosion: Kind: | Degree: | Runoff: | Surface Frag %: | GR: | CB: | ST: | BD: | CN: | FL: COA | Diagnostic Horz. / Prop.: | Kind: | Depth: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SLIGHT-MOD | RILLS ON SLOPES > 40% | | Kind: | 15 | 15 | 5 | 5 | 3 | 6 | NONE | | |

| P.S. Control Section: Ave. Clay %: Ave. Rock Frag %: | |
|---|---|
| Depth Range: >35% | D-4 50 FEET FROM SR-92 AT LEAST 12 FEET BURED COAL AT THIS SITE |

## VEGETATION :

| SYMBOL | COMMON NAME | %GD COVER |
|---|---|---|
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## MISCELLANEOUS FIELD NOTES / SKETCH :

0-8" SAMPLED SUBSOILS (RECLAIMED ON TOP COAL DUMP SITE)
8-16" 2 "

D-4
P-2

Map Unit Symbol: Date:

| | Obser. Method | Depth (in) | Depth (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0 | 0-8 | DIS SUBSOIL | | | | CB CL | 15 GR 5CB | MASSIVE St | | SH FI | S | P | 15% COAL |
| 2 | | | 8-16 | | | | | | | | | | | | |
| | | 12.47 | | COAL | WASTE | | | | 10GR 10CB | | | | | | 75% " |
| 3 | | 47-85 | | COAL | WASTE | | | | 15GR 15CB | | | | | | 90% " |
| 4 | | 85-144 | | COAL | WASTE (MOIST) | | | | 10GR 2CB | | | | | | 95% " |
| 5 | | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | H-9 | | | | | | | | | |
| 10 | | | | | | | | | | |

| Describer(s): | Date: | Weather: Temp.: Air: | Latitude: ° ' " N | Datum: | Location: |
|---|---|---|---|---|---|
| BC | 10-15-06 | 51 Soil: Depth: | Longitude: ° ' " W | | Sec. T. R. D-5 |

| UTM: Zone: mE: mN: | Topo Quad.: | Site ID: YR: State: County: Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: Stop #: Interval: |
|---|---|---|---|---|---|
| 0486845 4398123 | | UTAH CARBON D-5 | KINNEY | | |

| Landscape: | Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
|---|---|---|---|---|---|---|---|---|
| MTN. | SIDESLOPE | | | 2370M | 293 | 21 | COMPLEX | CONCAVE / [illegible] |

| Hillslope Profile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
|---|---|---|---|---|---|---|---|
| LOWER | | | | | | | |

| Drainage: | Flooding: | Ponding: | Soil Moisture Status: | Permeability: MOD Ksat: | Land Cover / Use: |
|---|---|---|---|---|---|
| MOD WELL | | | | | RANGELAND TENT |

| Parent Material: | Bedrock: Kind: Fract.: Hard.: Depth: | Lithostrat. Units: Group: Formation: Member: |
|---|---|---|
| COLLUVIUM | NONE TO 6 FEET | |

| Erosion: Kind: Degree: | Runoff: | Surface Frag %: GR: CB: ST: BD: CN: FL: Kind: | Diagnostic Horz. / Prop.: Kind: Depth: |
|---|---|---|---|
| NONE | | 10 5 5 3 2 | |

| P.S. Control Section: Ave. Clay %: Ave. Rock Frag %: Depth Range: | |
|---|---|
| >35 >35% | D-5 DUMP DISTURBANCE NO MATRIX SOIL TO 5 FEET MIDDLE OF COAL WASTE ROCK DISTURBANCE SLOPES |

## VEGETATION :

| SYMBOL | COMMON NAME | %GD COVER |
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## MISCELLANEOUS FIELD NOTES / SKETCH :

DISTURBED: 0-6"

TURNOVER: 6-20"

LOOSE MATERIAL

20-40 DENSE, GRAVEL

40-60L [illegible]

M [illegible] ASPEN GROVE

PHOTOS LANDSCAPE 23

PIT 24

D-5
P-2

Map Unit Symbol: Date:

| | Obser. Method | Depth (in) (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BACKHOE PIT | 0-6 | DISTURBED | | 1 | | GRV CL | 30gr 5CB 5st | 2M-C SBK | VH | FI | S | P | NONE |
| 2 | | 6-20 | D2 | | | | GRV CL | 35gr 15GR 10st | 2M-C SBK | VH | VFI | S | P | |
| 3 | | 20-40 | D3 | | | | CBX CL | 25gr 25CB 10st | 3-C SBK | VH | VFI | VS | VP | |
| 4 | | 40-68+ | D4 | | | | CBX CL | 15gr 30CB 15st | MASSIVE | VH | EFI | VS | VP | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 2VF 1F | | | | | | MIXED MINE DUMP FILL MATERIAL! |
| 2 | | | | 2VF 1F | | | | | | SILTSTONE, WEATHERED SANDSTONE FRAGMENTS |
| 3 | | | | 1VF | | | | | | 10-15% COBBLES |
| 4 | | | | — | | | | | | 15% COBBLES |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | S-D | | | | | | | | | |
| 10 | | | | | | | | | | |

| ber(s): | Date: | Weather: Temp.: Air: | Latitude: ° ' " N | Datum: | Location: D-6 |
|---|---|---|---|---|---|
| BC | 10-14-06 | CLOUDY 52° Soil: Depth: | Longitude: ° ' " W | | Sec. T. R. |

| Zone: mE: mN: | Topo Quad.: | Site ID: YR: State: County: Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: Stop #: Interval: |
|---|---|---|---|---|---|
| 0486825 4398031 | | UT CARBON | KANEY | | |

| cape: | Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
|---|---|---|---|---|---|---|---|---|
| MTN: | SIDESLOPE | | | | 260° | 30 | COMPLEX | RIDGED AREA |

| pe Profile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
|---|---|---|---|---|---|---|---|
| LOWER | | | | | | | |

| ge: | Flooding: | Ponding: | Soil Moisture Status: | Permeability: MODERATE | Land Cover / Use: |
|---|---|---|---|---|---|
| WELL | | | MOIST | Ksat: | RANGELAND |

| Material: | Bedrock: Kind: Fract.: Hard.: Depth: | Lithostrat. Units: Group: Formation: Member: |
|---|---|---|
| COLLUVIUM W/ COAL EFFECT | | |

| n: Kind: / Degree: | Runoff: | Surface Frag %: GR: CB: ST: BD: CN: FL: | Diagnostic Horz. / Prop.: Kind: Depth: |
|---|---|---|---|
| SLIGHT / SHEET | | Kind: 10 12 3 4 2 | ORTHRIC |

| ontrol Section: Ave. Clay %: Ave. Rock Frag %: | |
|---|---|
| h Range: | D-6 CRUSHING / SCREENING |

## VEGETATION :

| BOL | COMMON NAME | %GD COVER |
|---|---|---|
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## MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED BELOW COAL AND 6" ABOVE
COAL-AFFECTED LAYER CONTAINS SILTSTONE FRAGMENTS
AND VARIES FROM 10-20 INCHES ACROSS TRANSECTS
SAMPLES 0-7" SAMPLE

PLOW #17 7.24 X NOT
PETAX
24-43" SAMPLE

48-72" SAMPLE

- EXTREMELY STONY SUBSOIL AFFECTED BY RECLAMATION TO 10 FT
FROM PREVIOUS MINING

D-6
P-2

Map Unit Symbol: Date:

| | Obser. Method | Depth (in) (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp Loc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0-6 | A | | | | CB CL | 10g 10cB 5St | 2M-F SBk | SH | FR | SS | PS | |
| 2 | | 6-24 | C dominated | | COAL | | stv | 15g 20c 15St | MASSIVE | — | — | — | — | |
| 3 | NO PIT | 24-48 | C2 | | | | stx CL | 20g 20c 15St | 2M-F NBk | VH | VFI | S | P | |
| 4 | | 48-72 | C3 | | | | stx CL | 25gr 20cB 10St | 2F ABk | EH | EFI | S | P | |
| 5 | BACKHOE | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | |

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 1VF, 1F | | | | | | SHALE FRAGMENT, SOME ORGANICS, |
| 2 | | | | 1VF | | | | | | 75% COAL FINES NOT SAMPLED |
| 3 | | | | 1VF | | | | | | <15% COAL TOO STONY |
| 4 | | | | 1F 1M | | | | | | <15% COAL |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | 9-0 | | | | | | | | | |

| Zone: | mE: | mN: | Topo Quad.: | Site ID: | YR: | State: | County: | Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: | Stop #: | Interval: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 04 | 486843 | 4398018 | | | | UTAH | CARBON | | | | D-7 | | |

| Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
|---|---|---|---|---|---|---|---|
| SIDESLOPE | | | 2375M | 280° | 28 | COMPLEX | CONCAVE |

| Profile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
|---|---|---|---|---|---|---|---|
| LOWER | | | | | | | |

| Flooding: | Ponding: | Soil Moisture Status: | Permeability: | Land Cover / Use: |
|---|---|---|---|---|
| NONE | | MOIST TO 14" | MODERATE | RABBITBRUSH / GRASS |

| Material: | Bedrock: Kind: | Fract.: | Hard.: | Depth: | Lithostrat. Units: Group: | Formation: | Member: |
|---|---|---|---|---|---|---|---|
| COLLUVIUM | | | | | | | |

| Kind: | Degree: | Runoff: | Surface Frag %: Kind: | GR: | CB: | ST: | BD: | CN: | FL: | Diagnostic Horz. / Prop.: | Kind: | Depth: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SLIGHT | | | | 10 | 5 | 5 | | 3 | | ✓ | | |

| Control Section: Ave. Clay %: | Ave. Rock Frag %: | |
|---|---|---|
| Range: > 30% | 45% | D-7 CONCHA - SORTING DATA |

## VEGETATION :

| DL | COMMON NAME | %GD COVER |
|---|---|---|
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## MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLE DEPTHS 0-6"

6-24"

ALL DISTURBED

24-42"

42-58"

BURIED SOIL ↓ 58-75"

B HORIZON

TEXTURALLY CLAYEY UPPER 2 FEET

MOLE STRUCTURE 41-60"

PHOTO # 19 (P)

D-7
P-2

Component Name: | Map Unit Symbol: | Date:

| Obser. Method | Depth (in) (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp Loc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-6. | D1 | | | | CB CLAY | 10gr 10CB SSt | 2M-F SBK | SH | FR | S | P | NONE |
| | 6-20 | D2 | | | | CBV CL | 15gr 3CB 3St | 2c-M SBK | SH | FI | VS | VP | |
| BOTTOM | 20-42 | D3 | | | | CBV CL | 25gr 20CB 5St | 2F-M SBK | WA | FI | S | PS | |
| | 42-58 | D4 | | | | CBV CL | 2M-F SBK | 1VF 5St 25CB | VH | EFI | S | P | |
| BEDROCK | 58-75+ | B6 | | | | CB LOM | MASSIVE | 15CB 3gr MASSIVE | VH | VFI | SS | PS | |
| | | | | | | | | | | | | | |
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| Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1VF 1F | | | | | MIX- | CARBONATE MINERALS IN W/ SOME CONCRETIONS |
| | | | 1VF 1F | | | | | | DISCRETE ↑ |
| | | | 1VF | | | | | | ↓ <10% COAL |
| | | | 1VF-F | | | | | | 10% COAL + 15% WEATHERED SEDIMENTARY RX |
| | | | 1VF | | | | | | BUILDER B |
| | | | | | | | | | |
| | | | | | | | | | |
| L-O | | | | | | | | | |

D-8

# USDA-NRCS PEDON DESCRIPTION

Pedon ID # : | Draft | Mar-02

| Series or Component Name: | Map Unit Symbol: | Photo #: | Classification: | Soil Moist. Regime (Tax.): |
|---|---|---|---|---|
| | | | | USTIC |

| Describer(s): | Date: | Weather: Temp.: Air: | Latitude: ° ' " N Datum: | Location: |
|---|---|---|---|---|
| BC | 10-15-06 | CLEAR 45° | Soil: Depth: | Longitude: ° ' " W | Sec. T. R. |

| UTM: Zone: mE: mN: | Topo Quad.: | Site ID: YR: State: County: Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: Stop #: Interval: |
|---|---|---|---|---|---|
| 0486872 4398013 | | UTAH CARBON D-8 | | | |

| Landscape: | Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
|---|---|---|---|---|---|---|---|---|
| MTN. | SIDESLOPE | | | 2382M | 260° | 43 | COMPLEX | CONCAVE |

| Hillslope Profile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
|---|---|---|---|---|---|---|---|
| LOWER | | | | | | | |

| Drainage: | Flooding: | Ponding: | Soil Moisture Status: | Permeability: | Land Cover / Use: |
|---|---|---|---|---|---|
| WELL | | | MOIST TO 13" | MODERATE Ksat: | ASPEN - SYM DRF GRS |

| Parent Material: | Bedrock: Kind: Fract.: Hard.: Depth: | Lithostrat. Units: Group: Formation: Member: |
|---|---|---|
| COLLUVIUM | [illegible] FM | |

| Erosion: Kind: | Degree: | Runoff: | Surface Frag %: GR: | CB: | ST: | BD: | CN: | FL: | Diagnostic Horz. / Prop.: Kind: | Depth: |
|---|---|---|---|---|---|---|---|---|---|---|
| SLUMP | SLIGHT | | Kind: 5 | 3 | 3 | 2 | 2 | | MOLLIC ALBIC | 0-13 13-48" |

| P.S. Control Section: | Ave. Clay %: | Ave. Rock Frag %: | D-8 |
|---|---|---|---|
| Depth Range: | 30-35% | <35% | |

## VEGETATION :

| SYMBOL | COMMON NAME | %GD COVER |
|---|---|---|
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## MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED 0-6

6-13

13-26"

26-48

48+ TOO STONY NOT SAMPLED

O; 1/2-0 DISCONTINUOUS LEAF LITTER

PONDS (P) 20-21

Component Name: | Map Unit Symbol: | Date: D-8 p-2

| | Obser. Method | Depth (in) (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0 - 6 | A | | | | LOAM | 5gr 3CB 3st | 1F GR | SO | VFR | NS | NP | NONE |
| 2 | | 6 - 13 | BA | | | | CB LOAM | 5gr 2CB 5st | 1F-M GR | SO | VFR | NS | NP | |
| 3 | BA (SAMPLE PIT) | 13 - 26 | Bt | | | | CB CL | 10gr 10CB 5st | 1F-M SBK | HA | FI | SS | SP | |
| 4 | | 26 - 48 | Bt2 | | | | STV CL | 15CB 15st 5gr | 2M SBK | HA | VFI | SS | SP | |
| 5 | | 48 - 78 + | C | | | | STX LOAM | 25 st 15CB 15 gr | MASSIVE | VH | VFI | SS | PS | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 2VF 1F 2M | | | | | | |
| 2 | | | | 2VF, 1F 1M | | | | | | |
| 3 | | | | 1VF-F 1M | | | | | | |
| 4 | | | | 1F | | | | | | |
| 5 | | | | 1VF | | | | | | NOT SAMPLED FOR LAB WEST |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 10 | 8-D | | | | | | | | | |

D-9A

**USDA-NRCS** **PEDON DESCRIPTION** Pedon ID # : *Draft* Mar-0

| Series or Component Name: | Map Unit Symbol: | Photo #: | Classification: | Soil Moist. Regime (Tax.): |
|---|---|---|---|---|
| | | | | |

| Describer(s): | Date: | Weather: Temp.: Air: | Soil: Depth: | Latitude: ° ' " N Datum: | Location: |
|---|---|---|---|---|---|
| BC | 10-15-06 | CLEAR 56° | | Longitude: ° ' " W | Sec. T. R. |

| UTM: Zone: mE: mN: | Topo Quad.: | Site ID: YR: State: County: Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: Stop #: Interval: |
|---|---|---|---|---|---|
| 0486867 4398243 | | UT LOGAN D-9A | | | |

| Landscape: | Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
|---|---|---|---|---|---|---|---|---|
| MTN | LOWER | | | 2367M | 270° | 19 | SINGLE | PLANAR → SL. CONCAVE |

| Hillslope Profile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| Drainage: | Flooding: | Ponding: | Soil Moisture Status: | Permeability: Ksat: | Land Cover / Use: |
|---|---|---|---|---|---|
| MODERATE | | | | MOD | |

| Parent Material: | Bedrock: Kind: Fract.: Hard.: Depth: | Lithostrat. Units: Group: Formation: Member: |
|---|---|---|
| WASTE DUMP | NONE | |

| Erosion: Kind: Degree: | Runoff: | Surface Frag %: GR: CB: ST: BD: CN: FL: Kind: | Diagnostic Horz. / Prop.: Kind: Depth: |
|---|---|---|---|
| | | | DISTURBED NEAR DUD RR T |

| P.S. Control Section: Ave. Clay %: Ave. Rock Frag %: Depth Range: | |
|---|---|
| 15-30% SFC | D-9A DISTURBED DUMP SITE COVERED BY 15" SLD WASTE ROCK & SOIL MIX |

## VEGETATION :

| SYMBOL | COMMON NAME | %GD COVER |
|---|---|---|
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## MISCELLANEOUS FIELD NOTES / SKETCH :

COAL DUMP 0-16 OVERBURDEN
6-15
15-80 COAL NOT SAMPLED
BURIED NATIVE SOIL BEGN W/ FEW CMS FWG
SAMPLED 0-6 6-16
— COAL —
80-95"
95-115
115-140+
PHOTOS 23-24 + END OF ROLL 1

D-9A
P-2

Component Name:

| | Obser. Method | Depth (in) | Depth (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | BACKHOE PIT | 0 | 6 | DISTURBED | | | | GRV CL | 15GR 5CB | 1M F SBK | | | | | |
| 2 | | 6 | 15 | DIST 2 | | | | CL | 25GR 10CB | 2M SBK | | | | | |
| 3 | | 15 | 80 | COAL | | | | COAL | FINE+ | LAMINATED MASSIVE | | | | | |
| 4 | AUGER | 80 | 95 | Ab | | | | LOAM | 15GR 10COAL | 1M-F GR | | | | | |
| 5 | AUGER | 95 | 115 | Btb | | | | LT | 5GR 5COAL | 2M-F SBK | | | | | |
| 6 | AUGER | 115 | 140 | BtCb | | | | LOAM | 15GR 5CB | 2M SBK | | | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 2VF 1F | | | | | | MIXED SUBSOIL & MATERIAL |
| 2 | | | | 1VF, 1F | | | | | | |
| 3 | | | | / | | | | | | COAL BURIED |
| 4 | | | | / | | | | | | NATIVE B |
| 5 | | | | / | | | | | | NAT |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 10 | Vb-D | | | | | | | | | |

D-9B

USDA-NRCS **PEDON DESCRIPTION** Pedon ID # : Draft Mar-02

| Series or Component Name: | Map Unit Symbol: | Photo #: | Classification: | Soil Moist. Regime (Tax.): |
|---|---|---|---|---|
| | | | | |

| Describer(s): | Date: | Weather: Temp.: Air: Soil: Depth: | Latitude: ° ' " N Datum: Longitude: ° ' " W | Location: Sec. T. R. |
|---|---|---|---|---|
| BC | 10-15-06 | | | |

| UTM: Zone: mE: mN: | Topo Quad.: | Site ID: YR: State: County: Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: Stop #: Interval: |
|---|---|---|---|---|---|
| | | D-9B | | | |

| Landscape: | Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
|---|---|---|---|---|---|---|---|---|
| MTN. | SIDESLOPE | | | | 300 | 22" | | COMPLEX |

| Hillslope Profile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
|---|---|---|---|---|---|---|---|
| LOWER | | | | | | | |

| Drainage: MOD. WELL | Flooding: | Ponding: | Soil Moisture Status: | Permeability: Ksat: | Land Cover / Use: |
|---|---|---|---|---|---|
| | | | | | RABITBRUSH |

| Parent Material: | Bedrock: Kind: | Fract.: | Hard.: | Depth: | Lithostrat. Units: Group: | Formation: | Member: |
|---|---|---|---|---|---|---|---|
| COLLUVIUM / WASTE ROCK | COAL DUMP | | | | | | |

| Erosion: Kind: Degree: | Runoff: | Surface Frag %: GR: CB: ST: BD: CN: FL: Kind: | Diagnostic Horz. / Prop.: Kind: Depth: |
|---|---|---|---|
| | | | |

| P.S. Control Section: Ave. Clay %: Ave. Rock Frag %: Depth Range: | D9-B |
|---|---|

## VEGETATION :

| SYMBOL | COMMON NAME | %GD COVER |
|---|---|---|
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## MISCELLANEOUS FIELD NOTES / SKETCH :

DISTURBED DUMP AREA

SAMPLED 3 0-6 } SUBSOIL REPLACED DISTURBED
6-11 }
52-80" } BURIED NATIVE SOIL
80-102" }

D-9B
P-2

| Component Name: | | | | | Map Unit Symbol: | | | | Date: |
|---|---|---|---|---|---|---|---|---|---|

| | Obser. Method | Depth (in) (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Mst | Stk | Pls | Mottles % Sz Cont. Col Mst Shp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0-11 | MIXED SUBSOIL OVER WASTE MATERIAL | | | | GRV CL | 10GR 10CB 3St | | | | | | |
| 2 | PIT | 11-29 | COAL 50-75% FINES W SUBSOIL | | | | | 1SGr 10CB | | | | | | |
| 3 | PIT | 29-52 | COAL NA W/ | 95% SUBSOIL | | | | TR GR. | | | | | | |
| 4 | AUGER | 52-80 | Bb | | | | LOAM | / | | | | | | |
| 5 | AUGER | 80-95 | Bb | | | | GR L | 15 9 10CB | | | | | | |
| 6 | AUGER | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 2VF 1F | | | | | | |
| 2 | | | | 2VF 1F | | | | | | |
| 3 | | | | 3VF | | | | | | NOT SAMPLED |
| 4 | | | | / | | | | | | |
| 5 | | | | / | | | | | | AUGER REJECTED |
| 6 | | | | OF | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 10 | 8b-9 | | | | | | | | | |

D-10

# USDA-NRCS PEDON DESCRIPTION

Pedon ID # : | Draft | Mar-02

| Series or Component Name: | Map Unit Symbol: D-10 | Photo #: | Classification: | Soil Moist. Regime (Tax.): |
|---|---|---|---|---|
| | | | | |

| Describer(s): | Date: | Weather: Temp.: Air: SUNNY | Latitude: ° ' " N Datum: | Location: |
|---|---|---|---|---|
| BC | 10-15-06 | 60° Soil: Depth: | Longitude: ° ' " W | Sec. T. R. |

| UTM: Zone: mE: mN: | Topo Quad.: | Site ID: YR: State: County: Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: |
|---|---|---|---|---|---|
| 04869[illegible] 4398[illegible] | | UT CARBON D-10 | KINNEY | | Stop #: Interval: |

| Landscape: | Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
|---|---|---|---|---|---|---|---|---|
| MTN | SIDESLOPE | | | 2380M | 300° | [illegible] | | |

| Hillslope Profile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

| Drainage: | Flooding: | Ponding: | Soil Moisture Status: | Permeability: Ksat: | Land Cover / Use: |
|---|---|---|---|---|---|
| | | | | | ASPEN - SAGEBRUSH |

| Parent Material: | Bedrock: Kind: | Fract.: | Hard.: | Depth: | Lithostrat. Units: Group: Formation: Member: |
|---|---|---|---|---|---|
| COLLUVIUM FROM MIXED SEDIMENTARY | | | | | |

| Erosion: Kind: Degree: | Runoff: | Surface Frag %: GR: CB: ST: BD: CN: FL: Kind: | Diagnostic Horz. / Prop.: Kind: Depth: |
|---|---|---|---|
| NONE | | | |

P.S. Control Section: Ave. Clay %: Ave. Rock Frag %:
Depth Range: >35%

D-10 SLOPE CUT BACK BY OLD MINEWORKS

## VEGETATION :

| SYMBOL | COMMON NAME | %GD COVER |
|---|---|---|
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## MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED 05"

5-11"

ALL MIXED COMPOSITES OF COLLUVIAL SUBSOILS 11-23 } MIXED COLLUVIAL MAT

23-35 }

35-60 NOT SAMPLED TOO STONY

D-10
P-2

| Component Name: | | | | Map Unit Symbol: | | | | | | | | | Date: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Obser. Method | Depth (in) (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Mst | Stk | Pls | Mottles % Sz Cont. Col Mst Shp |
| 1 | 0 - 5 | A | | | | LVFSL | 5gr 3CB | 2M-F GR | SO | FR | SO | PO | |
| 2 | 5 - 11 | Bt1 | | | | CL | | 2M-F SBK | SH | FI | SS | PS | |
| 3 | 11-23 | Bt2 | | | | CL | | 2M-F SBK | HRD | FI | S | P | |
| 4 | 23-45 | Bt3 | | | | CLAY LOAM | | 2M-F SBK | HD | VFI | VS | VP | |
| 5 | 45-65+ | C | | | | | | MASSIVE | VH | VFI | VS | VP | |
| 6 | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | |

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 1VF 2F 1M,1C | | | | | | SOIL SFC FROM AGRICULTURED MVC |
| 2 | | | | 1VF 1F 1M-C | | | | | | W/10% CLAY FLAKES |
| 3 | | | | 1VF-F 1M | | | | | | OLD COLLUVIAL |
| 4 | | | | 1F | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 10 | 01-C | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| riber(s): BC | Date: 10-16-06 | Weather: Temp.: 47° | Air: SUNNY Soil: Depth: | Latitude: ° ' " N Datum: Longitude: ° ' " W | | | | Location: Sec. T. R. D-11 | |
| Zone: 21 mE: 0486825 mN: 4398831 | Topo Quad.: | Site ID: YR: State: UTAH | County: CARBON | Pedon #: D-11 | Soil Survey Area: KANEY | MLRA / LRU: | Transect: ID: Stop #: Interval: | | |
| scape: TOE SLOPE | Landform: MTN | Microfeature: | Anthro: | Elevation: 2349M | Aspect: 290° | Slope (%): 11% | Slope Complexity: COMPLEX | Slope Shape: (Up & Dn / Across) CONCAVE | |
| ope Profile Position: LOWER | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: | | |
| age: SRO | Flooding: | Ponding: YES | Soil Moisture Status: WET | Permeability: MSLOW Ksat: | Land Cover / Use: RABBITBRUSH | | | | |
| nt Material: COLLUVIUM / WASTE SUBSOIL / COAL | Bedrock: Kind: Fract.: Hard.: Depth: | Lithostrat. Units: Group: Formation: Member: | | | | | | | |
| on: Kind: Degree: | Runoff: | Surface Frag %: GR: CB: ST: BD: CN: FL: COAL Kind: | Diagnostic Horz. / Prop.: Kind: Depth: | | | | | | |
| Control Section: Ave. Clay %: >35% Ave. Rock Frag %: >45% Below 60" th Range: | D-B 11 MAY BE OUTSIDE LEASED LINE TO WEST SLIGHTLY WET AT BASE OF SLOPE 70" TO WATER TABLE | | | | | | | | |

## VEGETATION :

| IBOL | COMMON NAME | %GD COVER |
|---|---|---|
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## MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED 0-12"

COAL 12-62 NOT SAMPLED

62-80" SAMPLED THROUGH KIND OF STONY >35%

80+ NOT SAMPLED AUGERED 20 INTO POOL

70" WATER STANDING IN PIT

20 FT FROM OLD RR TRAILS THIS MAY LIE JUST BEYOND LEASE AREA TO WEST

D-11
P-2

| Component Name: | | | | Map Unit Symbol: | | | | | | | | | | Date: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Obser. Method | Depth (in) (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp Loc | |
| 1 ↑ | 0 - 12 | SUBSOIL RECLAIMED | | | | GRV CL | 15GR 3SB 10CB | | | | | | 3% | |
| 2 PIT EXCAVATE | 12-62 | C/UBL | W/ | SOME SUBSOIL MIXED | | | 15GR | | | | | | 90% | |
| 3 ↓ | 62-80 | C NATIVE SOIL | | | | GRV CLAY | 30GR15CB10ST | MA | | | | | 25% CLAY | |
| 4 SOME MOISTURE | 80-90+ | | | | | CHAY CLAY | 40GR25CB | MASSIVE | | | | | | |
| 5 | | | | | | | | | | | | | | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |

| Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 2VF 1F | | | | | | |
| 2 | | | 1VF 1F | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | BELOW WATER |
| 5 | | | | | | | | | |
| 6 | | | | | | | | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | 11-D | | | | | | | | |

D-12

SDA-NRCS

# PEDON DESCRIPTION

Pedon ID # :

Draft

Mar-02

| | | | | | |
|---|---|---|---|---|---|
| s or Component Name: | Map Unit Symbol: | Photo #: | Classification: PACHIC ARGIXEROLL, FINE-LOAMY | | Soil Moist. Regime (Tax.): USTIC |
| riber(s): BC | Date: 10-15-06 | Weather: RAIN Temp.: Air: 50° Soil: Depth: | Latitude: ° ' " N Datum: Longitude: ° ' " W | | Location: Sec. T. R. |
| Zone: 12 | mE: 0486774 | mN: 4397969 | Topo Quad.: | Site ID: YR: State: UTAH County: CARBON Pedon #: D-12 | Soil Survey Area: KINNEY MLRA / LRU: Transect: ID: Stop #: Interval: |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Iscape: MOUNTAIN | Landform: SIDESLOPE | Microfeature: | Anthro: | Elevation: 2370M | Aspect: 330° | Slope (%): 22 | Slope Complexity: SINGLE | Slope Shape: (Up & Dn / Across) CONCAVE |
| lope Profile Position: TOESLOPE | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: | |
| nage: WELL | Flooding: | Ponding: | Soil Moisture Status: MOIST TO 16" | Permeability: MODERATE Ksat: | Land Cover / Use: ASPEN W/ SNOWBERRY SAGEBRUSH | | | |
| nt Material: MIXED SEDIMENTARY COLLUVIUM | Bedrock: ROCKS | Kind: | Fract.: | Hard.: | Depth: | Lithostrat. Units: | Group: | Formation: Member: |
| ion: Kind: Degree: | Runoff: | Surface Frag %: GR: CB: ST: BD: CN: FL: Kind: | | | | Diagnostic Horz. / Prop.: PACHIC ARGILLIC | Kind: | Depth: |
| Control Section: Ave. Clay %: <35% Ave. Rock Frag %: <35% oth Range: | | CRUSTING - SAMPLING (SHOOTING GALLERY) | | | | | | |

## VEGETATION :

| MBOL | COMMON NAME | %GD COVER |
|---|---|---|
| | | |
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## MISCELLANEOUS FIELD NOTES / SKETCH :

DEEP ROCK FREE TOESLOPE TO 7½ FT

0-6 COAL NOT AFFECTING THE SURFACE HERE

6-14

14-28

28-48

48-66

D-12
p-2

| | Component Name: | | | | Map Unit Symbol: | | | | | | | | Date: | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Obser. Method | Depth (in) (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp |
| 1 | ↑ | 0-6 | $A_1$ | | | | GR SL | 3GR | 2M-F GR | SO | VFR | SO | PO | |
| 2 | ↑ | 6-14 | $A_2$ | | | | GR LSM | 8GR | 2 MGR ↵ 2M-F SBK | SO | FR | SO | PO | |
| 3 | INT | 14-28 | BAT | | | | GR CL- | 14GR 5CB | 3F-M NBK | VH | VF | SS | PS | |
| 4 | ↓ | 28-48 | B&2 | | | | STK CL | 25GR 15CB 15ST | 3C-M NBK | EH | EF | VS | VP | |
| 5 | ↓ | 48-66+ | B&3/C | | | | CBK CL | 35GR 20 CB 10ST | MASSIVE | EH | EF | VS | VP | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 3VF 1C 2F 2M | | | | | | 1/2-0" LEAF DISCOL. LITTER |
| 2 | | | | 3VF 2F 1M-C | | | | | | |
| 3 | | | | 2VF 1F | | | | | | |
| 4 | | | | 1VF | | | | | | SOME WEATHER SILT AND SS FRAGMENTS |
| 5 | | | | VIVF | | | | | | WEATHERING CHUNKS OF SANDSTONE |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 10 | C1-C | | | | | | | | | |

1A-2

SDA-NRCS

# PEDON DESCRIPTION

Pedon ID # :

Draft

Mar-02

| s or Component Name: | Map Unit Symbol: | Photo #: | Classification: | Soil Moist. Regime (Tax.): |
|---|---|---|---|---|
| | | | | |

| riber(s): | Date: | Weather: | Temp.: Air: | Latitude: ° ' " N | Datum: | Location: |
|---|---|---|---|---|---|---|
| BL | 10-15-06 | | 52° Soil: Depth: | Longitude: ° ' " W | | Sec. T. R. |

| Zone: | mE: | mN: | Topo Quad.: | Site ID: YR: State: | County: | Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: |
|---|---|---|---|---|---|---|---|---|---|
| | 0486932 | 4398464 | | UTAH | CARBON | 1A-2 | KINNEY | | Stop #: Interval: |

| scape: | Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
|---|---|---|---|---|---|---|---|---|
| MTN | SIDESLOPE | | | 2380M | 320° | 30% | COMPLEX | CONVEX |

| ope Profile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
|---|---|---|---|---|---|---|---|
| LOWER | | | | | | | |

| iage: | Flooding: | Ponding: | Soil Moisture Status: | Permeability: | Land Cover / Use: |
|---|---|---|---|---|---|
| WELL | | | MOIST TO 20" | MODERATE Ksat: | ASPEN - Artva, |

| nt Material: | Bedrock: Kind: | Fract.: | Hard.: | Depth: | Lithostrat. Units: Group: | Formation: | Member: |
|---|---|---|---|---|---|---|---|
| COLLUVIUM | | | | | | | RABBITHOLE |

| ion: Kind: | Degree: | Runoff: | Surface Frag %: GR: | CB: | ST: | BD: | CN: | FL: | Diagnostic Horz. / Prop.: | Kind: | Depth: |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Kind: 5 | 2 | | | 2 | | MOLLIC | | |

| Control Section: Ave. Clay %: | Ave. Rock Frag %: | |
|---|---|---|
| th Range: <35% | >35% | 1A-2 LOWER TOESLOPE WITH 12-15" COAL ON SFC AND ½" LEAF LITTER |

## VEGETATION :

| MBOL | COMMON NAME | %GD COVER |
|---|---|---|
| | | |

## MISCELLANEOUS FIELD NOTES / SKETCH :

COAL FINE 0-15" NOT SAMPLED

1S-3S BURIED A

25-40"

40-60

60-75

75-90"

1A-2
P-2

**Component Name:** | **Map Unit Symbol:** | **Date:**

| | Obser. Method | Depth (in) (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp Loc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0-15 | DUMPED COAL | | FINES + | CINDERS | | 5GR 5CH | LOOSE | | | | | |
| 2 | | 15-25 | Ab | | | | LOAM | 3gr 5cb | 2F-MGR | SO | FR | SO | PO | |
| 3 | BACKHOE PIT | 25-40 | Bt | | | | LOAM | 5gr 5cb | 2M-C SBK | SO | FR | SO | PO | |
| 4 | | 40-60 | BC | | | | LOAM | 5gr 5cb 3ch | MASSIVE | SH | FI | SS | PS | |
| 5 | | 60-75" | C1 | | | | GR SL | 10GR 10cb 5ch | MASSIVE | SH | FI | SO | PO | |
| 6 | | 75-90" | C2 | | | | GR SL | 15gr 15cb | MASSIVE | HA | FI | SO | PO | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | |

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 2VF 1F 1M 1C | | | | | | COAL MIXED WITH LEAF LITTER |
| 2 | | | | 3F 2M 2C 2VF | | | | | | BEGINS NATURAL MOLLIC PROFILE |
| 3 | | | | 1F, 1M | | | | | | |
| 4 | | | | 1F, M | | | | | | |
| 5 | | | | 1VF 1F | 1F | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 0 | 2-71 | | | | | | | | | |

2A-1

# USDA-NRCS PEDON DESCRIPTION

Pedon ID #: | Draft | Mar-02

| Series or Component Name: | Map Unit Symbol: | Photo #: | Classification: | Soil Moist. Regime (Tax.): |
|---|---|---|---|---|
| | 2A-1 | | ARGIUSTOLL, FINE-LOAMY | USTIC |

| Describer(s): | Date: | Weather: Temp.: Air: CLOUDY | Latitude: ° ' " N Datum: | Location: |
|---|---|---|---|---|
| BC | 10-14-06 | 60° Soil: Depth: 6½ | Longitude: ° ' " W | Sec. T. R. |

| UTM: Zone: mE: mN: | Topo Quad.: | Site ID: YR: State: County: Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: Stop #: Interval: |
|---|---|---|---|---|---|
| 0486811 4397900 | | UTAH CARBON | | | |

| Landscape: | Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
|---|---|---|---|---|---|---|---|---|
| MTN. | TOESLOPE | | | 2372 M | 270° | 27 | SIMPLE | CONCAVE |

| Hillslope Profile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
|---|---|---|---|---|---|---|---|
| LOWER | | | | | | | |

| Drainage: | Flooding: | Ponding: | Soil Moisture Status: | Permeability: Ksat: | Land Cover / Use: |
|---|---|---|---|---|---|
| WELL | | | MOIST TO 10" | | GRASS + SAGEBRUSH |

| Parent Material: | Bedrock: Kind: Fract.: Hard.: Depth: | Lithostrat. Units: Group: Formation: Member: |
|---|---|---|
| COLLUVIUM | BLACKHAWK FM / | |

| Erosion: Kind: Degree: | Runoff: | Surface Frag %: Kind: GR: CB: ST: BD: CN: FL: | Diagnostic Horz. / Prop.: Kind: Depth: |
|---|---|---|---|
| NONE | MODERATE | 12 2 3 2 10 | MOLLIC ARGILLIC |

| P.S. Control Section: Ave. Clay %: Ave. Rock Frag %: Depth Range: | |
|---|---|
| 25-30% | 2A-1 TRANSFER |

## VEGETATION :

| SYMBOL | COMMON NAME | %GD COVER |
|---|---|---|
| | | |
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## MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED 5 INCREMENTS 0-10"
10-24"
24-44"
44-65"
65-90 INCHES

BACKHOE PIT!
6½ FEET PHOTO (P) #15

SOIL MIXING FROM LANDSLIDE MOVEMENT.
MASS WASTING BELOW 44"
HORIZONS INDISTINCT BELOW THIS ↑ DEPTH

IN SITU
WEATHERING OF SS + SHALE IN LOWER 2 HORIZONS

2A-1
P-2

**Component Name:** | **Map Unit Symbol:** | **Date:**

| | Obser. Method | Depth (in) | Depth (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | PIT | 0 | 10 | A | | | | | 10GR 5CB | 1M-FGR | | | | | |
| 2 | " | 10 | 24 | AB | | | | | 15GR 5CB | 2M-FSBK | | | | | |
| 3 | " | 24 | 44 | Bt | | | | | 15gr 15CB 5St | 3M-FSBK | | | | | |
| 4 | " | 44 | 65 | Bt/C | | | | | 20GR 15gr 10St 5BY | MA | | | | | |
| 5 | " | 65 | 80+ | C | | | | | 20GR 10CB 15St 5BY | MASSIVE | | | | | |
| 6 | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | |

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 3VF 1F | | | | | | |
| 2 | | | | 2VF, 1F | | | | | | |
| 3 | | | | 1VF 1F | | | | | | |
| 4 | | | | VVF | | | | | | |
| 5 | | | | 1F | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 10 | 1-VC | | | | | | | | | |

| Describer(s): | Date: | Weather: Temp.: Air: | Latitude: ° ' " N Datum: | Location: 2A-2 |
|---|---|---|---|---|
| BC | 10-14-06 | CLOUDY Soil: Depth: | Longitude: ° ' " W | Sec. T. R. |

| UTM: Zone: mE: mN: | Topo Quad.: | Site ID: YR: State: County: Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: Stop #: Interval: |
|---|---|---|---|---|---|
| 0486835 4397839 | | UTAH 2A-2 | KINNEY | | |

| Landscape: | Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
|---|---|---|---|---|---|---|---|---|
| MOUNTAIN | SIDESLOPE | | | | | 24 | SINGLE | PLANAR → SL. CONCAVE |

| Hillslope Profile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
|---|---|---|---|---|---|---|---|
| MIDDLE → LOWER | | | | | | | |

| Drainage: | Flooding: | Ponding: | Soil Moisture Status: | Permeability: | Land Cover / Use: |
|---|---|---|---|---|---|
| MODERATE | | | MOIST TO 1.5" | MOD Ksat: | GRASS + SAGEBRUSH |

| Parent Material: | Bedrock: Kind: Fract.: Hard.: Depth: | Lithostrat. Units: Group: Formation: Member: |
|---|---|---|
| COLLUVIUM FROM SANDSTONE | | |

| Erosion: Kind: Degree: | Runoff: | Surface Frag %: GR: CB: ST: BD: CN: FL: Kind: | Diagnostic Horz. / Prop.: Kind: Depth: |
|---|---|---|---|
| NONE | | 15 5 3 4 | MOLLIC |

| P.S. Control Section: Ave. Clay %: Ave. Rock Frag %: Depth Range: | |
|---|---|
| 25-30% | 2A-2 TRANSFER |

## VEGETATION :

| SYMBOL | COMMON NAME | %GD COVER |
|---|---|---|
| | | |
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## MISCELLANEOUS FIELD NOTES / SKETCH :

BACKHOE PIT / TRANSMISSION LINE RT
5½ FT DEEP

SAMPLED 0-5 2A-2
5-14
14-25 <25% SLOPE
25-38
38+ NO SAMPLE

PHOTO # 17 (P)

2A-2
P-2

Map Unit Symbol: Date:

| | Obser. Method | Depth (in) (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0-5 | A1 | | | | LOAM | 5 gr 5 cb | 2M. GR | SO | VFR | SO | PO | |
| 2 | | 5-14 | A2 | | | | GR L | 10 gr 5 cb | 2M. F GR | SO | FR | SO | PO | |
| 3 | | 14-25 | BW | | | | GR LOAM | 10 gr 10 cb 5 st | 2 M SBK | HA | VFI | SS | PS | |
| 4 | | 25-38 | B/C | | | | GRV LOAM | 20 gr 10 cb 5 st 5 ch | 2 F-M ABK | HO | VFI | S | PS | NO |
| 5 | | 38-60+ | C2 | | | | STX CL | 20 gr 10 cb 25 st 10 ch | MASSIVE | VH | VFI | SS | PS | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |

BACKHOE PIT

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 3F. 2F. 1M | | | | | | |
| 2 | | | | 2VF. 2F. 1M | | | | | | |
| 3 | | | | 1VF | | | | | | MIXED COLLUVIUM & WEATHERING SEDIMEN |
| 4 | | | | / | | | | | | PIECES of ROC |
| 5 | | | | 1VF | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | C-VC | | | | | | | | | |

| Zone: | mE: | mN: | Topo Quad.: | Site ID: YR: State: County: Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: 2A-3 Stop #: Interval: |
|---|---|---|---|---|---|---|---|
| 0486976 | 4398624 | | 10-15-06 | 2A-3 | KINNEY | | |

| Landscape: | Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
|---|---|---|---|---|---|---|---|---|
| MTN | SIDESLOPE | | | 2384M | 300° | 27% | SINGLE | CONCAVE |

| Slope Profile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
|---|---|---|---|---|---|---|---|
| MIDDLE | | | | | | | |

| Drainage: | Flooding: | Ponding: | Soil Moisture Status: | Permeability: / Ksat: | Land Cover / Use: |
|---|---|---|---|---|---|
| WELL | | | MOIST TO 13" | MODERATE | |

| Parent Material: | Bedrock: Kind: Fract.: Hard.: Depth: | Lithostrat. Units: Group: Formation: Member: |
|---|---|---|
| COLLUVIUM FROM SANDSTONE + SILTSTONE | | |

| Erosion: Kind: Degree: | Runoff: | Surface Frag %: GR: CB: ST: BD: CN: FL: / Kind: | Diagnostic Horz. / Prop.: Kind: Depth: |
|---|---|---|---|
| MASS WASTING / SLUMPING | | 10 5 2 2 2 | MOLLIC |

| Control Section: Ave. Clay %: Ave. Rock Frag %: / Depth Range: | |
|---|---|
| | 2A-3 NATIVE SOIL DEEPER A HORIZON UNDER SAGEBRUSH HUMMOCKS UP TO 10-16" DEPTH |

## VEGETATION :

| SYMBOL | COMMON NAME | %GD COVER |
|---|---|---|
| | | |
| | | |
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| | | |

## MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED 0-9"

9-19

19-36

36-52

52-70" NOT SAMPLED STONE LINE

MIXED COLLUVIUM

| | Method | (in) (cm) | | | Dry | Moist | | Knd % Rnd Sz | Grade Sz Type | Consistence Dry | Mst | Stk | Pls | Mottles % Sz Cont. Col Mst Shp Loc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ⌀ | 0 - 9 | A | | | | GR SLOAM | 10YR 5/3 | 2M GR | SO | FR | SO | PO | NONE |
| 2 | — | 9 - 19 | Bt | | | | GR LOAM+ | 15YR 3/3 | 2F-M SBK | SH | FI | SS | PO | |
| 3 | PUSH CUT | 19-36 | Bt2 | | | | CBV CL | 10YR 5/3 10YR 4/4 | 2M-C NBK | VH | FI | S | P | |
| 4 | PUSH CUT | 36-52 | C1 | | | | STV CL | 5YR 5/3 10YR 5/4 | 3F-M SBK | EH | EF | S | P | |
| 5 | PUSH CUT | 52-75" | C2 | | | | BYN CL | 10YR 5/4 10YR 4/6 | MASSIVE | EH | EF | VS | VP | |
| 6 | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | |

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 3VF ZF 1M | | | | | | |
| 2 | | | | 1VF, 1F | | | | | | |
| 3 | | | | 1VF, 1F | | | | | | |
| | | | | 1VF | | | | | | WEATHERED CALCAREOUS COLLUVIUM |
| | | | | 1VF | | | | | | WEATHERED SILTSTONE AND SANDSTONE COLLUVIUM |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | E-VC | | | | | | | | | |

2A-5

| Component Name: | 2A-5 SUPER SPRUCE | Map Unit Symbol: | Date: 10-16-06 |
|---|---|---|---|

| | Obser. Method | Depth (in) | Depth (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp Loc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | REMOVED | 0 | 6 | A | | | | STX LOAM | 10GR 1SST 1SB | 2M-F GR | SO | VFR | SO | SO | |
| 2 | REMOVED | 6 | 12 | D | | | | ST LOAM | 15GR 1SST 1SB | 2MSBK→MGR | SO | FR | PO | PO | |
| 3 | AUGER | 12 | 24 | Bt | | | | STV C | 10CB 10GR 1SST | 2M-F BK | HA | F | | P | |
| 4 | BY HAND | 24 | 48 | Bt | | | | GR CLAY | 25GR 1SCB | 3M PR | FH | EF | VS | VP | (CONCRETION) LSD |
| 5 | | 48 | 65+ | BC | | | | GR CLAY | 25GR 1OCB | 3M-C NBK | EH | EF | VS | VP | |
| 6 | | | | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 3VF 2F | | | | | | |
| 2 | | | | 2VF 1F 1M | | | | | | |
| 3 | | | | 1VF | | | | | | |
| 4 | | | | 1F | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 0 | | | | | | | | | | |

2A-5

2A-5

2A-5
P-2

LOAD-OUT SITE

BELOW RR TRACK 100 M SE OF SUPLEE SPRING

SAGEBRUSH/RABBITBRUSH COMPLEX HUMMOCKY TOPOGRAPHY

28% 280° ASPECT

INTERM. RABBITBRUSH

BELOW ROAD TO TOWN

| Zone: | mE: | mN: | Topo Quad.: | Site ID: | YR: | State: | County: | Pedon #: | Soil Survey Area: | MLRA / LRU: | Transect: ID: | Stop #: | Interval: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WR22 | 0486808 | 4397820 | | | | UT | CARBON | 2A6 | KINNEY | | | | |

| Landscape: | Landform: | Microfeature: | Anthro: | Elevation: | Aspect: | Slope (%): | Slope Complexity: | Slope Shape: (Up & Dn / Across) |
|---|---|---|---|---|---|---|---|---|
| MTN.. | SLUMP/LANDSLIDE DEPOSIT | | | 2379M | 340° | 23 | COMPLEX | COMPLEX, HUMMOCKY |

| Hillslope Profile Position: | Geom. Component: | Microrelief: | Physio. Division: | Physio. Province: | Physio. Section: | State Physio. Area: | Local Physio. Area: |
|---|---|---|---|---|---|---|---|
| LOWER | | | | | | | |

| Drainage: | Flooding: | Ponding: | Soil Moisture Status: | Permeability: | Land Cover / Use: |
|---|---|---|---|---|---|
| WELL | | | MOIST TO 15" | MODERATE<br>Ksat: | ANTNA - GRASSES |

| Parent Material: | Bedrock: Kind: | Fract.: | Hard.: | Depth: | Lithostrat. Units: | Group: | Formation: | Member: |
|---|---|---|---|---|---|---|---|---|
| COLLUVIUM | MIXED SEDIMENTARY | | | | | | | |

| Erosion: Kind: | Degree: | Runoff: | Surface Frag %: | GR: | CB: | ST: | BD: | CN: | FL: | Diagnostic Horz. / Prop.: | Kind: | Depth: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SLIGHT | | | Kind: | 5 | 2 | 2 | 2 | TR | | PACHIC | ARGILLIC | |

| P.S. Control Section: | Ave. Clay %: | Ave. Rock Frag %: |
|---|---|---|
| Depth Range: | 21 | <35 |

NEWER RUNOUT INTO COLUMBINE MINE

DEEP ROCK-FREE LANDSLIDE DEPOSIT

~5' NE OF FENCELINE

## VEGETATION :

| SYMBOL | COMMON NAME | %GD COVER |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
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| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

## MISCELLANEOUS FIELD NOTES / SKETCH :

SAMPLED 0-6"

6-12"

12-24

24-40

40-66

66-95+

SOME OF THE BEST-APPEARING TOPSOIL ON PROJECT AREA

2A-6

P-2

| | Obser. Method | Depth (in) | Depth (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp Loc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ↑ | 0 | 6 | A1 | | | | L | Tr GR CB | 2M-1 GR | SO | VFR | SO | PO | |
| 2 | SLOPE, | 6 | 17 | A2 | | | | L | 3 GR 2 CB | 1M SBK → MGR | SO | FR | SO | PO | |
| 3 | ROAD CUT | 12 | 21 | BW1 | | | | L+ | 5 GR 3 CB | 2M-F SBK | SO | FI | SS | PO | |
| 4 | CONTINU | 21 | 40 | BW2 | | | | LOAM+ | 5 GR 3 CB | 2M SBK | SH | FI | SS | PO | |
| 5 | ↓ | 40 | 66 | C | | | | GR LOAM | 10 GR + CB | 2M-C SBK | SH | FI | SS | PO | |
| 6 | | 66 | 85+ | C | | | | LOAM | 20 GR + CB | MASSIVE | HA | FI | SS | PO | |
| 7 | | | | | | | | | 5% + BY | | | | | | |
| 8 | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | | |

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | 3VF 2F 1M | | | | | | |
| 2 | | | | 2VF 1F-M | | | | | | |
| 3 | | | | VF 1F | | | | | | |
| 4 | | | | VF | | | | | | BEGIN COLLUVIUM |
| 5 | | | | VF | | | | | | W/ WEATHERED SS AND FEW BOULDERS |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | 9-VC | | | | | | | | | |
| 9 | | | | | | | | | | |

# PEDON DESCRIPTION

DA-NRCS | Pedon ID #: | Draft | Mar-02

- **s or Component Name:**
- **Map Unit Symbol:** 2B-1
- **Photo #:**
- **Classification:**
- **Soil Moist. Regime (Tax.):** [illegible]
- **riber(s):** BE
- **Date:** 10-14-06
- **Weather:** **Temp.:** *Air:* Cloudy *Soil:* *Depth:*
- **Latitude:** ° ' " N **Longitude:** ° ' " W **Datum:**
- **Location:** Sec. T. R.
- *Zone:* *mE:* 0486811 *mN:* 4397900
- **Topo Quad.:**
- **Site ID:** *YR:* *State:* UT *County:* Carbon *Pedon #:*
- **Soil Survey Area:** Kinney Mine
- **MLRA / LRU:**
- **Transect:** *ID:* *Stop #:* *Interval:*
- **scape:**
- **Landform:** Mtn Slope
- **Microfeature:**
- **Anthro:**
- **Elevation:** 2404 m
- **Aspect:** 280
- **Slope (%):** 46
- **Slope Complexity:** Planar
- **Slope Shape:** (*Up & Dn / Across*) Straight
- **ope Profile Position:** Middle-Lower
- **Geom. Component:**
- **Microrelief:**
- **Physio. Division:**
- **Physio. Province:**
- **Physio. Section:**
- **State Physio. Area:**
- **Local Physio. Area:**
- **age:** Well
- **Flooding:**
- **Ponding:**
- **Soil Moisture Status:** Dry
- **Permeability:** **Ksat:** Moderate
- **Land Cover / Use:** Grass / Brush
- **t Material:** Colluvium
- **Bedrock:** *Kind:* *Fract.:* *Hard.:* *Depth:* Black Hawk Fm.
- **Lithostrat. Units:** *Group:* *Formation:* *Member:*
- **ion:** *Kind:* *Degree:* Slight
- **Runoff:** Rapid
- **Surface Frag %:** *GR:* 3 *CB:* [illegible] *ST:* [illegible] *BD:* 4 *CN:* — *FL:* —
- *Kind:*
- **Diagnostic Horz. / Prop.:** *Kind:* *Depth:* Mollic
- **Control Section:** *Ave. Clay %:* *Ave. Rock Frag %:* 25
- *th Range:*

2B-1 Transport Route, Switchback

## VEGETATION :

| MBOL | COMMON NAME | %GD COVER |
|---|---|---|
| | Sagebrush | |
| | Serviceberry | |
| | Rabbitbrush | |
| | Grasses | |

## MISCELLANEOUS FIELD NOTES / SKETCH :

Sampled increments 0-7
7-19
19-23
23-51 [illegible]

Photo Pentax Camera (P)
#14 Pit

Soils below 19 mixed mass wasting + colluvium meeting altered C-Cr

Component Name: | Map Unit Symbol: | PSF: 2B-1 P-2

| | Obser. Method | Depth (in) (cm) | Horizon | Bnd | Matrix Color Dry | Matrix Color Moist | Texture | Rock Frag Knd % Rnd Sz | Structure Grade Sz Type | Consistence Dry | Consistence Mst | Consistence Stk | Consistence Pls | Mottles % Sz Cont. Col Mst Shp Loc |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 0 - 9 | A | | | | L.cm | 3gr 10cB 5st | | | | | | None |
| 2 | | 9 - 19 | Bt | | | | CL | 20gr 10cB 5st | | | | | | / |
| 3 | | 19 - 33 | Bt | | | | CL | 20gr 15cH 10st | | | | | | / |
| 4 | | 33 - 51 | BC | | | | CL | 15gr 15cB 15st | | | | | | / |
| 5 | | 51 - 80 | Cr | | SANDSTONE COLLUVIUM MIXED WITH HYDR | | | | | R BEDS | | BLACK HAWK FM | | |
| 6 | | 80+ | R | | HARD | SANDSTONE BEDROCK | | | | | | | | |
| 7 | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | |
| 0 | | | | | | | | | | | | | | |

| | Redoximorphic Features % Sz Cn Hd Sp Kd Loc Bd Col | Concentrations % Sz Cn Hd Sp Kd Loc Bd Col | Ped / V. Surface Features % Dst Cont Kd Loc Col | Roots Qty Sz Loc | Pores Qty Sz Shp | pH (meth) | Effer. (agent) | Clay % | CCE | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 0 | 1-8C | | | | | | | | | |

USDA - Forest Service

# SOIL DESCRIPTION

*(Reference FSH 2509.18)*

01-SP-07

| 1. Map Unit Symbol | 2. Family or Series | 3. Date | 4. By | 5. Photo. No. | 6. Stop No. | 7. USGS Quad | 8. Location: Sec. ____ T. ____ R. ____ |
|---|---|---|---|---|---|---|---|
| 3A | CUMULIC ENDOAQUOLL, CO-LOAMY | 9-5-07 | BL | | | | |

| 9. Area | 10. Forest | 11. Ranger District | 12. State | 13. County |
|---|---|---|---|---|
| KUNEY MINE | | | UT | CARBON |

| 14. Parent Material | 15. Bedrock Name | 16. Elevation | 17. Erosion: a. Kind | b. Class |
|---|---|---|---|---|
| WITH COAL RUN-OUT ALLUVIUM | MIXED | | NONE | |

| 18. Landform | 19. Slope: a. % | b. Shape | c. Length | d. Aspect | 20. Drainage Class | 21. Surface Stone and Rock: a. GR | b. CB | c. ST | d. BY |
|---|---|---|---|---|---|---|---|---|---|
| FLOODPLAIN | 3 | CONCAVE | 100' | 10° | SPD | 3 | 0 | 0 | 0 |

| 22. Potential Natural Vegetation | 23. Annual Precipitation | 24. Measured Soil Temperature | 25. Water Table *(Depth)* |
|---|---|---|---|
| WEEDY WITH THISTLE | | | |

| HORIZON DESIGNATION (a) | DEPTH (b) | COLOR (c) Moist (1) | COLOR (c) Dry (2) | COLOR (c) Mottling (3) | TEXTURE (d) | % | STRUCTURE (e) | CONSISTENCE (f) Dry (1) | CONSISTENCE (f) Moist (2) | CONSISTENCE (f) Wet (3) | SPECIAL FEATURES (g) Cutans (1) | % of Rock Fragments (2) | SPECIAL FEATURES (g) Roots (3) | SPECIAL FEATURES (g) Pores (4) | EFFER. CLASS (h) | FIELD pH (i) | BOUNDARY (j) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D1 | 0-6 | 10YR 2/1 | 10YR 5/2 | / | SL | 10 | 2F SBK | SH | FI | SO PO | / | GR-10 CB-0 ST-0 | 3VF 1F | 2VF IN 1F TU | NE | 7.3 | C, W |
| D2 | 6-14 | 10YR 2/2 | 10YR 4/2 | / | SL | 14 | 2F SBK | SH | FI | SO PO | / | GR-5 CB-0 ST-0 | 2VF 1F | 1VF IN 1F TU | NE | 7.4 | A, W |
| Ab | 14-24 | 10YR 3/2 | 10YR 5/2 | 2FAINT 15% | LOAMY SILT LOAM | 22 14 | MASSIVE | VH | VFI | SS PO | / | GR-0 CB-0 ST-0 | 1VF 1F | 2VF IN | NE | 7.7 | |
| | | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | | GR- CB- ST- | | | | | |

| 26. Partical Size Control Section | a. Depth: | b. Average Clay %: | c. Average Rock Fragment Content: | 27. Depth to Lithic or Paralithic Contact: |
|---|---|---|---|---|
| | 10-24 | 16 | 4 | >60 EST. |

| 28. Diagnostic Horizons | a. Surface: | b. Subsurface: | 29. Moist Control Section Depth: |
|---|---|---|---|
| | CUMULIC | — | 10-40" |

Previous edition Obsolete.

FS-2500-1 (2/86)

USDA - Forest Service

# SOIL DESCRIPTION

HAPLOCRYOLL (Reference FSH 2509.18) 02-SP-07

| 1. Map Unit Symbol | 2. Family or Series | 3. Date | 4. By | 5. Photo. No. | 6. Stop No. | 7. USGS Quad | 8. Location: Sec. ____ T. ____ R. ____ |
|---|---|---|---|---|---|---|---|
| 3A | FINE-LOAMY CUMULIC HAPLUSTOLL | 95-07 | BC | | | | |

| 9. Area | 10. Forest | 11. Ranger District | 12. State | 13. County |
|---|---|---|---|---|
| KINNEY #2 | | | | CARBON |

| 14. Parent Material | 15. Bedrock Name | 16. Elevation | 17. Erosion: a. Kind ____ b. Class ____ |
|---|---|---|---|
| ALLUVIUM | MIXED | | |

| 18. Landform | 19. Slope: a. % 7 b. Shape ____ c. Length ____ d. Aspect ____ | 20. Drainage Class | 21. Surface Stone and Rock a. GR 0 b. CB 0 c. ST — d. BY 0 |
|---|---|---|---|
| FLOODPLAIN TERRACE | | | |

| 22. Potential Natural Vegetation | 23. Annual Precipitation | 24. Measured Soil Temperature | 25. Water Table (Depth) |
|---|---|---|---|
| BIG SAGEBRUSH | | | 45" + |

| HORIZON DESIGNATION (a) | INCH DEPTH (b) | COLOR (c) Moist (1) | COLOR (c) Dry (2) | COLOR (c) Mottling (3) | LAB TEXTURE (d) | STRUCTURE (e) | CONSISTENCE (f) Dry (1) | CONSISTENCE (f) Moist (2) | CONSISTENCE (f) Wet (3) | SPECIAL FEATURES (k) Cutans (1) | SPECIAL FEATURES (k) % of Rock Fragments (2) | SPECIAL FEATURES (k) Roots (3) | SPECIAL FEATURES (k) Pores (4) | EFFER. CLASS (h) | LAB FIELD pH (i) | BOUNDARY (j) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | 0-6 | 10YR 3/2 | 10YR 5/2 | / | LOAM 16 20 | 2M-F SBK | SH | FR | SS PO | / | GR-0 CB-0 ST-0 | 3VF 1F 1M | | NE | 6.6 | A,W |
| A2 | 6-17 | 10YR 3/3 | 10YR 5/3 | / | L 18 22 | 2M SBK | SH | FR | SS PS | / | GR-0 CB-0 ST-0 | 2VF 1F | | NE | 6.8 | A,S |
| A3 | 17-32 | 10YR 3/3 | 10YR 5/2 | / | SIL LOAM 17 23 | 2M-C SBK | HA | FI | S PS | / | GR-3 CB-0 ST-0 | 1VF | | NE | 7.2 | A,S |
| BW | 32+ | 10YR 3/3 | 10YR 5/3 | / | SIL LOAM 22 25 | 2C-M SBK | SH | FI | S PS | / | GR-0 CB-0 ST-0 | 1VF | | NE | 7.4 | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |

| 26. Partical Size Control Section | a. Depth: | b. Average Clay %: | c. Average Rock Fragment Content: | 27. Depth to Lithic or Paralithic Contact: |
|---|---|---|---|---|
| | | | | |

| 28. Diagnostic Horizons | a. Surface: | b. Subsurface: | 29. Moist Control Section Depth: |
|---|---|---|---|
| | | | |

Previous edition ... lete.

FS-2500-4 (2/86)

USDA - Forest Service

# SOIL DESCRIPTION

*(Reference FSH 2509.18)*

03-SP-07

| 1. Map Unit Symbol | 2. Family or Series | 3. Date | 4. By | 5. Photo. No. | 6. Stop No. | 7. USGS Quad | 8. Location: Sec. ____ T. ____ R. ____ |
|---|---|---|---|---|---|---|---|
| 3A | FINE-LOAMY CUMMULIC HAPLOCRYOLL | 9-5-07 | BC | | | | |

| 9. Area | 10. Forest | 11. Ranger District | 12. State | 13. County |
|---|---|---|---|---|
| KINNEY #2 | | | UTAH | CARBON |

| 14. Parent Material | 15. Bedrock Name | 16. Elevation | 17. Erosion: a. Kind ____ b. Class ____ |
|---|---|---|---|
| ALLUVIUM | — | | |

| 18. Landform | 19. Slope: a. % 3 b. Shape CONCAVE c. Length 200 d. Aspect 350 | 20. Drainage Class | 21. Surface Stone and Rock a. GR ____ b. CB ____ c. ST ____ d. BY ____ |
|---|---|---|---|
| FLOODPLAIN | | SPD | |

| 22. Potential Natural Vegetation | 23. Annual Precipitation | 24. Measured Soil Temperature | 25. Water Table *(Depth)* |
|---|---|---|---|
| SEDGES & GRASS | | | |

| HORIZON DESIGNATION (a) | INCHES DEPTH (b) | COLOR (c) Moist (1) | COLOR (c) Dry (2) | COLOR (c) Mottling (3) | LAB TEXTURE (d) | STRUCTURE (e) | CONSISTENCE (f) Dry (1) | CONSISTENCE (f) Moist (2) | CONSISTENCE (f) Wet (3) | SPECIAL FEATURES (g) Cutans (1) | SPECIAL FEATURES (g) % of Rock Fragments (2) | SPECIAL FEATURES (g) Roots (3) | SPECIAL FEATURES (g) Pores (4) | EFFER. CLASS (h) | LAB FIELD pH (i) | BOUNDARY (j) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-6 | 10YR 2/1 | 10YR 3/2 | / | LOAM 19 | 2M-F GR | SO | VFR | SO PO | / | GR - TR<br>CB - 0<br>ST - 0 | 3VF 1FM | 2VF IN 1FTU | NE | 6.5 | C, W |
| | 6-11 | 10YR 4/1 | 10YR 3/2 | / | LOAM 18 | 2M-C GR | SO | FR | SS PO | / | GR - 0<br>CB - 0<br>ST - 0 | 2VF 2F | 3VF IN 1FT | NE | 6.9 | C, W |
| | 11-20 | 10YR 4/3 | 10YR 3/2 | 1N PORES | LOAM 21 | 2M-F SBK | SO | FI | SS PS | / | GR - /<br>CB - /<br>ST - / | 1VF 1F | 1VF IN 1FTU | NE | 7.2 | C, S |
| | 20-40 | 10YR 5/3 | 10YR 4/2 | 2N PORES | LOAM 21 | 3M-C SBK | SH | FI | SS PO | / | GR - /<br>CB - /<br>ST - / | 1VF | 1VF TU 1FIN | NE | 7.6 | |
| | | | | | | | | | | | GR -<br>CB -<br>ST - | | | | | |
| | | | | | | | | | | | GR -<br>CB -<br>ST - | | | | | |
| | | | | | | | | | | | GR -<br>CB -<br>ST - | | | | | |
| | | | | | | | | | | | GR -<br>CB -<br>ST - | | | | | |
| | | | | | | | | | | | GR -<br>CB -<br>ST - | | | | | |

| 26. Partical Size Control Section | a. Depth: | b. Average Clay %: | c. Average Rock Fragment Content: | 27. Depth to Lithic or Paralithic Contact: |
|---|---|---|---|---|
| | 10-40 | 20 | 0 | >60" EST. |

| 28. Diagnostic Horizons | a. Surface: | b. Subsurface: | 29. Moist Control Section Depth: |
|---|---|---|---|
| | MOLLIC | CAMBIC | 10-40" |

Previous edition ... lete.

FS-2500-1 (2/86)

NOT DISTURBED

USDA - Forest Service

# SOIL DESCRIPTION

*(Reference FSH 2509.18)*

-04-SP-07

| 1. Map Unit Symbol | 2. Family or Series | 3. Date | 4. By | 5. Photo. No. | 6. Stop No. | 7. USGS Quad | 8. Location: Sec. ____ T. ____ R. ____ |
|---|---|---|---|---|---|---|---|
| 2A | LOAMY-SKEL TYPIC HAPLUSTOLL | 9/5/07 | BC | | | | |

| 9. Area | 10. Forest | 11. Ranger District | 12. State | 13. County |
|---|---|---|---|---|
| KINNEY MINE | | | UTAH | CARBON |

| 14. Parent Material | 15. Bedrock Name | 16. Elevation | 17. Erosion: a. Kind | b. Class |
|---|---|---|---|---|
| COLLUVIUM | SANDSTONE | | NONE | |

| 18. Landform | 19. Slope: a. % | b. Shape | c. Length | d. Aspect | 20. Drainage Class | 21. Surface Stone and Rock: a. GR | b. CB | c. ST | d. BY |
|---|---|---|---|---|---|---|---|---|---|
| FANSLOPE | 16 | CONCAVE | 120' | 260° | WD | TR | 3 | TR | 0 |

| 22. Potential Natural Vegetation | 23. Annual Precipitation | 24. Measured Soil Temperature | 25. Water Table *(Depth)* |
|---|---|---|---|
| GRASSES, BIG SAGEBRUSH W/SNOWBERRY | | | |

| HORIZON DESIGNATION (a) | DEPTH INCH (b) | COLOR (c) Moist (1) | COLOR (c) Dry (2) | COLOR (c) Mottling (3) | LAB TEXTURE (d) % | STRUCTURE (e) | CONSISTENCE (f) Dry (1) | CONSISTENCE (f) Moist (2) | CONSISTENCE (f) Wet (3) | SPECIAL FEATURES (g) Cutans (1) | SPECIAL FEATURES (g) % of Rock Fragments (2) | SPECIAL FEATURES (g) Roots (3) | SPECIAL FEATURES (g) Pores (4) | EFFER. CLASS (h) | LAB FIELD pH (i) | BOUNDARY (j) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | 0-6 | 10YR 3/2 | 10YR 5/3 | | SL LOAM 17 19 | 2M-F SBK | SO | VFR | SO PO | | GR-2 CB-2 ST-0 | 1VF 2F 1M | 2VF 1N | NE | 6.6 | C, S |
| A2 | 6-11 | 10YR 3/3 | 10YR 5/2 | | STV LOAM 17 20 | 3F-M ABK | VH | VF 1 | SS PS | | GR-5 CB-20 ST-20 | 1VF 1F | 2VF 1N 1F TV | NE | 6.6 | G, W |
| Bw | 11-20 | 7.5YR 5/4 | 7.5YR 6/4 | | STX SL LOAM 18 17 | 3M-F ABK | VH | VF 1 | SS PS | | GR-10 CB-20 ST-25 | 1VF | 1VF TV | NE | 6.7 | G, W |
| C | 20+0 | 7.5YR 5/4 | 7.5YR 6/2 | | SCL 21 15 | MASSIVE | SH | F1 | SO PO | | GR-0 CB-0 ST-0 | | 1VF 1N 1VF TV | NE | 6.9 | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |

| 26. Partical Size Control Section | a. Depth: | b. Average Clay %: | c. Average Rock Fragment Content: | 27. Depth to Lithic or Paralithic Contact: |
|---|---|---|---|---|
| | 10-40" | 19% | 39% | >60 EST |

| 28. Diagnostic Horizons | a. Surface: | b. Subsurface: | 29. Moist Control Section Depth: |
|---|---|---|---|
| | MOLLIC | CAMBIC | 10-40" |

Previous edition ____ obsolete.

FS-2500-3 (2/86)

USDA - Forest Service

# SOIL DESCRIPTION

*(Reference FSH 2509.18)*

MISSING A HORIZON / DISTURBED

05-SP-07

| 1. Map Unit Symbol | 2. Family or Series | 3. Date | 4. By | 5. Photo. No. | 6. Stop No. | 7. USGS Quad | 8. Location: Sec. ____ T. ____ R. ____ |
|---|---|---|---|---|---|---|---|
| DA05 | DISTURBED | 9/5/07 | BC | | | | |

| 9. Area | 10. Forest | 11. Ranger District | 12. State | 13. County |
|---|---|---|---|---|
| KINNEY MINE | | | UTAH | CARBON |

| 14. Parent Material | 15. Bedrock Name | 16. Elevation | 17. Erosion: a. Kind | b. Class |
|---|---|---|---|---|
| COLLUVIUM | SANDSTONE | | NONE | |

| 18. Landform | 19. Slope: a. % | b. Shape | c. Length | d. Aspect | 20. Drainage Class | 21. Surface Stone and Rock a. GR | b. CB | c. ST | d. BY |
|---|---|---|---|---|---|---|---|---|---|
| TOESLOPE | 4 | PLANAR | 50' | | WD | 10 | 5 | 2 | JR |

| 22. Potential Natural Vegetation | 23. Annual Precipitation | 24. Measured Soil Temperature | 25. Water Table *(Depth)* |
|---|---|---|---|
| GRASS + SAGEBRUSH SOIL SURFACE SCRAPED | | | NONE |

| HORIZON DESIGNATION (a) | INCH DEPTH (b) | COLOR (c) Moist (1) | COLOR (c) Dry (2) | COLOR (c) Mottling (3) | LAB TEXTURE (d) | STRUCTURE (e) | CONSISTENCE (f) Dry (1) | CONSISTENCE (f) Moist (2) | CONSISTENCE (f) Wet (3) | SPECIAL FEATURES (g) Cutans (1) | % of Rock Fragments (2) | Roots (3) | Pores (4) | EFFER. CLASS (h) | LAB FIELD pH (i) | BOUNDARY (j) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | 0-8 | 7.5YR 4/4 | 7.5YR 6/4 | / | LOAM 22 27 | 2CPL 1FSBK | HA | VFI | SS PS | / | GR-5 CB-5 ST-3 | 2VF 1F | 2VF IN 2F TU | NE | 6.5 | CS |
| C1 | 8-28 | 7.5YR 5/4 | 7.5YR 6/4 | / | CBL LOAM SANDY 21 24 | 2M-F SBK | HA | VFI | S PS | / | GR-10 CB-15 ST-10 | 1VF 1F | 1VF-F TU | NE | 6.7 | C, W |
| C2 | 28-60 | 7.5YR 6/4 | 7.5YR 7/4 | / | STGL 20 22 | 2M-F SBK | HA | FI | SS PO | / | GR-15 CB-20 ST-20 | 1VF | 1VF-F TU | NE | 7.1 | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |

| 26. Partical Size Control Section | a. Depth: | b. Average Clay %: | c. Average Rock Fragment Content: | 27. Depth to Lithic or Paralithic Contact: |
|---|---|---|---|---|
| | | | | |

| 28. Diagnostic Horizons | a. Surface: | b. Subsurface: | 29. Moist Control Section Depth: |
|---|---|---|---|
| | / | / | |

Previous edition Obsolete.

FS-2500-1 (2/86)

USDA - Forest Service

# SOIL DESCRIPTION

*(Reference FSH 2509.18)*

06-SP-07 (06-SP-07)

| 1. Map Unit Symbol | 2. Family or Series | 3. Date | 4. By | 5. Photo. No. | 6. Stop No. | 7. USGS Quad | 8. Location: Sec. ___ T. ___ R. ___ |
|---|---|---|---|---|---|---|---|
| DA | DISTURBED | 9/5/07 | BL | | | | |

| 9. Area | 10. Forest | 11. Ranger District | 12. State | 13. County |
|---|---|---|---|---|
| KINNEY MINE | | | UTAH | CARBON |

| 14. Parent Material | 15. Bedrock Name | 16. Elevation | 17. Erosion: a. Kind | b. Class |
|---|---|---|---|---|
| COLLUVIUM | SANDSTONE | | SLIGHT | |

| 18. Landform | 19. Slope: a. % | b. Shape | c. Length | d. Aspect | 20. Drainage Class | 21. Surface Stone and Rock: a. GR | b. CB | c. ST | d. BY |
|---|---|---|---|---|---|---|---|---|---|
| TOESLOPE / FANSLOPE | 12 | CONVEX | | | WD | 5 | 15 | 5 | |

| 22. Potential Natural Vegetation | 23. Annual Precipitation | 24. Measured Soil Temperature | 25. Water Table (Depth) |
|---|---|---|---|
| SAGE RABBITBRUSH, ARTR, PUTR | | | NONE |

| HORIZON DESIGNATION (a) | DEPTH (b) | COLOR (c) Moist (1) | COLOR (c) Dry (2) | COLOR (c) Mottling (3) | LAB TEXTURE (d) | STRUCTURE (e) | CONSISTENCE (f) Dry (1) | CONSISTENCE (f) Moist (2) | CONSISTENCE (f) Wet (3) | SPECIAL FEATURES (g) Cutans (1) | % of Rock Fragments (2) | Roots (3) | Pores (4) | EFFER. CLASS (h) | LAB FIELD pH (i) | BOUNDARY (j) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REC #1 | 0-6 | 10YR 3/1 | 10YR 4/2 | / | LOAM 2C | 2MGR | SO | FR | SO PO | / | GR-5 CB-3 ST-3 | 2VF 1F | 2VF IN | NE | 7.3 | C, W |
| CUAL | 6-55 | CUAL FINES SAMPLE | | | LOAM 25 | DRUN, MA | SEL | NIM ACID / BASE | | 4% POS. | GR-10 CB-5 ST-15 | 1VF | | NE | 7.4 | C, S |
| 2B | 55-80 | 10YR 3/2 | 10YR 5/2 | / | LOAM ~~SCL~~ LOAM 20 | 3C-M SBK | HA | FI | SO PO | / | GR-5 CB-5 ST-0 | / | 1VF TN | NE | 6.2 | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |

| 26. Partical Size Control Section | a. Depth: | b. Average Clay %: | c. Average Rock Fragment Content: | 27. Depth to Lithic or Paralithic Contact: |
|---|---|---|---|---|
| | | | | |

| 28. Diagnostic Horizons | a. Surface: | b. Subsurface: | 29. Moist Control Section Depth: |
|---|---|---|---|
| | / | / | |

Previous edition Obs.

FS-2500-1 (2/86)

USDA - Forest Service

# SOIL DESCRIPTION

*(Reference FSH 2509.18)*

07-SP-07

| 1. Map Unit Symbol | 2. Family or Series | 3. Date | 4. By | 5. Photo. No. | 6. Stop No. | 7. USGS Quad | 8. Location: Sec. ____ T. ____ R. ____ |
|---|---|---|---|---|---|---|---|
| 2A | LO-SM, TYPIC HAPLISTOLL/GR ARGIUDSTOLL. | 9/5/07 | BC | | | | |

| 9. Area | 10. Forest | 11. Ranger District | 12. State | 13. County |
|---|---|---|---|---|
| KINNEY MINE | | | UTAH | CARBON |

| 14. Parent Material | 15. Bedrock Name | 16. Elevation | 17. Erosion: a. Kind | b. Class |
|---|---|---|---|---|
| COLLUVIUM | SANDSTONE | | NONE | |

| 18. Landform | 19. Slope: a. % | b. Shape | c. Length | d. Aspect | 20. Drainage Class | 21. Surface Stone and Rock: a. GR | b. CB | c. ST | d. BY |
|---|---|---|---|---|---|---|---|---|---|
| FANSLOPE | 8 | PLANAR | 150' | 270° | WD | 5 | 5 | TR | 0 |

| 22. Potential Natural Vegetation | 23. Annual Precipitation | 24. Measured Soil Temperature | 25. Water Table *(Depth)* |
|---|---|---|---|
| SAGEBRUSH, GRASSES W/LUPINE & PAINTBRUSH | | | |

| HORIZON DESIGNATION (a) | INCH DEPTH (b) | COLOR (c) Moist (1) | COLOR (c) Dry (2) | COLOR (c) Mottling (3) | TEXTURE (d) | %C | STRUCTURE (e) | CONSISTENCE (f) Dry (1) | CONSISTENCE (f) Moist (2) | CONSISTENCE (f) Wet (3) | SPECIAL FEATURES (k) Cutans (1) | % of Rock Fragments (2) | SPECIAL FEATURES (k) Roots (3) | SPECIAL FEATURES (k) Pores (4) | EFFER. CLASS (h) | LAB FIELD pH (i) | BOUNDARY (j) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | 0-6 | 10YR 3/1 | 10YR 4/2 | / | SL | 15 / 16 | 2M GR | SO | VFR | SO PO | / | GR-5 CB-5 ST-0 | 3VF 2F 1C | 3VF IN | NE | 6.6 | C,S |
| A2 | 6-11 | 10YR 3/3 | 10YR 5/3 | / | SL | 16 / 19 | 2F SBK → FGR | SO | VFR | SO PO | / | GR-15 CB-15 ST-5 | 2VF 2F 1C | 2VF IN 1F TU | NE | 6.5 | C,W |
| Bw | 11-28 | 10YR 4/3 | 10YR 6/3 | / | SL | 16 / 16 | MASSIVE | HA | VFI | SO PO | / | GR-15 CB-20 ST-20 | 1M 1VF BY 1F | 3VF IN | NE | 6.6 | G,W |
| Bt | 28-40 | 7.5YR 5/4 | 7.5YR 6/4 | / | SL | 18 / 29 | MASSIVE | VH | VFI | SO PO | / | GR-20 CB-25 ST-25 | / BY | 2VF TU 2VF IN | NE | 7.1 | |
| | | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | | GR- CB- ST- | | | | | |

| 26. Partical Size Control Section | a. Depth: | b. Average Clay %: | c. Average Rock Fragment Content: | 27. Depth to Lithic or Paralithic Contact: |
|---|---|---|---|---|
| | 10-40" | 17 | >50%. | >60" EST. |

| 28. Diagnostic Horizons | a. Surface: | b. Subsurface: | 29. Moist Control Section Depth: |
|---|---|---|---|
| | MOLLIC | CAMBIC | 10-40" |

Previous edition ... lete.

FS-2500-1 (2/86)

USDA - Forest Service

# SOIL DESCRIPTION

*(Reference FSH 2509.18)*

08-SP-07

| 1. Map Unit Symbol | 2. Family or Series | 3. Date | 4. By | 5. Photo. No. | 6. Stop No. | 7. USGS Quad | 8. Location: Sec. ___ T. ___ R. ___ |
|---|---|---|---|---|---|---|---|
| 2A | FI-LOAMY TYPIC ~~ARGIOSTOLL~~ HAPLUSTOLL | 9-5-07 | BC | | | | |

| 9. Area | 10. Forest | 11. Ranger District | 12. State | 13. County |
|---|---|---|---|---|
| KINNEY MINE | | | UTAH | CARBON |

| 14. Parent Material | 15. Bedrock Name | 16. Elevation | 17. Erosion: a. Kind | b. Class |
|---|---|---|---|---|
| COLLUVIUM | SANDSTONE | | NONE | |

| 18. Landform | 19. Slope: a. % | b. Shape | c. Length | d. Aspect | 20. Drainage Class | 21. Surface Stone and Rock a. GR | b. CB | c. ST | d. BY |
|---|---|---|---|---|---|---|---|---|---|
| FANSLOPE | 10 | CONCAVE | 200' | 290 | WD | 2 | 2 | 3 | 0 |

| 22. Potential Natural Vegetation | 23. Annual Precipitation | 24. Measured Soil Temperature | 25. Water Table *(Depth)* |
|---|---|---|---|
| ART W/ RABBITBRUSH, GRASSES | | | NONE |

| HORIZON DESIGNATION (a) | INCHES DEPTH (b) | COLOR (c) Moist (1) | COLOR (c) Dry (2) | COLOR (c) Mottling (3) | LAB TEXTURE (d) %C | STRUCTURE (e) | CONSISTENCE (f) Dry (1) | CONSISTENCE (f) Moist (2) | CONSISTENCE (f) Wet (3) | SPECIAL FEATURES (g) Cutans (1) | SPECIAL FEATURES (g) % of Rock Fragments (2) | SPECIAL FEATURES (g) Roots (3) | SPECIAL FEATURES (g) Pores (4) | EFFER. CLASS (h) | LAB / FIELD pH (i) | BOUNDARY (j) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 0-9 | 10YR 3/3 | 10YR 5/3 | | SLCOM 17 14 | 2M-F GR | SO | VFR | SO PO | | GR-Tr CB-2 ST-0 | 3VF 2F | 3VF-IN | NE | 6.5 | C,S |
| BW | 9-17 | 10YR 4/4 | 10YR 6/3 | | SLCOM 19 16 | 2M SBK → M GR | HA | FI | SO PO | | GR-3 CB-2 ST-0 | 2VF 1F | 1VF,IN 2F TU | NE | 6.6 | C,S |
| Bt1 | 17-36 | 7.5YR 5/4 | 7.5YR 6/4 | GR | LCOM 17 21 | 2M-SBK | SH | FR | SO PO | | GR-10 CB-5 ST-0 | 1VF | 1VF-F TU | NE | 6.6 | G,W |
| Bt2 | 36-60 | 7.5YR 4/4 | 7.5YR 6/4 | | SCV SL 15 | 3M-C SBK | SH | FR | SO PO | | GR-15 CB-10 ST-10 | 1VF | 1VF-F TU | NE | 6.7 | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |

| 26. Partical Size Control Section | a. Depth: | b. Average Clay %: | c. Average Rock Fragment Content: | 27. Depth to Lithic or Paralithic Contact: |
|---|---|---|---|---|
| | 10-40" | 18% | 15% | >60" |

| 28. Diagnostic Horizons | a. Surface: | b. Subsurface: | 29. Moist Control Section Depth: |
|---|---|---|---|
| | MOLLIC | CAMBIC | 10-40" |

Previous edition Obsolete.

FS 2500-1 (2/86)

NOT DISTURBED

USDA - Forest Service

# SOIL DESCRIPTION

(Reference FSH 2509.18)

ARGIDSTOLL 09-SP-07

| 1. Map Unit Symbol | 2. Family or Series | 3. Date | 4. By | 5. Photo. No. | 6. Stop No. | 7. USGS Quad | 8. Location: Sec. ____ T. ____ R. ____ |
|---|---|---|---|---|---|---|---|
| 2A | FINE-LOAMY TYPIC ~~HARDSTAFF~~ | 9.6.07 | BC | | | | |

| 9. Area | 10. Forest | 11. Ranger District | 12. State | 13. County |
|---|---|---|---|---|
| KINNEY | | | | CARBON |

| 14. Parent Material | 15. Bedrock Name | 16. Elevation | 17. Erosion: a. Kind | b. Class |
|---|---|---|---|---|
| COLLUVIUM | | | NONE | |

| 18. Landform | 19. Slope: a. % | b. Shape | c. Length | d. Aspect | 20. Drainage Class | 21. Surface Stone and Rock: a. GR | b. CB | c. ST | d. BY |
|---|---|---|---|---|---|---|---|---|---|
| TOESLOPE | 7 | CONVEX | 200 | 310° | WP | 1 | 3 | 0 | 0 |

| 22. Potential Natural Vegetation | 23. Annual Precipitation | 24. Measured Soil Temperature | 25. Water Table (Depth) |
|---|---|---|---|
| ARTEMISIA W/ GRASSES | | | NONE |

| HORIZON DESIGNATION (a) | DEPTH (b) | COLOR (c) Moist (1) | COLOR (c) Dry (2) | COLOR (c) Mottling (3) | LAB TEXTURE (d) | STRUCTURE (e) | CONSISTENCE (f) Dry (1) | CONSISTENCE (f) Moist (2) | CONSISTENCE (f) Wet (3) | SPECIAL FEATURES (k) Cutans (1) | % of Rock Fragments (2) | SPECIAL FEATURES (k) Roots (3) | SPECIAL FEATURES (k) Pores (4) | EFFER. CLASS (h) | LAB FIELD pH (i) | BOUNDARY (j) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 0-6 | 10YR 3/2 | 10YR 5/3 | / | SL 14 | 1F-M GR | LO | LO | SO PO | / | GR-10 CB-0 ST-10 | 3VF 2F | 3VF IN | NE | 6.5 | C,S |
| Bw | 6-12 | 10YR 4/4 | 10YR 6/3 | / | SLOAM 19 16 | 2M-C SBK | SH | FR | SO PO | / | GR-0 CB-0 ST-10 | 2VF 1F | 1VF IN 2F TU | NE | 6.5 | C,W |
| Bt1 | 12-30 | 7.5YR 4/4 | 7.5YR 6/4 | / | CB LOAM 21 22 | 3M ABK | SH | FI | SS PO | / | GR-10 CB-10 ST-/ | 1VF | 1F,VF TU | NE | 6.5 | G,W |
| Bt2 | 30-60 | 7.5YR 5/4 | 7.5YR 6/4 | / | LOAM 14 25 | 3M ABK | VH | VFI | SS PS | | GR-5 CB-0 ST-0 | 1VF | 1VF-F TU | NE | 6.9 | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |

| 26. Partical Size Control Section | a. Depth: | b. Average Clay %: | c. Average Rock Fragment Content: | 27. Depth to Lithic or Paralithic Contact: |
|---|---|---|---|---|
| | 6-26" | 20 | < 5% | >60 |

| 28. Diagnostic Horizons | a. Surface: | b. Subsurface: | 29. Moist Control Section Depth: |
|---|---|---|---|
| | OCHRIC → MOLLIC | ARGILLIC | 10-40" |

Previous edition ~~lete.~~ INTERCHANGE

FS 2500-1 (2/86)

Map Unit 1-A was later determined to be D-A

DISTURBANCE ON SFC ONLY

# SOIL DESCRIPTION

*(Reference FSH 2509.18)*

ARGICRYOLL

10-SP-07

| 1. Map Unit Symbol | 2. Family or Series | 3. Date | 4. By | 5. Photo. No. | 6. Stop No. | 7. USGS Quad | 8. Location: Sec. ____ T. ____ R. ____ |
|---|---|---|---|---|---|---|---|
| 1A | LO-SM, MIXED, TYPIC ARGIXEROLL | 9-5-07 | BC | | | | |

| 9. Area | 10. Forest | 11. Ranger District | 12. State | 13. County |
|---|---|---|---|---|
| KINNEY #2 | | | UT | CARBON |

| 14. Parent Material | 15. Bedrock Name | 16. Elevation | 17. Erosion: a. Kind | b. Class |
|---|---|---|---|---|
| COLLUVIUM | SANDSTONE | | SLIGHT | |

| 18. Landform | 19. Slope: a. % | b. Shape | c. Length | d. Aspect | 20. Drainage Class | 21. Surface Stone and Rock: a. GR | b. CB | c. ST | d. BY |
|---|---|---|---|---|---|---|---|---|---|
| SIDESLOPE | 32 | CONVEX | 25' | 316 | WD | 5 | 5 | 3 | 0 |

| 22. Potential Natural Vegetation | 23. Annual Precipitation | 24. Measured Soil Temperature | 25. Water Table *(Depth)* |
|---|---|---|---|
| ASPEN · SNOWBERRY | | | NONE |

| HORIZON DESIGNATION (a) | DEPTH INCHES (b) | COLOR (c) Moist (1) | COLOR (c) Dry (2) | COLOR (c) Mottling (3) | LAB TEXTURE (d) | STRUCTURE (e) | CONSISTENCE (f) Dry (1) | CONSISTENCE (f) Moist (2) | CONSISTENCE (f) Wet (3) | SPECIAL FEATURES (g) Cutans (1) | SPECIAL FEATURES (g) % of Rock Fragments (2) | SPECIAL FEATURES (g) Roots (3) | SPECIAL FEATURES (g) Pores (4) | EFFER. CLASS (h) | LAB FIELD pH (i) | BOUNDARY (j) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 0-7 | 10YR 3/2 | 10YR 5/2 | | SL 11/15 | 1M-F SBK | SH | FR | SO PO | | GR-10 CB-5 ST-10 | 1VF-F 2M2C | 3VF IN | NE | 6.9 | C,W |
| Bt1 | 7-17 | 7.5YR 6/4 | 7.5YR 6/4 | | CBL LOAM 19/28 | 2M-F SBK | VH | VFI | S/P | 1APF 1APO | GR-5 CB-15 ST-5 | 1VF-F 2M2C | 3VFIN 2FTU | NE | 6.6 | C S |
| Bt2 | 17-40 | 7.5YR 5/4 | 7.5YR 6/2 | | STV LOAM SCL 24/30 | 3M-C ABK | HA | VFI | S/P | 2MPF 1APO | GR-10 CB-10 ST-15 | 1M 1C | 1VFTU 1FIN | NE | 6.7 | G,W |
| Bt3 | 40-70 | 7.5YR 5/4 | 10YR 6/4 | | STX LOAM 18/26 | 3M-C SBK | VH | VFI | SS/PS | 2MPPO | GR-10 CB-15 ST-30 | 1VF | 2VFIN 1FTU | NE | 7.3 | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |

| 26. Partical Size Control Section | a. Depth: | b. Average Clay %: | c. Average Rock Fragment Content: | 27. Depth to Lithic or Paralithic Contact: |
|---|---|---|---|---|
| | 7-27" | 20% | 30% | >60" |

| 28. Diagnostic Horizons | a. Surface: | b. Subsurface: | 29. Moist Control Section Depth: |
|---|---|---|---|
| | MOLLIC | ARGILLIC | 10-40" |

Previous edition Obsolete. FS-2500-3 (2/86)

ARGIUSTOLL

# SOIL DESCRIPTION

*(Reference FSH 2509.18)*

11-SP-07

| 1. Map Unit Symbol | 2. Family or Series | 3. Date | 4. By | 5. Photo. No. | 6. Stop No. | 7. USGS Quad | 8. Location: Sec. ____ T. ____ R. ____ |
|---|---|---|---|---|---|---|---|
| 2B | LO-SKELETAL Typic HAPLOSTOLL | 9-6-07 | BK | | | | |

| 9. Area | 10. Forest | 11. Ranger District | 12. State | 13. County |
|---|---|---|---|---|
| KINNEY MINE | | | UTAH | CARBON |

| 14. Parent Material | 15. Bedrock Name | 16. Elevation | 17. Erosion: a. Kind | b. Class |
|---|---|---|---|---|
| COLLUVIUM | SANDSTONE | | NONE | |

| 18. Landform | 19. Slope: a. % 32 b. Shape CONVEX c. Length 50' d. Aspect 290° | 20. Drainage Class | 21. Surface Stone and Rock a. GR ____ b. CB ____ c. ST ____ d. BY ____ |
|---|---|---|---|
| TOESLOPE / LANDSLIDE DEPOSIT | | WD | |

| 22. Potential Natural Vegetation | 23. Annual Precipitation | 24. Measured Soil Temperature | 25. Water Table *(Depth)* |
|---|---|---|---|
| BIG SAGEBRUSH, GRASSES, RABBITBRUSH | | | NONE |

| HORIZON DESIGNATION (a) | INCHES DEPTH (b) | COLOR (c) Moist (1) | COLOR (c) Dry (2) | COLOR (c) Mottling (3) | LAB TEXTURE (d) | STRUCTURE (e) | CONSISTENCE (f) Dry (1) | CONSISTENCE (f) Moist (2) | CONSISTENCE (f) Wet (3) | SPECIAL FEATURES (g) Cutans (1) | SPECIAL FEATURES (g) % of Rock Fragments (2) | SPECIAL FEATURES (g) Roots (3) | SPECIAL FEATURES (g) Pores (4) | EFFER. CLASS (h) | LAB FIELD pH (i) | BOUNDARY (j) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 0-5 | 10YR 3/2 | 10YR 5/3 | / | CB SL 16 | 2M-F GR | SD | VFR | SO PO | / | GR - 10<br>CB - 10<br>ST - 0 | 2VF 1F 1M | 3VF-N | NE | 6.8 | C,S |
| AB | 5-13 | 10YR 4/3 | 10YR 6/3 | / | ST BLOAM 20 17 | 2F SBK | SH | FI | SS PO | / | GR - 15<br>CB - 5<br>ST - 15 | 1VF 1F 1M | 2VF,M 1F TU | NE | 6.4 | C,S |
| Bw | 13-33 | 10YR 5/4 | 10YR 6/2 | / | GRV SL 17 14 | SG | LO | LO | SO PO | / | GR - 15<br>CB - 10<br>ST - 10 | 1VF 1F | 2VF-N | NE | 6.6 | C,W |
| Bt | 33-55 | 7.5YR 5/4 | 7.5YR 6/4 | / | GRV LOAM 24 21 | 2F-M SBK | SH | FR | SO PO | / | GR - 25<br>CB - 10<br>ST - 5 | 1VF 1F | 2F TU | NE | 6.8 | G,W |
| C2 | 55-80 | 7.5YR 5/4 | 7.5YR 6/4 | / | GR F.LOAM 26 | 3M-F SBK | HA | FI | SS PS | / | GR - 10<br>CB - 5<br>ST - 0 | / | 1F-VF TU | NE | 7.1 | |
| | | | | | | | | | | | GR -<br>CB -<br>ST - | | | | | |
| | | | | | | | | | | | GR -<br>CB -<br>ST - | | | | | |
| | | | | | | | | | | | GR -<br>CB -<br>ST - | | | | | |
| | | | | | | | | | | | GR -<br>CB -<br>ST - | | | | | |

| 26. Partical Size Control Section | a. Depth: | b. Average Clay %: | c. Average Rock Fragment Content: | 27. Depth to Lithic or Paralithic Contact: |
|---|---|---|---|---|
| | 10-40" | 22 | 37% | >80' |

| 28. Diagnostic Horizons | a. Surface: | b. Subsurface: | 29. Moist Control Section Depth: |
|---|---|---|---|
| | MOLLIC | ARGILLIC ? | 10-40' |

Previous edition ____ lete.

FS-2500-3 (2/86)

USDA - Forest Service

# SOIL DESCRIPTION

*(Reference FSH 2509.18)*

DISTURBED FA

INCLUSION

12-SP-07

| 1. Map Unit Symbol | 2. Family or Series | 3. Date | 4. By | 5. Photo. No. | 6. Stop No. | 7. USGS Quad | 8. Location: Sec. ____ T. ____ R. ____ |
|---|---|---|---|---|---|---|---|
| DA2A | CO-LOAMY TYPIC HAPLUSTOLL | 9-6-07 | BC | | 07-12 | | |

| 9. Area | 10. Forest | 11. Ranger District | 12. State | 13. County |
|---|---|---|---|---|
| KANNEY MNE | | | UT | CARBON |

| 14. Parent Material | 15. Bedrock Name | 16. Elevation | 17. Erosion: a. Kind | b. Class |
|---|---|---|---|---|
| COLLUVIUM | SANDSTONE | | NONE | |

| 18. Landform | 19. Slope: a. % | b. Shape | c. Length | d. Aspect | 20. Drainage Class | 21. Surface Stone and Rock: a. GR | b. CB | c. ST | d. BY |
|---|---|---|---|---|---|---|---|---|---|
| SIDESLOPE | 23 | CONVEX | 30' | 290° | WD | 5 | 3 | 2 | |

| 22. Potential Natural Vegetation | 23. Annual Precipitation | 24. Measured Soil Temperature | 25. Water Table (Depth) |
|---|---|---|---|
| RABBITBRUSH | | | NONE |

| HORIZON DESIGNATION (a) | INCL DEPTH (b) | COLOR (c) Moist (1) | COLOR (c) Dry (2) | COLOR (c) Mottling (3) | LAB TEXTURE (d) | STRUCTURE (e) | CONSISTENCE (f) Dry (1) | CONSISTENCE (f) Moist (2) | CONSISTENCE (f) Wet (3) | SPECIAL FEATURES (g) Cutans (1) | SPECIAL FEATURES (g) % of Rock Fragments (2) | SPECIAL FEATURES (g) Roots (3) | SPECIAL FEATURES (g) Pores (4) | EFFER. CLASS (h) | LAB ~~FIELD~~ pH (i) | BOUNDARY (j) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | 0-6 | 10YR 3/3 | 10YR 5/3 | / | S LOAM 16 21 | 2M GR | SO | VFR | SS PO | / | GR-3 CB-2 ST-0 | 3VF 2F | 3VFIN | NE | 7.1 | C,S |
| A2 | 6-12 | 10YR 4/3 | 10YR 5/2 | / | S LOAM 16 23 | 3M-C SBK | HA | FI | SS PS | / | GR-3 CB-2 ST-0 | 1VF 1F | 1VF IN 2F TU | NE | 7.2 | G,W |
| BW1 | 12-24 | 10YR 4/3 | 10YR 5/2 | / | S LOAM 15 25 | 3M-C SBK | HA | FI | SS PS | / | GR-4 CB-2 ST-0 | 1VF | 1VFIN 2FTU | NE | 7.2 | G,W |
| BW2 | 24-36 | 10YR 4/4 | 10YR 5/2 | / | CBSL 15 24 | MASS IVE | VH | VFI | SS PS | / | GR-10 CB-15 ST-0 | 1VF | 1F TU | NE | 7.4 | C,S |
| C1 | 36-52 | 10YR 4/4 | 10YR 5/2 | / | S LOAM 14 26 | MASS IVE | EH | VFI | SO PO | / | GR-3 CB-2 ST-0 | / | 1VF-F TU | NE | 7.4 | C,S |
| C2 | 52-75 | 10YR 5/4 | 10YR 6/3 | / | S LOAM 15 23 | MASS IVE | EH | VFI | SO PS | / | GR-2 CB-2 ST-0 | / | 1VF-F TU | | 7.8 | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |
| | | | | | | | | | | | GR- CB- ST- | | | | | |

| 26. Partical Size Control Section | a. Depth: | b. Average Clay %: | c. Average Rock Fragment Content: | 27. Depth to Lithic or Paralithic Contact: |
|---|---|---|---|---|
| | 10-40' | 14 | <10% | 200" |

| 28. Diagnostic Horizons | a. Surface: | b. Subsurface: | 29. Moist Control Section Depth: |
|---|---|---|---|
| | MOLLIC | CAMBIC | 10-40" |

Previous edition ... lete.

FS-2500-1 (2/86)

WALKING PIT -13 FT

USDA - Forest Service

10 MDS-3

# SOIL DESCRIPTION

*(Reference FSH 2509.18)*

13-SP-OT

| 1. Map Unit Symbol | 2. Family or Series | 3. Date | 4. By | 5. Photo. No. | 6. Stop No. | 7. USGS Quad | 8. Location: Sec. ___ T. ___ R. ___ |
|---|---|---|---|---|---|---|---|
| DA | DISTURBED | 9-7-07 | BC | | | | |

| 9. Area | 10. Forest | 11. Ranger District | 12. State | 13. County |
|---|---|---|---|---|
| KINNEY #2 | | | UTAH | CARBON |

| 14. Parent Material | 15. Bedrock Name | 16. Elevation | 17. Erosion: a. Kind | b. Class |
|---|---|---|---|---|
| COLLUVIUM | SS | | NONE | |

| 18. Landform | 19. Slope: a. % | b. Shape | c. Length | d. Aspect | 20. Drainage Class | 21. Surface Stone and Rock a. GR | b. CB | c. ST | d. BY |
|---|---|---|---|---|---|---|---|---|---|
| FANSLOPE | 12 | | | | WD | 2 | 3 | 3 | |

| 22. Potential Natural Vegetation | 23. Annual Precipitation | 24. Measured Soil Temperature | 25. Water Table *(Depth)* |
|---|---|---|---|
| CHNA - SAGEBRUSH | | | |

| HORIZON DESIGNATION (a) | DEPTH (inches) (b) | COLOR (c) Moist (1) | COLOR (c) Dry (2) | COLOR (c) Mottling (3) | TEXTURE (d) | % | STRUCTURE (e) | CONSISTENCE (f) Dry (1) | CONSISTENCE (f) Moist (2) | CONSISTENCE (f) Wet (3) | SPECIAL FEATURES (g) Cutans (1) | % of Rock Fragments (2) | Roots (3) | Pores (4) | EFFER. CLASS (h) | LNB FIELD pH (i) | BOUNDARY (j) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| D | 0-8 | 10YR 4/3 | 10YR 5/4 | / | SL | 16 / 14 | 2M-F GR | SO | FR | SO PO | / | GR - 0 CB - 0 ST - 0 | 3VF 1F | 3VFIN | NE | 7.0 | C, S |
| COAL | 8-25 | COAL | REFUSE | | SAND | 6 | SG | LO | LO | SO PO | / | GR - 0 CB - 0 ST - 0 | 1VF | 2FIN | NE | 6.2 | C, S |
| Bb | 25-42 | 10YR 4/3 | 10YR 5/3 | / | SNDY LOAM | 13 / 21 | 2C SBK | HA | FI | SO PO | / | GR - 0 CB - 0 ST - 0 | 1VF | | NE | 6.8 | C, W |
| BCb | 42-70 | 7.5YR 5/4 | 7.5YR 6/4 | / | GRX SL | 13 / 6 | 2F-M SBK | LO | LO | SO PO | / | GR - 60 CB - 5 ST - 0 | | | NE | 6.6 | |
| | | | | | | | | | | | | GR - CB - ST - | | | | | |
| | | | | | | | | | | | | GR - CB - ST - | | | | | |
| | | | | | | | | | | | | GR - CB - ST - | | | | | |
| | | | | | | | | | | | | GR - CB - ST - | | | | | |
| | | | | | | | | | | | | GR - CB - ST - | | | | | |

| 26. Partical Size Control Section | a. Depth: | b. Average Clay %: | c. Average Rock Fragment Content: | 27. Depth to Lithic or Paralithic Contact: |
|---|---|---|---|---|
| | | | | |

| 28. Diagnostic Horizons | a. Surface: | b. Subsurface: | 29. Moist Control Section Depth: |
|---|---|---|---|
| | | | |

Previous edition ... lete.

FS 2500-3 (2/86)

# APPENDIX 4: Soil Pit Profile Photos

# KINNEY 06, Soil Pit 1A-1

6" 2VF 2+1M

17" 2M2C 1VF

28" NF1FLY

60" 1VF

# KINNEY 06, Soil Pit 1A-2

15-20

25-40

40-60

60-75

75-90

# KINNEY 06, Soil Pit 1B-1

0-7 3VF

7-15 2FM1C

15-28 1VR1F

28-60 1F1M

60+ 1VF

# KINNEY 06, Soil Pit 2A-1

0-10 A

10-24 AB

24-44 B+

44-65 B+/C

65-80+ C

# KINNEY 06, Soil Pit 2A-2

0-5 A1

5-14 A2

14-25 BN

25-38 B/C

38-60+ C2

# KINNEY 06, Soil Pit 2A-3

0-9 A

9-19 B+

19-36 B+2

36-52 C1

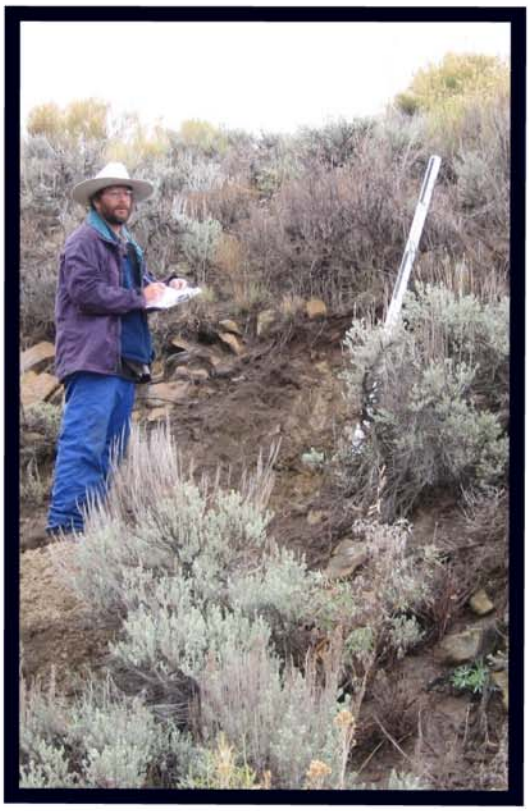
52-75 C2

# KINNEY 06, Soil Pit 2A-5

0-6 A

6-12 D

12-24 B+



24-48 B+

48-65+ BC

# KINNEY 06, Soil Pit 2A-6

0-6 A1

6-12 A2

12-21 BW1

21-40 BW2

40-66 C

66-85+ C

# KINNEY 06, Soil Pit 2A-7

0-7 A

7-20 B+

20-38 C

# KINNEY 06, Soil Pit 2B-1

0-9 A

9-19 B+

19-33 B+

33-51 BC

51-80 Cr

80+ R

# KINNEY 06, Soil Pit D-1

0-6 BUR

6-16 BUR

16-25 A/B

25-40 C1

40-65 C2

65-95+ C3

# KINNEY 06, Soil Pit D-2

0-6 BUR

6-24 BUR

24-45+ C

# KINNEY 06, Soil Pit D-3

0-10 A out

10-20
B+ Dist

40-60 C1

60-75+ C2

# KINNEY 06, Soil Pit D-4

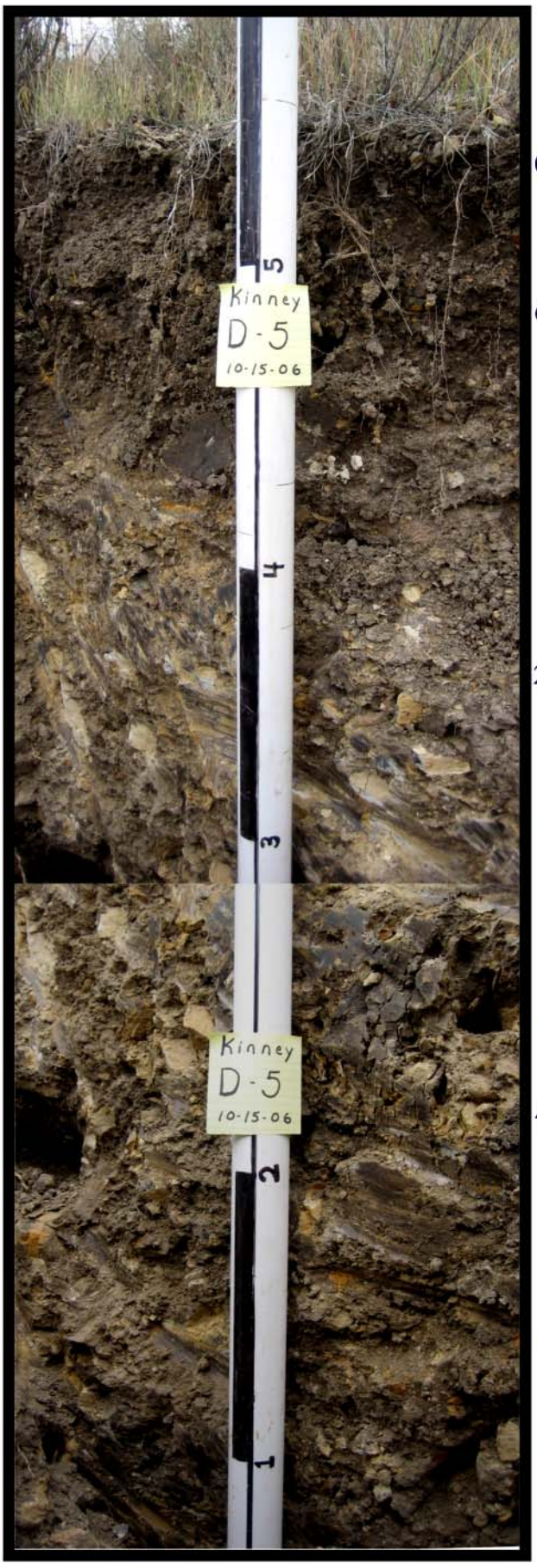
0-8 Disturbed
8-16 Subsoil

12-47
Coal waste

47-85
Coal waste

85-144
Coal waste
(moist)

# KINNEY 06, Soil Pit D-5




0-6 D1

6-20 D2

20-40 D3

40-68+ D4

# KINNEY 06, Soil Pit D-6

0-6 A

6-24 2C clumped coal

24-48 2C 2

48-72 2C 3

# KINNEY 06, Soil Pit D-7

0-6 D1

6-20 D2

20-42 D3

42-58 D4

58-75+ B6

# KINNEY 06, Soil Pit D-8

0-6 A

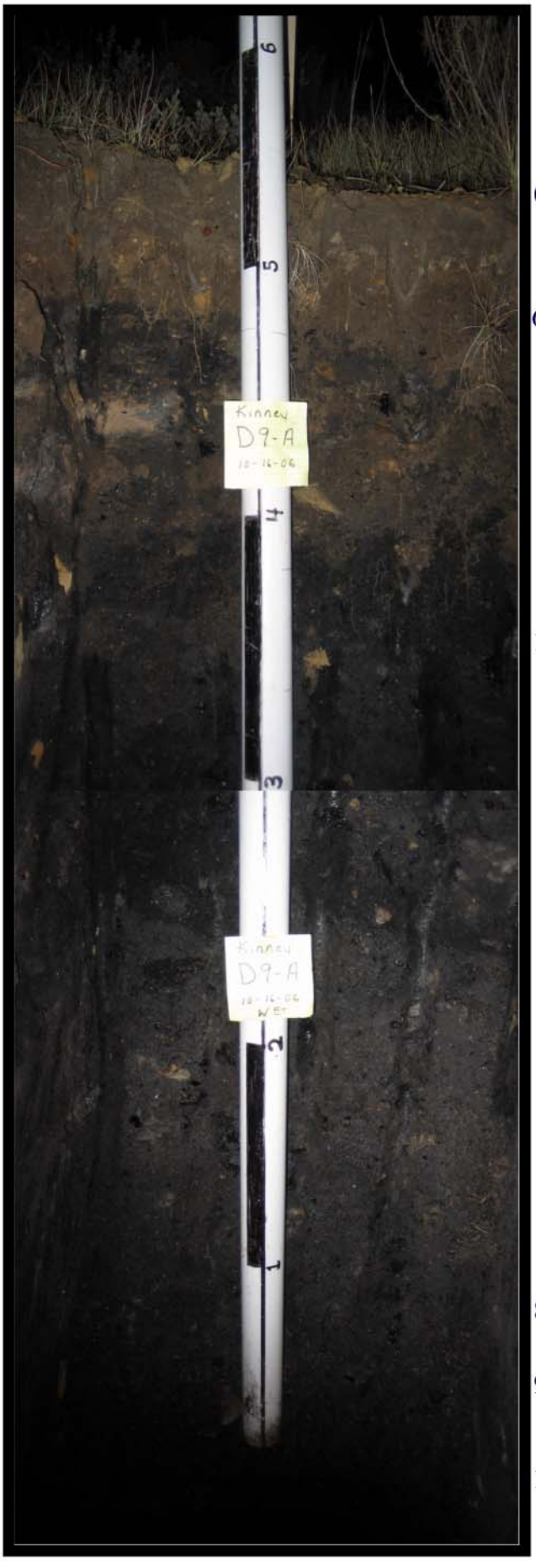
6-13 BA

13-26 B+

26-48 B+2

48-78+ C

# KINNEY 06, Soil Pit D9-A




0-6 Disturbed

6-15 Dist. 2

15-80 Coal

80-95 Ab

95-115+ B+b

115-140 B+Cb

# KINNEY 06, Soil Pit D9-B

0-11 Mixed Subsoil
over waste material

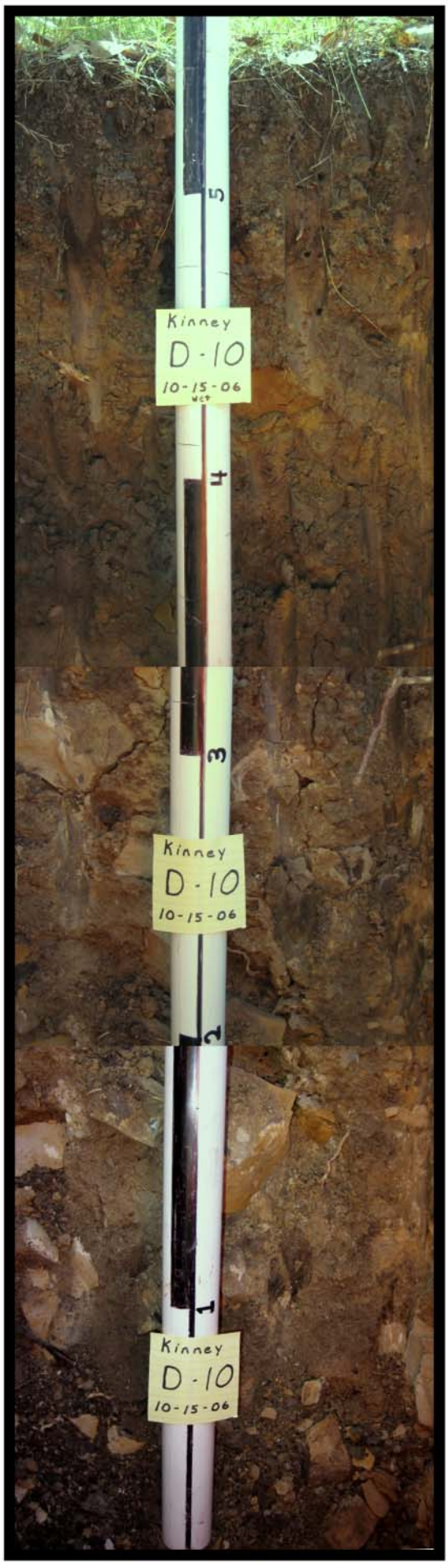
11-29 Coal 50- 70%
fines w/ Subsoil

29-52 Coal 95%
NA w/ Subsoil

52-80 Bb

80-95 Bb

# KINNEY 06, Soil Pit D-10




0-5 A

5-11 B+1

11-23 B+2

23-45 B+3

45-65 C

# KINNEY 06, Soil Pit D-11

0-12 Subsoil reclaimed

12-62 w/ some
Subsoil mixed

62-80 C
Native soil

80-90+

# KINNEY 06, Soil Pit D-12

0-6

9-19 B+

19-33 B+

33-51 BC

51-80 Cr

80+ R

**2-07**
**Kinney Soil Pit**

Hand Auger Hole. See Pedon discription for horizons.

**3-07**
**Kinney Soil Pit**

Auger Hole in bottom of visable pit. See Pedon discription for horizons.

4-07
Kinney Soil Pit

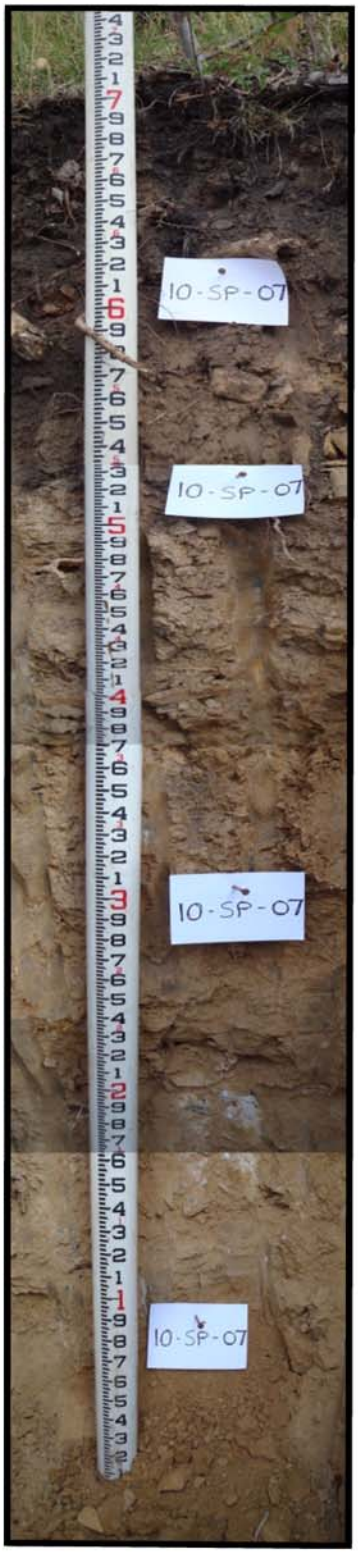
5-07
Kinney Soil Pit

6-07
Kinney Soil Pit

7-07
Kinney Soil Pit

8-07
Kinney Soil Pit

# 9-07
# Kinney Soil Pit

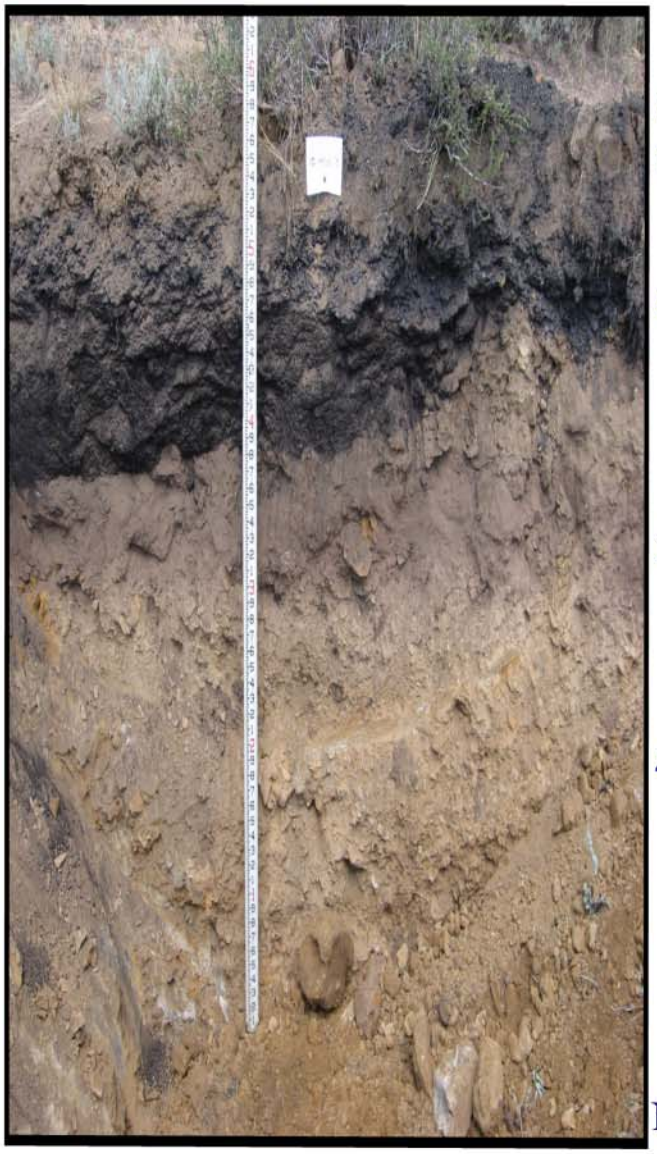



10-07
Kinney Soil Pit

11-07
Kinney Soil Pit

**12-07**
**Kinney Soil Pit**

**13-07**
**Kinney Soil Pit**
**Also (10-MDS-3)**



0-8 inches Overburden mix with est. 15% coal chunks

8-15 inches coal layer with some overburden

25-40 inches Buried B horizon

40-60 inches Buried B and C horizons

No potential topsoil at this site (map Unit DA)

Trackhoe trench site 10-MDS-3, Map unit DA

**14-07**
**Kinney Soil Pit**

C 30-60 inches sandier, lacks structure and chem. for topsoil material

Bw2 18-30 inches subsoil, same as Bw somewhat coarser

Bw 8-18 inches subsoil, good material

A 0-8 inches, potentially decent topsoil, pending lab results

14-SP-07 (Trackhoe trench 12-MDF-1) located approx. 50 ft. from canal on lowerfanslope, Map unit 2A.

15-CP-07
Trackhoe Pit

15-CP-07, measured on 9/7 had 4'11 inches of coal at "pinch out" beginning at 19 inch depth, followed by buried B or C soil horizons. Not sampled. Staked by lathe photographed by BC. Will send this one. Located in trackhoe parking area.

**15-07**
**Kinney Soil Pit**

11 inches potential topsoil, pending lab result

C 26-40 inches very boulder subsoil

Bw 11-26 inches very stony subsoil

A2 5-11 inches topsoil, granular structure

A1 0-5 inches dark-colored topsoil

Oe I inch duff and organic matter layer

15-SP-07 Located near Kinney #1 mine portal Trackhoe scrapped in aspen grove roadcut on 9/7/07, not sapled Map Unit 1A

**16-07**
**Kinney Soil Pit**

No topsoil available at this site

13-60 inches Buried B horizon very stony

13-34 inches coal refuse

0-13 inches Overburden and 20% coal chunks in reclaimed materials (AMP cover

16-SP-07 (trackhoe site 13 WSF-2) located in DA map unit north end Hansen property, nearby 2006 soil pit.

**18-07**
**Kinney Soil Pit**

14 inches of potetial topsoil at this site Map unit 1A

C 36-60 inches

B 14-36 inches

A2 5-14 inches

A1 0-5 inches

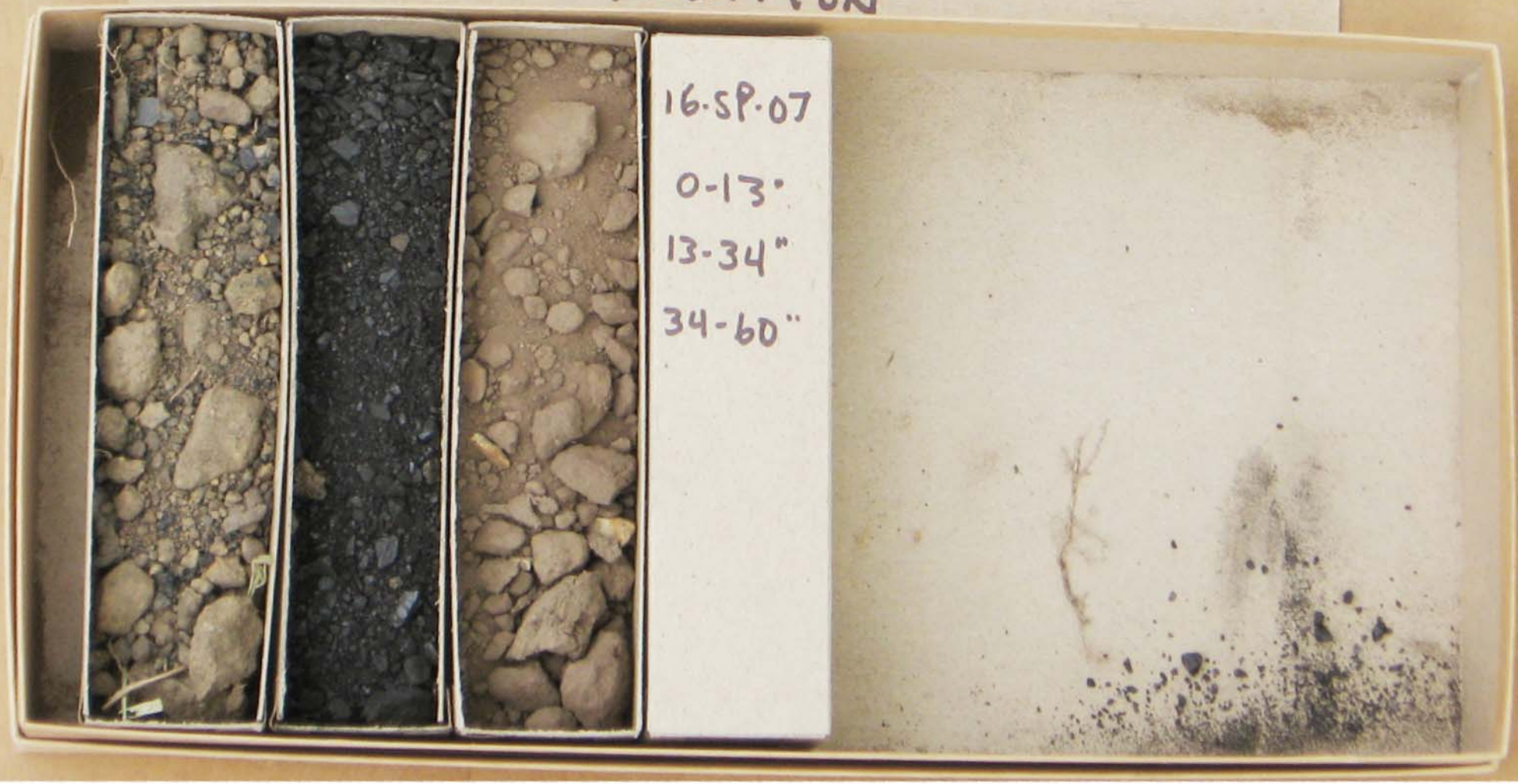
18-SP-07 (trackhoe scrapped nearby Grimes Corner survey flagging, roadcut near Kinney 1 aspen grove). Sampled 9/7/07.

# APPENDIX 5: Micromonolith Photos

KINNEY MINE
SOIL SURVEY
SEPT 2007
HANSEN PROPERTY
ADDITION

KINNEY MINE
SOIL SURVEY
SEPT 2007
HANSEN PROPERTY
ADDITION

KINNEY MINE
SOIL SURVEY
SEPT 2007
HANSEN PROPERTY
ADDITION



KINNEY MINE
SOIL SURVEY
SEPT 2007
HANSEN PROPERTY
ADDITION

KINNEY MINE
SOIL SURVEY
SEPT 2007
HANSEN PROPERTY
ADDITION

KINNEY MINE
SOIL SURVEY
SEPT 2007
HANSEN PROPERTY
ADDITION

KINNEY MINE
SOIL SURVEY
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HANSEN PROPERTY
ADDITION

KINNEY MINE
SOIL SURVEY
SEPT 2007
HANSEN PROPERTY
ADDITION

KINNEY MINE
SOIL SURVEY
SEPT 2007
HANSEN PROPERTY
ADDITION

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SOIL SURVEY
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ADDITION

# APPENDIX 6: Official Soils Series Descriptions

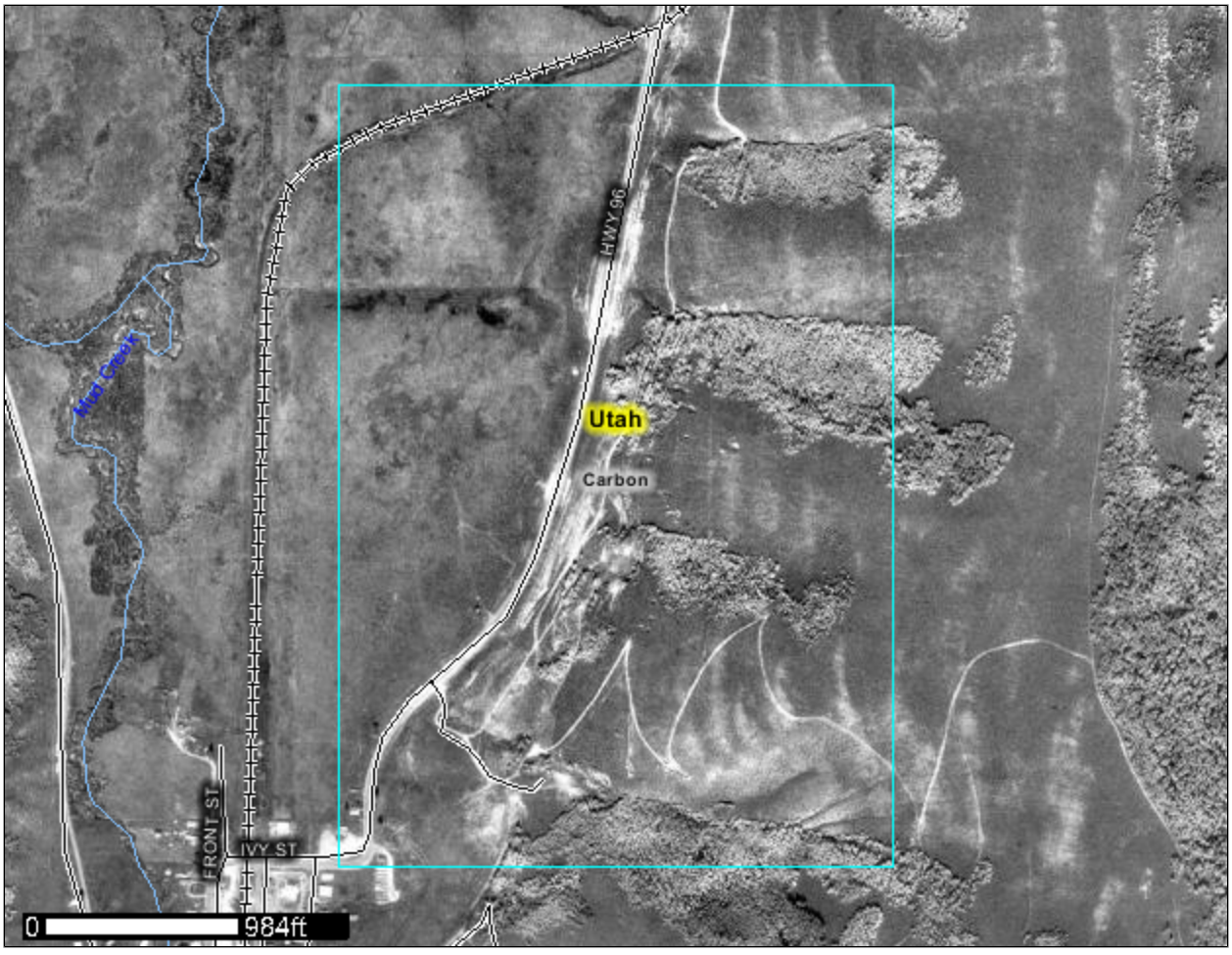
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

# Custom Soil Resource Report for Carbon Area, Utah, Parts of Carbon and Emery Counties



# Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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# How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

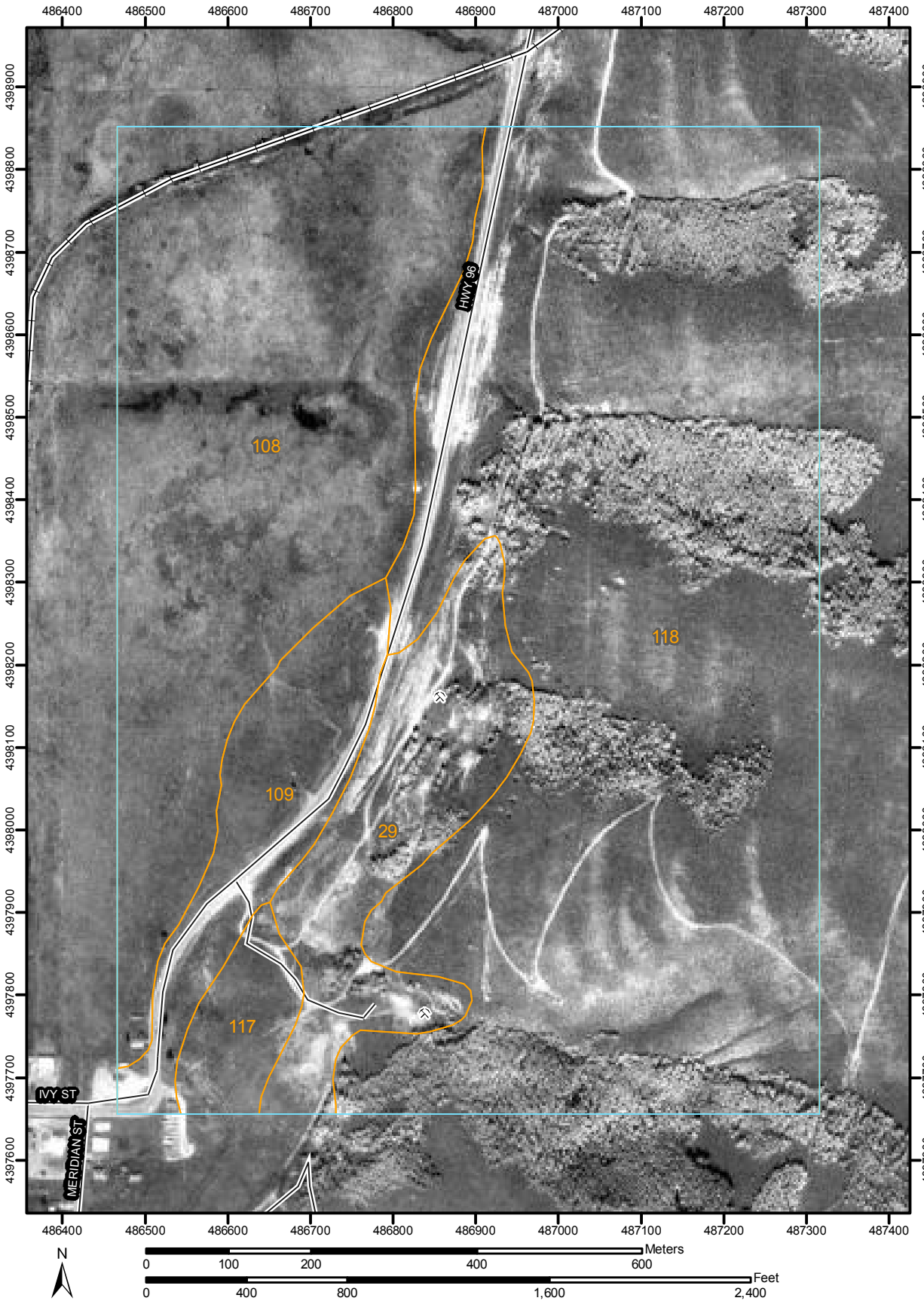
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



## MAP LEGEND

**Area of Interest (AOI)**
- Area of Interest (AOI)

**Soils**
- Soil Map Units

**Special Point Features**
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

**Special Line Features**
- Gully
- Short Steep Slope
- Other

**Political Features**

**Municipalities**
- Cities
- Urban Areas

**Water Features**
- Oceans
- Streams and Canals

**Transportation**
- Rails

**Roads**
- Interstate Highways
- US Routes
- State Highways
- Local Roads
- Other Roads

## MAP INFORMATION

Original soil survey map sheets were prepared at publication scale. Viewing scale and printing scale, however, may vary from the original. Please rely on the bar scale on each map sheet for proper map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 12N

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Carbon Area, Utah, Parts of Carbon and Emery Counties
Survey Area Data: Version 3, Dec 14, 2006

Date(s) aerial images were photographed: 9/30/1997; 10/5/1997

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

# Map Unit Legend

| Carbon Area, Utah, Parts of Carbon and Emery Counties (UT616) | | | |
|---|---|---|---|
| **Map Unit Symbol** | **Map Unit Name** | **Acres in AOI** | **Percent of AOI** |
| 29 | Dumps,mine | 23.0 | 9.2% |
| 108 | Silas loam | 70.8 | 28.2% |
| 109 | Silas-Brycan loams | 16.2 | 6.4% |
| 117 | Trag-Beje-Senchert complex | 6.1 | 2.4% |
| 118 | Trag-Croydon complex | 135.2 | 53.8% |
| Totals for Area of Interest (AOI) | | 251.3 | 100.0% |

# Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that

have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

# Carbon Area, Utah, Parts of Carbon and Emery Counties
# Version date:12/14/2006 5:20:04 PM

## 29—Dumps,mine

**Map Unit Composition**
*Dumps:* 100 percent

**Description of Dumps**

**Properties and qualities**
*Slope:* 3 to 65 percent
*Depth to restrictive feature:* 0 inches to lithic bedrock
*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (6.00 to 20.00 in/hr)
*Available water capacity:* Very low (about 0.0 inches)

**Interpretive groups**
*Land capability (nonirrigated):* 8s

**Typical profile**
*0 to 60 inches:* Fragmental material

## 108—Silas loam

**Map Unit Setting**
*Elevation:* 7,180 to 7,680 feet
*Mean annual precipitation:* 16 to 20 inches
*Mean annual air temperature:* 38 to 45 degrees F
*Frost-free period:* 60 to 80 days

**Map Unit Composition**
*Silas and similar soils:* 80 percent
*Minor components:* 5 percent

**Description of Silas**

**Setting**
*Landform:* Valleys
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Parent material:* Alluvium derived from sandstone and shale

**Properties and qualities**
*Slope:* 0 to 3 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Somewhat poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* About 18 to 42 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 5 percent
*Available water capacity:* High (about 9.6 inches)

**Interpretive groups**

*Land capability (nonirrigated):* 6w
*Ecological site:* Wet Fresh Meadow (Willow-Sedge) (R048AY008UT)

**Typical profile**

*0 to 2 inches:* Loam
*2 to 17 inches:* Loam
*17 to 28 inches:* Loam
*28 to 43 inches:* Loam
*43 to 60 inches:* Sandy clay loam

**Minor Components**

**Silas, poorly drained**

*Percent of map unit:* 5 percent
*Landform:* Flood plains
*Landform position (three-dimensional):* Talf, dip
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Ecological site:* Wet Fresh Meadow (Willow-Sedge) (R048AY008UT)

## 109—Silas-Brycan loams

**Map Unit Setting**

*Elevation:* 7,680 to 8,580 feet
*Mean annual precipitation:* 16 to 20 inches
*Mean annual air temperature:* 38 to 45 degrees F
*Frost-free period:* 60 to 80 days

**Map Unit Composition**

*Silas and similar soils:* 65 percent
*Brycan and similar soils:* 20 percent
*Minor components:* 7 percent

**Description of Silas**

**Setting**

*Landform:* Valleys
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Parent material:* Alluvium derived from sandstone and shale

**Properties and qualities**

*Slope:* 0 to 3 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Somewhat poorly drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* About 18 to 42 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 5 percent
*Available water capacity:* High (about 9.6 inches)

**Interpretive groups**

*Land capability (nonirrigated):* 6w

*Ecological site:* Wet Fresh Meadow (Willow-Sedge) (R048AY008UT)

**Typical profile**

*0 to 2 inches:* Loam
*2 to 17 inches:* Loam
*17 to 28 inches:* Loam
*28 to 43 inches:* Loam
*43 to 60 inches:* Sandy clay loam

## Description of Brycan

**Setting**

*Landform:* Alluvial fans
*Down-slope shape:* Concave
*Across-slope shape:* Convex
*Parent material:* Alluvium derived from sandstone and shale

**Properties and qualities**

*Slope:* 3 to 8 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.60 to 2.00 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 5 percent
*Available water capacity:* High (about 9.9 inches)

**Interpretive groups**

*Land capability (nonirrigated):* 6c
*Ecological site:* MOUNTAIN LOAM (SALINA WILDRYE) (R048AY409UT)

**Typical profile**

*0 to 12 inches:* Loam
*12 to 32 inches:* Loam
*32 to 60 inches:* Silt loam

## Minor Components

**Silas, poorly drained**

*Percent of map unit:* 5 percent
*Landform:* Flood plains
*Landform position (three-dimensional):* Talf, dip
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Ecological site:* Wet Fresh Meadow (Willow-Sedge) (R048AY008UT)

**Flooded soils**

*Percent of map unit:* 2 percent
*Landform:* Flood plains
*Landform position (three-dimensional):* Talf, dip
*Down-slope shape:* Linear
*Across-slope shape:* Concave

## 117—Trag-Beje-Senchert complex

### Map Unit Setting

*Elevation:* 7,180 to 8,480 feet
*Mean annual precipitation:* 16 to 22 inches
*Mean annual air temperature:* 37 to 45 degrees F
*Frost-free period:* 50 to 100 days

### Map Unit Composition

*Trag and similar soils:* 45 percent
*Senchert and similar soils:* 15 percent
*Beje and similar soils:* 15 percent

### Description of Trag

#### Setting

*Landform:* Mountain slopes
*Landform position (three-dimensional):* Mountainflank
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Alluvium and/or colluvium derived from sandstone and shale

#### Properties and qualities

*Slope:* 3 to 30 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 10 percent
*Available water capacity:* High (about 10.8 inches)

#### Interpretive groups

*Land capability (nonirrigated):* 6e
*Ecological site:* MOUNTAIN LOAM (SALINA WILDRYE) (R048AY409UT)

#### Typical profile

*0 to 5 inches:* Clay loam
*5 to 39 inches:* Clay loam
*39 to 60 inches:* Clay loam

### Description of Beje

#### Setting

*Landform:* Drainageways
*Landform position (three-dimensional):* Mountainflank
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Parent material:* Slope alluvium and/or colluvium over residuum weathered from sandstone and shale

**Properties and qualities**

*Slope:* 3 to 15 percent
*Depth to restrictive feature:* 10 to 20 inches to lithic bedrock
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 5 percent
*Available water capacity:* Very low (about 2.4 inches)

**Interpretive groups**

*Land capability (nonirrigated):* 6s
*Ecological site:* Mountain Shallow Loam (Mountain Big Sagebrush) (R047XA446UT)

**Typical profile**

*0 to 6 inches:* Loam
*6 to 14 inches:* Clay loam
*14 to 18 inches:* Unweathered bedrock

## Description of Senchert

**Setting**

*Landform:* Drainageways, draws
*Down-slope shape:* Linear
*Across-slope shape:* Concave
*Parent material:* Colluvium and/or slope alluvium over residuum weathered from sandstone and shale

**Properties and qualities**

*Slope:* 3 to 15 percent
*Depth to restrictive feature:* 20 to 40 inches to lithic bedrock
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Sodium adsorption ratio, maximum:* 5.0
*Available water capacity:* Moderate (about 6.2 inches)

**Interpretive groups**

*Land capability (nonirrigated):* 6e
*Ecological site:* High Mountain Loam (Aspen) (R047XA508UT)

**Typical profile**

*0 to 4 inches:* Loam
*4 to 16 inches:* Loam
*16 to 35 inches:* Clay loam
*35 to 39 inches:* Unweathered bedrock

## 118—Trag-Croydon complex

### Map Unit Setting

*Elevation:* 7,580 to 9,470 feet
*Mean annual precipitation:* 16 to 25 inches
*Mean annual air temperature:* 34 to 40 degrees F
*Frost-free period:* 40 to 80 days

### Map Unit Composition

*Trag and similar soils:* 50 percent
*Croydon and similar soils:* 30 percent

### Description of Trag

#### Setting

*Landform:* Mountain slopes
*Landform position (three-dimensional):* Mountainflank
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Alluvium and/or colluvium derived from sandstone and shale

#### Properties and qualities

*Slope:* 30 to 60 percent
*Surface area covered with cobbles, stones or boulders:* 13.0 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high (0.20 to 0.60 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Calcium carbonate, maximum content:* 10 percent
*Available water capacity:* High (about 10.2 inches)

#### Interpretive groups

*Land capability (nonirrigated):* 7e
*Ecological site:* MOUNTAIN LOAM (SALINA WILDRYE) (R048AY409UT)

#### Typical profile

*0 to 10 inches:* Stony loam
*10 to 36 inches:* Clay loam
*36 to 60 inches:* Clay loam

### Description of Croydon

#### Setting

*Landform:* Mountain slopes
*Landform position (three-dimensional):* Mountainflank
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Colluvium and/or slope alluvium over residuum weathered from sandstone and shale

**Properties and qualities**

*Slope:* 30 to 50 percent
*Depth to restrictive feature:* 40 to 60 inches to paralithic bedrock
*Drainage class:* Well drained
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)
*Depth to water table:* More than 80 inches
*Frequency of flooding:* None
*Frequency of ponding:* None
*Available water capacity:* Moderate (about 8.1 inches)

**Interpretive groups**

*Land capability (nonirrigated):* 7e
*Ecological site:* High Mountain Loam (Aspen) (R047XA508UT)

**Typical profile**

*0 to 16 inches:* Loam
*16 to 23 inches:* Loam
*23 to 48 inches:* Clay loam
*48 to 52 inches:* Weathered bedrock

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# RECLAIMED COAL: SGS Lab Sheets

# Analysis Report

August 13, 2010



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USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 4-CP | **Mine :** | Kinney Pad |
| **Date Received:** | 09/24/2007 | **Sample Type :** | -4 Mesh Moist |
| **Matrix:** | Coal | | |
| **Net Sample Weight:** | 1690.50 | | |

**SGS Minerals Sample ID: 072-28962-001**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 9.92 | | |
| % Ash | [ASTM D 3174/5142] | 7.69 | 8.53 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 11266 | 12507 | 13674 |
| % Sulfur | [ASTM D 4239] | 0.52 | 0.58 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 6.82 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.46 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 0.92 | lb | ASTM D 5865 |

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# Analysis Report

August 13, 2010



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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 5-CP | **Mine :** | Kinney Pad |
| **Date Received:** | 09/24/2007 | **Sample Type :** | -4 Mesh Moist |
| **Matrix:** | Coal | | |
| **Net Sample Weight:** | 1976.90 | | |

**SGS Minerals Sample ID: 072-28962-002**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 9.60 | | |
| % Ash | [ASTM D 3174/5142] | 9.09 | 10.06 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 11071 | 12247 | 13616 |
| % Sulfur | [ASTM D 4239] | 0.57 | 0.63 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 8.21 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.51 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 1.03 | lb | ASTM D 5865 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 6-CP | **Mine :** | Kinney Pad |
| **Date Received:** | 09/24/2007 | **Sample Type :** | -4 Mesh Moist |
| **Matrix:** | Coal | | |
| **Net Sample Weight:** | 1981.50 | | |

**SGS Minerals Sample ID: 072-28962-003**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 9.86 | | |
| % Ash | [ASTM D 3174/5142] | 9.13 | 10.13 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 10803 | 11985 | 13336 |
| % Sulfur | [ASTM D 4239] | 0.56 | 0.62 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 8.45 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.52 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 1.03 | lb | ASTM D 5865 |

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**Client Sample ID:** 7-CP
**Date Received:** 09/24/2007
**Matrix:** Coal
**Net Sample Weight:** 2054.90

**Mine :** Kinney Pad
**Sample Type :** -4 Mesh Moist

**SGS Minerals Sample ID: 072-28962-004**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 9.16 | | |
| % Ash | [ASTM D 3174/5142] | 8.92 | 9.82 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 11124 | 12245 | 13579 |
| % Sulfur | [ASTM D 4239] | 0.57 | 0.62 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 8.02 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.51 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 1.02 | lb | ASTM D 5865 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 8-CP | **Mine :** | Kinney Pad |
| **Date Received:** | 09/24/2007 | **Sample Type :** | -4 Mesh Moist |
| **Matrix:** | Coal | | |
| **Net Sample Weight:** | 1783.60 | | |

**SGS Minerals Sample ID: 072-28962-005**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 12.09 | | |
| % Ash | [ASTM D 3174/5142] | 8.20 | 9.33 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 10584 | 12040 | 13279 |
| % Sulfur | [ASTM D 4239] | 0.51 | 0.58 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 7.75 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.48 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 0.96 | lb | ASTM D 5865 |

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|---|---|---|---|
| **Client Sample ID:** | 9-CP | **Mine :** | Kinney Pad |
| **Date Received:** | 09/24/2007 | **Sample Type :** | -4 Mesh Moist |
| **Matrix:** | Coal | | |
| **Net Sample Weight:** | 1660.50 | | |

**SGS Minerals Sample ID: 072-28962-006**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 9.51 | | |
| % Ash | [ASTM D 3174/5142] | 8.54 | 9.43 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 11071 | 12234 | 13509 |
| % Sulfur | [ASTM D 4239] | 0.51 | 0.56 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 7.71 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.46 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 0.92 | lb | ASTM D 5865 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 10-CP | **Mine :** | Kinney Pad |
| **Date Received:** | 09/24/2007 | **Sample Type :** | -4 Mesh Moist |
| **Matrix:** | Coal | | |
| **Net Sample Weight:** | 1855.60 | | |

**SGS Minerals Sample ID: 072-28962-007**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 8.81 | | |
| % Ash | [ASTM D 3174/5142] | 8.95 | 9.81 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 11181 | 12261 | 13596 |
| % Sulfur | [ASTM D 4239] | 0.60 | 0.66 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 8.00 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.54 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 1.08 | lb | ASTM D 5865 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 11-CP | **Mine :** | Kinney Pad |
| **Date Received:** | 09/24/2007 | **Sample Type :** | -4 Mesh Moist |
| **Matrix:** | Coal | | |
| **Net Sample Weight:** | 1961.30 | | |

**SGS Minerals Sample ID: 072-28962-008**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 10.61 | | |
| % Ash | [ASTM D 3174/5142] | 11.42 | 12.77 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 10486 | 11730 | 13448 |
| % Sulfur | [ASTM D 4239] | 0.46 | 0.52 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 10.89 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.44 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 0.88 | lb | ASTM D 5865 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 12-CP | **Mine :** | Kinney Pad |
| **Date Received:** | 09/24/2007 | **Sample Type :** | -4 Mesh Moist |
| **Matrix:** | Coal | | |
| **Net Sample Weight:** | 1967.70 | | |

**SGS Minerals Sample ID: 072-28962-009**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 9.46 | | |
| % Ash | [ASTM D 3174/5142] | 8.85 | 9.77 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 10941 | 12084 | 13393 |
| % Sulfur | [ASTM D 4239] | 0.50 | 0.55 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 8.09 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.46 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 0.91 | lb | ASTM D 5865 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 13-CP | **Mine :** | Kinney Pad |
| **Date Received:** | 09/24/2007 | **Sample ID :** | W 1' 4' ? |
| **Matrix:** | Coal | **Sample Type :** | -4 Mesh Moist |
| **Net Sample Weight:** | 1588.20 | | |

**SGS Minerals Sample ID: 072-28962-010**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 10.42 | | |
| % Ash | [ASTM D 3174/5142] | 8.55 | 9.55 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 11018 | 12299 | 13597 |
| % Sulfur | [ASTM D 4239] | 0.52 | 0.58 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 7.76 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.47 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 0.94 | lb | ASTM D 5865 |

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**Client Sample ID:** 15-CS-1
**Date Received:** 09/24/2007
**Matrix:** Coal
**Net Sample Weight:** 2415.60

**Mine :** Kinney Pad
**Sample Type :** -4 Mesh Moist

**SGS Minerals Sample ID: 072-28962-011**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 9.22 | | |
| % Ash | [ASTM D 3174/5142] | 13.17 | 14.51 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 9986 | 10999 | 12866 |
| % Sulfur | [ASTM D 4239] | 0.45 | 0.50 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 13.19 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.45 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 0.91 | lb | ASTM D 5865 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 9-B | **Mine :** | Kinney Pad |
| **Date Received:** | 09/24/2007 | **Sample ID :** | 30 - 52 Clean Coal |
| **Matrix:** | Coal | **Sample Type :** | -4 Mesh Moist |
| **Net Sample Weight:** | 1971.30 | | |

**SGS Minerals Sample ID: 072-28962-012**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 8.48 | | |
| % Ash | [ASTM D 3174/5142] | 11.75 | 12.84 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 10581 | 11562 | 13265 |
| % Sulfur | [ASTM D 4239] | 0.66 | 0.72 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 11.11 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.62 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 1.24 | lb | ASTM D 5865 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | D-4 | **Mine :** | Kinney Pad |
| **Date Received:** | 09/24/2007 | **Sample ID :** | 19" - 72" |
| **Matrix:** | Coal | **Sample Type :** | -2" Moist |
| **Net Sample Weight:** | 3054.40 | | |

**SGS Minerals Sample ID: 072-28962-013**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 12.47 | | |
| % Ash | [ASTM D 3174/5142] | 41.28 | 47.16 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 5929 | 6774 | 12820 |
| % Sulfur | [ASTM D 4239] | 0.44 | 0.51 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 69.62 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.75 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 1.49 | lb | ASTM D 5865 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | DA-9-B | **Mine :** | Kinney Pad |
| **Date Received:** | 09/24/2007 | **Sample ID :** | 14" - 54" |
| **Matrix:** | Coal | **Sample Type :** | -2" Moist |
| **Net Sample Weight:** | 3852.40 | | |

**SGS Minerals Sample ID: 072-28962-014**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 15.19 | | |
| % Ash | [ASTM D 3174/5142] | 34.89 | 41.14 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 6496 | 7660 | 13013 |
| % Sulfur | [ASTM D 4239] | 0.40 | 0.47 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 53.71 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.61 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 1.22 | lb | ASTM D 5865 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | D9-A Coal | **Mine :** | Kinney Pad |
| **Date Received:** | 09/24/2007 | **Sample Type :** | -2" Moist |
| **Matrix:** | Coal | | |
| **Net Sample Weight:** | 1653.10 | | |

**SGS Minerals Sample ID: 072-28962-015**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 7.29 | | |
| % Ash | [ASTM D 3174/5142] | 34.08 | 36.76 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 7726 | 8333 | 13176 |
| % Sulfur | [ASTM D 4239] | 0.55 | 0.59 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 44.11 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.71 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 1.42 | lb | ASTM D 5865 |

Somer Rodriguez, Denver Laboratory



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# Analysis Report

August 13, 2010



Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | D9-A | **Mine :** | Kinney Pad |
| **Date Received:** | 09/24/2007 | **Sample ID :** | Coal Spa? |
| **Matrix:** | Coal | **Sample Type :** | -2" Moist |
| **Net Sample Weight:** | 2990.00 | | |

**SGS Minerals Sample ID: 072-28962-016**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 6.81 | | |
| % Ash | [ASTM D 3174/5142] | 37.09 | 39.80 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 7312 | 7847 | 13035 |
| % Sulfur | [ASTM D 4239] | 0.52 | 0.55 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 50.72 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.71 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 1.41 | lb | ASTM D 5865 |

Somer Rodriguez, Denver Laboratory

SGS North America Inc. | Minerals Services Division
4665 Paris St Suite B-200 Denver CO 80239
t (303) 373-4772 f (303) 373-4791 www.sgs.com/minerals

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# Analysis Report

August 13, 2010



Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | D-11 | **Mine :** | Kinney Pad |
| **Date Received:** | 09/24/2007 | **Sample ID :** | 11 - 48 Coal Material |
| **Matrix:** | Coal | **Sample Type :** | -2" Moist |
| **Net Sample Weight:** | 2812.30 | | |

**SGS Minerals Sample ID: 072-28962-017**

| | | As Received | Dry | MAF |
|---|---|---|---|---|
| % Moisture, Total | [ASTM D 3302] | 11.33 | | |
| % Ash | [ASTM D 3174/5142] | 34.95 | 39.41 | |
| Gross Calorific Value (Btu/lb) | [ASTM D 5865] | 7063 | 7965 | 13146 |
| % Sulfur | [ASTM D 4239] | 0.41 | 0.46 | |

| Tests | Result | Unit | Method |
|---|---|---|---|
| Pounds of Ash/mm Btu | 49.48 | lb | ASTM D 5865 |
| Pounds of Sulfur/mm Btu | 0.57 | lb | ASTM D 5865 |
| Pounds of SO2/mm Btu | 1.15 | lb | ASTM D 5865 |

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ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Analytical Report

December 21, 2006

Report to:
Clay Wisdom
Carbon Resources
PO Box 1789
Albuquerque, NM 87192

Bill to:
Clay Wisdom
Carbon Resources
PO Box 11789
Albuquerque, NM 87192

cc: Bruce Chesler, Greg Hunt

Project ID:
ACZ Project ID: L59731

Clay Wisdom:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 31, 2006. This project has been assigned to ACZ's project number, L59731. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L59731. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 21, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

Sue Webber 21/Dec/06

Sue Webber, Project Manager, has reviewed and approved this report in its entirety.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Case Narrative

Carbon Resources

December 21, 2006

Project ID:
ACZ Project ID: L59731

## Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 20 soil samples from Carbon Resources on October 31, 2006. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L59731. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

## Holding Times

All analyses were not performed within EPA recommended holding times. The EPA holding times apply to water samples, not soil so the "H" flags are not applicable.

## Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The following anomalies required further explanation not provided by the Extended Qualifier Report:

1. For Nitrate/Nitrite, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

2. For Total Kjeldahl Nitrogen values flagged with an "N1", the Laboratory Fortified Blank (LFB) failed high due to suspected ammonia contamination in the tube. The data was flagged and accepted since there are no specified control limits for the soil method.

3. For Phosphorus, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-1 0-6"

ACZ Sample ID: ***L59731-01***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 11:01 | jtf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.57 | | * | meq/L | 0.01 | 0.05 | 12/14/06 16:55 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.12 | | * | meq/L | 0.02 | 0.08 | 12/14/06 16:55 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 140 | | | mg/Kg | 20 | 50 | 11/29/06 4:42 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.324 | | * | meq/L | 0.008 | 0.03 | 12/14/06 16:55 | gme |
| Sodium Absorption Ratio | Calculation | 0.23 | | | | 0.03 | 0.15 | 12/20/06 0:00 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.22 | | * | meq/L | 0.01 | 0.04 | 12/14/06 16:55 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.4 | | * | % | 0.1 | 0.5 | 11/14/06 15:11 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.247 | | * | mmhos/cm | 0.001 | 0.01 | 11/15/06 11:00 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 2.3 | | * | % | 0.1 | 0.5 | 11/16/06 8:43 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.9 | | * | units | 0.1 | 0.1 | 11/15/06 11:00 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 34.60 | | * | % | 0.01 | 0.1 | 11/15/06 11:00 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 91.5 | | * | % Passing | 0.1 | 0.5 | 11/29/06 8:00 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 75.6 | | * | % Passing | 0.1 | 0.5 | 11/21/06 11:00 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 88.1 | | * | % | 0.1 | 0.5 | 11/19/06 16:14 | erf/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 16.3 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 72.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 11.3 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-1 0-6"

ACZ Sample ID: ***L59731-01***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/21/06 17:28 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:00 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 15:05 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/14/06 17:00 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 8:00 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.1 | | | mg/Kg | 0.2 | 1 | 12/20/06 0:00 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.1 | H | * | mg/Kg | 0.2 | 1 | 11/29/06 19:41 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 11/29/06 19:41 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.15 | H | * | % | 0.01 | 0.05 | 11/16/06 13:06 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 28 | H | * | mg/Kg | 1 | 5 | 11/28/06 17:48 | jag |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-1 6-16"

ACZ Sample ID: ***L59731-02***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 11:32 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.28 | | * | meq/L | 0.01 | 0.05 | 12/14/06 17:02 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.15 | | * | meq/L | 0.02 | 0.08 | 12/14/06 17:02 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 80 | | | mg/Kg | 20 | 50 | 11/29/06 4:50 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.070 | | * | meq/L | 0.008 | 0.03 | 12/14/06 17:02 | gme |
| Sodium Absorption Ratio | Calculation | 0.11 | B | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.10 | | * | meq/L | 0.01 | 0.04 | 12/14/06 17:02 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 23.3 | | * | % | 0.1 | 0.5 | 11/14/06 19:34 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.215 | | * | mmhos/cm | 0.001 | 0.01 | 11/15/06 13:18 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.2 | | * | % | 0.1 | 0.5 | 11/16/06 9:05 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.1 | | * | units | 0.1 | 0.1 | 11/15/06 13:18 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 53.40 | | * | % | 0.01 | 0.1 | 11/15/06 13:18 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 87.8 | | * | % Passing | 0.1 | 0.5 | 11/29/06 8:12 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 95.4 | | * | % Passing | 0.1 | 0.5 | 11/21/06 11:18 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 91.5 | | * | % | 0.1 | 0.5 | 11/19/06 18:42 | erf/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 15.0 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 70.0 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 15.0 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-1 6-16"

ACZ Sample ID: ***L59731-02***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/21/06 19:25 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:01 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 15:17 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/14/06 18:36 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 8:14 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.1 | | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.1 | H | * | mg/Kg | 0.2 | 1 | 11/29/06 19:43 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 11/29/06 19:43 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.30 | H | * | % | 0.01 | 0.06 | 11/16/06 13:09 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 36 | H | * | mg/Kg | 1 | 5 | 11/28/06 17:51 | jag |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-1 16-25"

ACZ Sample ID: ***L59731-03***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 12:03 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.82 | | * | meq/L | 0.01 | 0.05 | 12/14/06 17:06 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.14 | | * | meq/L | 0.02 | 0.08 | 12/14/06 17:06 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 70 | | | mg/Kg | 20 | 50 | 11/29/06 5:14 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.096 | | * | meq/L | 0.008 | 0.03 | 12/14/06 17:06 | gme |
| Sodium Absorption Ratio | Calculation | 0.08 | B | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.06 | | * | meq/L | 0.01 | 0.04 | 12/14/06 17:06 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.7 | | * | % | 0.1 | 0.5 | 11/14/06 21:45 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.182 | | * | mmhos/cm | 0.001 | 0.01 | 11/15/06 14:27 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 3.4 | | * | % | 0.1 | 0.5 | 11/16/06 9:27 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.5 | | * | units | 0.1 | 0.1 | 11/15/06 14:27 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 35.80 | | * | % | 0.01 | 0.1 | 11/15/06 14:27 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 91.9 | | * | % Passing | 0.1 | 0.5 | 11/29/06 8:25 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 70.0 | | * | % Passing | 0.1 | 0.5 | 11/21/06 11:37 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 91.2 | | * | % | 0.1 | 0.5 | 11/19/06 19:57 | erf/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 16.3 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 76.3 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 7.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-1 16-25"

ACZ Sample ID: ***L59731-03***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/21/06 20:24 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:03 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 15:22 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/14/06 19:24 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 8:28 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.6 | | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.6 | H | * | mg/Kg | 0.2 | 1 | 11/29/06 19:46 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 11/29/06 19:46 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.057 | H | * | % | 0.002 | 0.008 | 11/16/06 13:11 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 14 | H | * | mg/Kg | 1 | 5 | 11/28/06 17:52 | jag |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-1 25-40"

ACZ Sample ID: ***L59731-04***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 12:19 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.76 | | * | meq/L | 0.01 | 0.05 | 12/14/06 17:09 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.15 | | * | meq/L | 0.02 | 0.08 | 12/14/06 17:09 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 60 | | | mg/Kg | 20 | 50 | 11/29/06 5:18 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.081 | | * | meq/L | 0.008 | 0.03 | 12/14/06 17:09 | gme |
| Sodium Absorption Ratio | Calculation | 0.11 | B | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.08 | | * | meq/L | 0.01 | 0.04 | 12/14/06 17:09 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.9 | | * | % | 0.1 | 0.5 | 11/14/06 23:57 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.158 | | * | mmhos/cm | 0.001 | 0.01 | 11/15/06 15:36 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.2 | B | * | % | 0.1 | 0.5 | 11/16/06 9:49 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.3 | | * | units | 0.1 | 0.1 | 11/15/06 15:36 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 34.60 | | * | % | 0.01 | 0.1 | 11/15/06 15:36 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 88.6 | | * | % Passing | 0.1 | 0.5 | 11/29/06 8:37 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 88.7 | | * | % Passing | 0.1 | 0.5 | 11/21/06 11:56 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 95.5 | | * | % | 0.1 | 0.5 | 11/19/06 21:11 | erf/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 13.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 73.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 12.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-1 25-40"

ACZ Sample ID: ***L59731-04***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/21/06 21:22 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:04 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 15:28 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/14/06 20:12 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 8:42 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.9 | B | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.9 | BH | * | mg/Kg | 0.2 | 1 | 11/29/06 19:47 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 11/29/06 19:47 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.062 | H | * | % | 0.002 | 0.01 | 11/16/06 13:12 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 29 | H | * | mg/Kg | 1 | 5 | 11/28/06 17:54 | jag |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-1 40-65"

ACZ Sample ID: ***L59731-05***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 12:34 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.04 | | * | meq/L | 0.01 | 0.05 | 12/14/06 17:12 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.22 | | * | meq/L | 0.02 | 0.08 | 12/14/06 17:12 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 50 | B | | mg/Kg | 20 | 50 | 11/29/06 5:22 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.076 | | * | meq/L | 0.008 | 0.03 | 12/14/06 17:12 | gme |
| Sodium Absorption Ratio | Calculation | 0.11 | B | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.09 | | * | meq/L | 0.01 | 0.04 | 12/14/06 17:12 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.6 | | * | % | 0.1 | 0.5 | 11/15/06 2:08 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.214 | | * | mmhos/cm | 0.001 | 0.01 | 11/15/06 16:45 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.2 | B | * | % | 0.1 | 0.5 | 11/16/06 10:10 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.3 | | * | units | 0.1 | 0.1 | 11/15/06 16:45 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 30.20 | | * | % | 0.01 | 0.1 | 11/15/06 16:45 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 91.5 | | * | % Passing | 0.1 | 0.5 | 11/29/06 8:50 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 78.5 | | * | % Passing | 0.1 | 0.5 | 11/21/06 12:15 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 94.3 | | * | % | 0.1 | 0.5 | 11/19/06 22:25 | erf/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 12.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 80.0 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 7.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-1 40-65"

ACZ Sample ID: ***L59731-05***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/21/06 22:21 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:06 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 15:34 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/14/06 21:00 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 8:56 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | | U | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.9 | BH | * | mg/Kg | 0.2 | 1 | 11/29/06 19:52 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/29/06 19:52 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.036 | H | * | % | 0.002 | 0.01 | 11/16/06 13:13 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 20 | H | * | mg/Kg | 1 | 5 | 11/28/06 17:55 | jag |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-1 65-90"

ACZ Sample ID: ***L59731-06***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 12:50 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.36 | | * | meq/L | 0.01 | 0.05 | 12/14/06 17:16 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.24 | | * | meq/L | 0.02 | 0.08 | 12/14/06 17:16 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 70 | | | mg/Kg | 20 | 50 | 11/29/06 5:26 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.054 | | * | meq/L | 0.008 | 0.03 | 12/14/06 17:16 | gme |
| Sodium Absorption Ratio | Calculation | 0.15 | | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.14 | | * | meq/L | 0.01 | 0.04 | 12/14/06 17:16 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.5 | | * | % | 0.1 | 0.5 | 11/15/06 4:20 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.257 | | * | mmhos/cm | 0.001 | 0.01 | 11/15/06 17:54 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.5 | B | * | % | 0.1 | 0.5 | 11/16/06 10:32 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.3 | | * | units | 0.1 | 0.1 | 11/15/06 17:54 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 31.10 | | * | % | 0.01 | 0.1 | 11/15/06 17:54 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 93.8 | | * | % Passing | 0.1 | 0.5 | 11/29/06 9:03 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 67.1 | | * | % Passing | 0.1 | 0.5 | 11/21/06 12:34 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 94.2 | | * | % | 0.1 | 0.5 | 11/19/06 23:39 | erf/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 12.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 83.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 3.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | LS | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-1 65-90"

ACZ Sample ID: ***L59731-06***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/21/06 23:19 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:07 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 15:40 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/14/06 21:48 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 9:11 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | | U | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.9 | BH | * | mg/Kg | 0.2 | 1 | 11/29/06 19:53 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/29/06 19:53 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.033 | H | * | % | 0.002 | 0.01 | 11/16/06 13:14 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 20 | H | * | mg/Kg | 1 | 5 | 11/28/06 17:56 | jag |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-2 0-6"

ACZ Sample ID: ***L59731-07***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 13:36 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.80 | | * | meq/L | 0.01 | 0.05 | 12/14/06 17:26 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.16 | | * | meq/L | 0.02 | 0.08 | 12/14/06 17:26 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 90 | | | mg/Kg | 20 | 50 | 11/29/06 5:30 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.105 | | * | meq/L | 0.008 | 0.03 | 12/14/06 17:26 | gme |
| Sodium Absorption Ratio | Calculation | 0.08 | B | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.06 | | * | meq/L | 0.01 | 0.04 | 12/14/06 17:26 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.1 | | * | % | 0.1 | 0.5 | 11/15/06 6:31 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.178 | | * | mmhos/cm | 0.001 | 0.01 | 11/15/06 19:03 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.6 | | * | % | 0.1 | 0.5 | 11/16/06 10:54 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.3 | | * | units | 0.1 | 0.1 | 11/15/06 19:03 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 33.50 | | * | % | 0.01 | 0.1 | 11/15/06 19:03 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 91.4 | | * | % Passing | 0.1 | 0.5 | 11/29/06 9:15 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 68.8 | | * | % Passing | 0.1 | 0.5 | 11/21/06 12:53 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 92.2 | | * | % | 0.1 | 0.5 | 11/20/06 0:54 | erf/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 15.0 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 77.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 7.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-2 0-6"

ACZ Sample ID: ***L59731-07***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/22/06 0:18 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:09 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 15:45 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/14/06 22:36 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 9:25 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.2 | B | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.9 | BH | * | mg/Kg | 0.2 | 1 | 11/29/06 19:54 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 11/29/06 19:54 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.060 | H | * | % | 0.006 | 0.03 | 11/16/06 13:52 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 15 | H | * | mg/Kg | 1 | 5 | 11/28/06 17:59 | jag |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-2 6-24"

ACZ Sample ID: ***L59731-08***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 13:52 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.16 | | * | meq/L | 0.01 | 0.05 | 12/14/06 17:29 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.13 | | * | meq/L | 0.02 | 0.08 | 12/14/06 17:29 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 80 | | | mg/Kg | 20 | 50 | 11/29/06 5:34 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.075 | | * | meq/L | 0.008 | 0.03 | 12/14/06 17:29 | gme |
| Sodium Absorption Ratio | Calculation | 0.05 | B | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.02 | B | * | meq/L | 0.01 | 0.04 | 12/14/06 17:29 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.3 | B | * | % | 0.1 | 0.5 | 11/15/06 8:42 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.497 | | * | mmhos/cm | 0.001 | 0.01 | 11/15/06 20:12 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.4 | B | * | % | 0.1 | 0.5 | 11/16/06 11:16 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.3 | | * | units | 0.1 | 0.1 | 11/15/06 20:12 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 33.30 | | * | % | 0.01 | 0.1 | 11/15/06 20:12 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 91.1 | | * | % Passing | 0.1 | 0.5 | 11/29/06 9:28 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 72.6 | | * | % Passing | 0.1 | 0.5 | 11/21/06 13:12 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 91.1 | | * | % | 0.1 | 0.5 | 11/20/06 2:08 | erf/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 13.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 78.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 7.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-2 6-24"

ACZ Sample ID: ***L59731-08***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/22/06 1:17 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:11 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 15:51 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/14/06 23:24 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 9:39 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | | U | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.9 | BH | * | mg/Kg | 0.2 | 1 | 11/29/06 19:55 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/29/06 19:55 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.030 | H | * | % | 0.002 | 0.009 | 11/16/06 13:53 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 13 | H | * | mg/Kg | 1 | 5 | 11/28/06 18:00 | jag |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-3 0-10"

ACZ Sample ID: ***L59731-09***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 14:07 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 0.57 | | * | mg/Kg | 0.05 | 0.3 | 11/18/06 4:52 | wfg |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.20 | | * | meq/L | 0.01 | 0.05 | 12/14/06 17:33 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.21 | | * | meq/L | 0.02 | 0.08 | 12/14/06 17:33 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 320 | | | mg/Kg | 20 | 50 | 11/29/06 5:38 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.325 | | * | meq/L | 0.008 | 0.03 | 12/14/06 17:33 | gme |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 11/30/06 15:22 | djt |
| Sodium Absorption Ratio | Calculation | 0.08 | B | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.07 | | * | meq/L | 0.01 | 0.04 | 12/14/06 17:33 | gme |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-3 0-10"

ACZ Sample ID: ***L59731-09***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 0 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 14 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 14 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 2.3 | | * | % | 0.1 | 0.5 | 11/15/06 10:54 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.271 | | * | mmhos/cm | 0.001 | 0.01 | 11/15/06 21:21 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.4 | | * | % | 0.1 | 0.5 | 11/16/06 11:38 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.6 | | * | units | 0.1 | 0.1 | 11/15/06 21:21 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 40.70 | | * | % | 0.01 | 0.1 | 11/15/06 21:21 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 92.4 | | * | % Passing | 0.1 | 0.5 | 11/29/06 9:41 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 81.1 | | * | % Passing | 0.1 | 0.5 | 11/21/06 13:31 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 88.8 | | * | % | 0.1 | 0.5 | 11/20/06 3:22 | erf/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.01 | B | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | 0.01 | B | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Sulfur Sulfate | | | U | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Sulfur Total | | 0.02 | B | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.02 | B | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 18.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 72.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 8.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-3 0-10"

ACZ Sample ID: ***L59731-09***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/22/06 2:15 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:12 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/17/06 9:15 | srs/aep |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 15:57 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/15/06 0:12 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 9:53 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.5 | | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.5 | H | * | mg/Kg | 0.2 | 1 | 11/29/06 19:56 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 11/29/06 19:56 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.32 | H | * | % | 0.02 | 0.1 | 11/16/06 13:54 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 29 | H | * | mg/Kg | 1 | 5 | 11/28/06 18:01 | jag |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-3 10-20"

ACZ Sample ID: ***L59731-10***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 14:23 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 0.66 | | * | mg/Kg | 0.05 | 0.3 | 11/18/06 5:00 | wfg |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.52 | | * | meq/L | 0.01 | 0.05 | 12/14/06 17:36 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.24 | | * | meq/L | 0.02 | 0.08 | 12/14/06 17:36 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 190 | | | mg/Kg | 20 | 50 | 11/29/06 5:42 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.175 | | * | meq/L | 0.008 | 0.03 | 12/14/06 17:36 | gme |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 11/30/06 15:29 | djt |
| Sodium Absorption Ratio | Calculation | 0.09 | B | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.09 | | * | meq/L | 0.01 | 0.04 | 12/14/06 17:36 | gme |



** Please refer to Qualifier Reports for detail.*

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-3 10-20"

ACZ Sample ID: ***L59731-10***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 0 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 15 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 15 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.7 | | * | % | 0.1 | 0.5 | 11/15/06 13:05 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.273 | | * | mmhos/cm | 0.001 | 0.01 | 11/15/06 22:30 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.5 | | * | % | 0.1 | 0.5 | 11/16/06 11:59 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.5 | | * | units | 0.1 | 0.1 | 11/15/06 22:30 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 35.30 | | * | % | 0.01 | 0.1 | 11/15/06 22:30 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 92.6 | | * | % Passing | 0.1 | 0.5 | 11/29/06 9:53 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 75.2 | | * | % Passing | 0.1 | 0.5 | 11/21/06 13:50 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 93.7 | | * | % | 0.1 | 0.5 | 11/20/06 4:37 | erf/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.02 | B | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | | U | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Sulfur Sulfate | | | U | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Sulfur Total | | 0.02 | B | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.02 | B | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 17.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 71.3 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 11.3 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-3 10-20"

ACZ Sample ID: ***L59731-10***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/22/06 3:14 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:14 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/17/06 9:45 | srs/aep |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 16:02 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/15/06 1:00 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 10:07 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.9 | B | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.9 | BH | * | mg/Kg | 0.2 | 1 | 11/29/06 19:58 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 11/29/06 19:58 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.108 | H | * | % | 0.004 | 0.02 | 11/16/06 13:56 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 20 | H | * | mg/Kg | 1 | 5 | 11/28/06 18:02 | jag |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-3 20-40"

ACZ Sample ID: ***L59731-11***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 14:38 | jtf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 0.65 | | * | mg/Kg | 0.05 | 0.3 | 11/18/06 5:24 | wfg |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.68 | | * | meq/L | 0.01 | 0.05 | 12/14/06 17:39 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.14 | | * | meq/L | 0.02 | 0.08 | 12/14/06 17:39 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 110 | | | mg/Kg | 20 | 50 | 11/29/06 5:46 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.073 | | * | meq/L | 0.008 | 0.03 | 12/14/06 17:39 | gme |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 11/30/06 13:41 | djt |
| Sodium Absorption Ratio | Calculation | 0.09 | B | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.06 | | * | meq/L | 0.01 | 0.04 | 12/14/06 17:39 | gme |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-3 20-40"

ACZ Sample ID: ***L59731-11***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 0 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 10 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 10 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.6 | | * | % | 0.1 | 0.5 | 11/15/06 15:17 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.169 | | * | mmhos/cm | 0.001 | 0.01 | 11/15/06 23:39 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.0 | | * | % | 0.1 | 0.5 | 11/16/06 12:21 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.6 | | * | units | 0.1 | 0.1 | 11/15/06 23:39 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 37.00 | | * | % | 0.01 | 0.1 | 11/15/06 23:39 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 91.1 | | * | % Passing | 0.1 | 0.5 | 11/29/06 10:06 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 81.7 | | * | % Passing | 0.1 | 0.5 | 11/21/06 14:09 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 95.4 | | * | % | 0.1 | 0.5 | 11/20/06 5:51 | erf/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.02 | B | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | | U | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Sulfur Sulfate | | 0.01 | B | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Sulfur Total | | 0.02 | B | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.01 | B | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 18.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 72.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 8.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-3 20-40"

ACZ Sample ID: ***L59731-11***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/22/06 4:12 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:15 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/17/06 10:00 | srs/aep |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 16:08 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/15/06 1:48 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 10:22 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.4 | B | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.2 | H | * | mg/Kg | 0.2 | 1 | 11/29/06 19:59 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/29/06 19:59 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.092 | H | * | % | 0.003 | 0.01 | 11/16/06 13:57 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 16 | H | * | mg/Kg | 1 | 5 | 11/28/06 18:03 | jag |

ACZ Laboratories, Inc.
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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-3 40-60"

ACZ Sample ID: ***L59731-12***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 14:54 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 0.48 | | * | mg/Kg | 0.05 | 0.3 | 11/18/06 5:28 | wfg |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.13 | | * | meq/L | 0.01 | 0.05 | 12/14/06 17:43 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.26 | | * | meq/L | 0.02 | 0.08 | 12/14/06 17:43 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 110 | | | mg/Kg | 20 | 50 | 11/29/06 5:50 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.058 | | * | meq/L | 0.008 | 0.03 | 12/14/06 17:43 | gme |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 11/30/06 13:45 | djt |
| Sodium Absorption Ratio | Calculation | 0.08 | B | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.07 | | * | meq/L | 0.01 | 0.04 | 12/14/06 17:43 | gme |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-3 40-60"

ACZ Sample ID: ***L59731-12***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 0 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 18 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 18 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.8 | | * | % | 0.1 | 0.5 | 11/15/06 17:28 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.247 | | * | mmhos/cm | 0.001 | 0.01 | 11/16/06 0:48 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.8 | | * | % | 0.1 | 0.5 | 11/16/06 12:43 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.8 | | * | units | 0.1 | 0.1 | 11/16/06 0:48 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 38.90 | | * | % | 0.01 | 0.1 | 11/16/06 0:48 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 93.1 | | * | % Passing | 0.1 | 0.5 | 11/29/06 10:18 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 67.3 | | * | % Passing | 0.1 | 0.5 | 11/21/06 14:28 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 93.9 | | * | % | 0.1 | 0.5 | 11/20/06 7:05 | erf/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.02 | B | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | | U | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Sulfur Sulfate | | 0.01 | B | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Sulfur Total | | 0.03 | B | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.02 | B | * | % | 0.01 | 0.1 | 11/24/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 17.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 72.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 10.0 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-3 40-60"

ACZ Sample ID: ***L59731-12***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/22/06 5:11 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:17 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/17/06 10:15 | srs/aep |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 16:14 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/15/06 2:36 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 10:36 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.2 | B | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.0 | H | * | mg/Kg | 0.2 | 1 | 11/29/06 20:00 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/29/06 20:00 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.095 | H | * | % | 0.004 | 0.02 | 11/16/06 13:58 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 17 | H | * | mg/Kg | 1 | 5 | 11/28/06 18:05 | jag |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-3 60-75"

ACZ Sample ID: ***L59731-13***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 15:09 | jtf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 1.11 | | * | mg/Kg | 0.05 | 0.3 | 11/18/06 5:32 | wfg |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 13.40 | | * | meq/L | 0.01 | 0.05 | 12/14/06 17:46 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 5.67 | | * | meq/L | 0.02 | 0.08 | 12/14/06 17:46 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 130 | | | mg/Kg | 20 | 50 | 11/29/06 6:02 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.157 | | * | meq/L | 0.008 | 0.03 | 12/14/06 17:46 | gme |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 11/30/06 13:48 | djt |
| Sodium Absorption Ratio | Calculation | 0.05 | B | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.17 | | * | meq/L | 0.01 | 0.04 | 12/14/06 17:46 | gme |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-3 60-75"

ACZ Sample ID: ***L59731-13***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 4 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 18 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 14 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.9 | | * | % | 0.1 | 0.5 | 11/15/06 19:40 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.162 | | * | mmhos/cm | 0.001 | 0.01 | 11/16/06 1:57 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.8 | | * | % | 0.1 | 0.5 | 11/16/06 13:05 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.4 | | * | units | 0.1 | 0.1 | 11/16/06 1:57 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 37.90 | | * | % | 0.01 | 0.1 | 11/16/06 1:57 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 92.6 | | * | % Passing | 0.1 | 0.5 | 11/29/06 10:31 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 79.8 | | * | % Passing | 0.1 | 0.5 | 11/21/06 14:47 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 93.8 | | * | % | 0.1 | 0.5 | 11/20/06 8:19 | erf/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.02 | B | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | | U | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Sulfate | | 0.11 | | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Total | | 0.13 | | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.02 | B | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 17.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 72.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 10.0 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-3 60-75"

ACZ Sample ID: ***L59731-13***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/22/06 6:09 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:19 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/17/06 10:30 | srs/aep |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 16:20 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/15/06 3:24 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 10:50 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.4 | B | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.2 | H | * | mg/Kg | 0.2 | 1 | 11/29/06 20:01 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/29/06 20:01 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.16 | H | * | % | 0.01 | 0.05 | 11/16/06 13:59 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 15 | H | * | mg/Kg | 1 | 5 | 11/28/06 18:06 | jag |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-3

ACZ Sample ID: ***L59731-14***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 15:25 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 2.30 | | * | mg/Kg | 0.05 | 0.3 | 11/18/06 5:36 | wfg |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 15.30 | | * | meq/L | 0.01 | 0.05 | 12/14/06 17:49 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 3.06 | | * | meq/L | 0.02 | 0.08 | 12/14/06 17:49 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 80 | | | mg/Kg | 20 | 50 | 11/29/06 6:06 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.125 | | * | meq/L | 0.008 | 0.03 | 12/14/06 17:49 | gme |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 11/30/06 13:52 | djt |
| Sodium Absorption Ratio | Calculation | | U | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.07 | | * | meq/L | 0.01 | 0.04 | 12/14/06 17:49 | gme |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-3

ACZ Sample ID: ***L59731-14***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 14 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 33 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 19 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 30.1 | | * | % | 0.1 | 0.5 | 11/15/06 21:51 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.156 | | * | mmhos/cm | 0.001 | 0.01 | 11/16/06 3:06 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 3.3 | | * | % | 0.1 | 0.5 | 11/16/06 13:27 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.3 | | * | units | 0.1 | 0.1 | 11/16/06 3:06 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 59.20 | | * | % | 0.01 | 0.1 | 11/16/06 3:06 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 98.1 | | * | % Passing | 0.1 | 0.5 | 11/29/06 10:44 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 49.5 | | * | % Passing | 0.1 | 0.5 | 11/21/06 15:06 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 90.2 | | * | % | 0.1 | 0.5 | 11/20/06 9:34 | erf/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.23 | | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | | U | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Sulfate | | 0.23 | | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Total | | 0.46 | | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.23 | | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 15.0 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 71.3 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 13.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-3

ACZ Sample ID: ***L59731-14***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/22/06 7:08 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:20 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/17/06 10:45 | srs/aep |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 16:25 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/15/06 4:12 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 11:04 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.0 | | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.0 | H | * | mg/Kg | 0.2 | 1 | 11/29/06 20:03 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 11/29/06 20:03 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.120 | | * | % | 0.004 | 0.02 | 11/16/06 14:00 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 5 | H | * | mg/Kg | 1 | 5 | 11/28/06 18:07 | jag |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-4 0-8"

ACZ Sample ID: ***L59731-15***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 15:40 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.82 | | * | meq/L | 0.01 | 0.05 | 12/14/06 17:53 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.13 | | * | meq/L | 0.02 | 0.08 | 12/14/06 17:53 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 150 | | | mg/Kg | 20 | 50 | 11/29/06 6:10 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.071 | | * | meq/L | 0.008 | 0.03 | 12/14/06 17:53 | gme |
| Sodium Absorption Ratio | Calculation | 0.07 | B | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.05 | | * | meq/L | 0.01 | 0.04 | 12/14/06 17:53 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.4 | | * | % | 0.1 | 0.5 | 11/16/06 0:02 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.199 | | * | mmhos/cm | 0.001 | 0.01 | 11/16/06 4:15 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.2 | | * | % | 0.1 | 0.5 | 11/16/06 13:49 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.6 | | * | units | 0.1 | 0.1 | 11/16/06 4:15 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 40.20 | | * | % | 0.01 | 0.1 | 11/16/06 4:15 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 90.9 | | * | % Passing | 0.1 | 0.5 | 11/29/06 10:56 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 88.7 | | * | % Passing | 0.1 | 0.5 | 11/21/06 15:25 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 87.6 | | * | % | 0.1 | 0.5 | 11/20/06 10:48 | erf/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 17.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 71.3 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 11.3 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-4 0-8"

ACZ Sample ID: ***L59731-15***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/22/06 8:07 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:22 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 16:31 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/15/06 5:00 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 11:19 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.3 | | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.3 | H | * | mg/Kg | 0.2 | 1 | 11/29/06 20:07 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 11/29/06 20:07 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.063 | H | * | % | 0.002 | 0.01 | 11/16/06 14:01 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 22 | H | * | mg/Kg | 1 | 5 | 11/28/06 18:08 | jag |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-4 8-16"

ACZ Sample ID: ***L59731-16***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 15:56 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.47 | | * | meq/L | 0.01 | 0.05 | 12/14/06 17:56 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.12 | | * | meq/L | 0.02 | 0.08 | 12/14/06 17:56 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 150 | | | mg/Kg | 20 | 50 | 11/29/06 6:14 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.058 | | * | meq/L | 0.008 | 0.03 | 12/14/06 17:56 | gme |
| Sodium Absorption Ratio | Calculation | 0.05 | B | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.03 | B | * | meq/L | 0.01 | 0.04 | 12/14/06 17:56 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.3 | | * | % | 0.1 | 0.5 | 11/16/06 2:14 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.136 | | * | mmhos/cm | 0.001 | 0.01 | 11/16/06 5:24 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.9 | | * | % | 0.1 | 0.5 | 11/16/06 14:10 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.8 | | * | units | 0.1 | 0.1 | 11/16/06 5:24 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 39.20 | | * | % | 0.01 | 0.1 | 11/16/06 5:24 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 90.8 | | * | % Passing | 0.1 | 0.5 | 11/29/06 11:09 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 84.6 | | * | % Passing | 0.1 | 0.5 | 11/21/06 15:44 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 94.9 | | * | % | 0.1 | 0.5 | 11/20/06 12:02 | erf/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 18.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 68.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 12.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-4 8-16"

ACZ Sample ID: ***L59731-16***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/22/06 9:05 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:23 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 16:37 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/15/06 5:48 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 11:33 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.3 | B | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.1 | H | * | mg/Kg | 0.2 | 1 | 11/29/06 20:09 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/29/06 20:09 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.089 | H | * | % | 0.002 | 0.01 | 11/16/06 14:02 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 21 | H | * | mg/Kg | 1 | 5 | 11/28/06 18:09 | jag |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-4 19-72"

ACZ Sample ID: ***L59731-17***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 16:42 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 2.25 | | * | mg/Kg | 0.05 | 0.3 | 11/18/06 5:40 | wfg |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 16.90 | | * | meq/L | 0.01 | 0.05 | 12/14/06 18:06 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 8.58 | | * | meq/L | 0.02 | 0.08 | 12/14/06 18:06 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 90 | | | mg/Kg | 20 | 50 | 11/29/06 6:19 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.129 | | * | meq/L | 0.008 | 0.03 | 12/14/06 18:06 | gme |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 11/30/06 13:56 | djt |
| Sodium Absorption Ratio | Calculation | | U | | | 0.03 | 0.15 | 12/20/06 15:21 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.08 | | * | meq/L | 0.01 | 0.04 | 12/14/06 18:06 | gme |

ACZ Laboratories, Inc.
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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-4 19-72"

ACZ Sample ID: ***L59731-17***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 0 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 23 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 23 | | | t CaCO3/Kt | 1 | 5 | 12/20/06 15:21 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 3.2 | | * | % | 0.1 | 0.5 | 11/16/06 4:25 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.195 | | * | mmhos/cm | 0.001 | 0.01 | 11/16/06 6:33 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 2.3 | | * | % | 0.1 | 0.5 | 11/16/06 14:32 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.3 | | * | units | 0.1 | 0.1 | 11/16/06 6:33 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 61.60 | | * | % | 0.01 | 0.1 | 11/16/06 6:33 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 97.6 | | * | % Passing | 0.1 | 0.5 | 11/29/06 11:22 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 62.8 | | * | % Passing | 0.1 | 0.5 | 11/21/06 16:03 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 93.5 | | * | % | 0.1 | 0.5 | 11/20/06 13:17 | erf/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.01 | B | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | 0.01 | B | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Sulfate | | | U | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Total | | 0.02 | B | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.02 | B | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 16.3 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 77.5 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 6.3 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-4 19-72"

ACZ Sample ID: ***L59731-17***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/22/06 10:04 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:25 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/17/06 11:00 | srs/aep |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 16:42 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/15/06 6:36 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 11:47 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.1 | | | mg/Kg | 0.2 | 1 | 12/20/06 15:21 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.1 | H | * | mg/Kg | 0.2 | 1 | 11/29/06 20:10 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 11/29/06 20:10 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.68 | | * | % | 0.02 | 0.1 | 11/16/06 14:06 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 4 | BH | * | mg/Kg | 1 | 5 | 11/28/06 18:12 | jag |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-5 0-6"

ACZ Sample ID: ***L59731-18***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 16:58 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.17 | | * | meq/L | 0.01 | 0.05 | 12/14/06 18:10 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.24 | | * | meq/L | 0.02 | 0.08 | 12/14/06 18:10 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 140 | | | mg/Kg | 20 | 50 | 11/29/06 6:23 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.093 | | * | meq/L | 0.008 | 0.03 | 12/14/06 18:10 | gme |
| Sodium Absorption Ratio | Calculation | 0.07 | B | | | 0.03 | 0.15 | 12/20/06 15:22 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.06 | | * | meq/L | 0.01 | 0.04 | 12/14/06 18:10 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.5 | | * | % | 0.1 | 0.5 | 11/16/06 6:37 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.258 | | * | mmhos/cm | 0.001 | 0.01 | 11/16/06 7:42 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 2.3 | | * | % | 0.1 | 0.5 | 11/16/06 14:54 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.8 | | * | units | 0.1 | 0.1 | 11/16/06 7:42 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 45.90 | | * | % | 0.01 | 0.1 | 11/16/06 7:42 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 93.8 | | * | % Passing | 0.1 | 0.5 | 11/29/06 11:34 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 76.1 | | * | % Passing | 0.1 | 0.5 | 11/21/06 16:22 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 90.0 | | * | % | 0.1 | 0.5 | 11/20/06 14:31 | erf/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 21.3 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 65.0 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 13.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SCL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-5 0-6"

ACZ Sample ID: ***L59731-18***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/22/06 11:02 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:26 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 16:48 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/15/06 7:24 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 12:01 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.5 | B | | mg/Kg | 0.2 | 1 | 12/20/06 15:22 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.2 | H | * | mg/Kg | 0.2 | 1 | 11/29/06 20:11 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 11/29/06 20:11 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.115 | H | * | % | 0.003 | 0.02 | 11/16/06 14:07 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 24 | H | * | mg/Kg | 1 | 5 | 11/28/06 18:14 | jag |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-5 6-20"

ACZ Sample ID: ***L59731-19***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 17:13 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.81 | | * | meq/L | 0.01 | 0.05 | 12/14/06 18:13 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.15 | | * | meq/L | 0.02 | 0.08 | 12/14/06 18:13 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 90 | | | mg/Kg | 20 | 50 | 11/29/06 6:27 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.064 | | * | meq/L | 0.008 | 0.03 | 12/14/06 18:13 | gme |
| Sodium Absorption Ratio | Calculation | 0.07 | B | | | 0.03 | 0.15 | 12/20/06 15:22 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.05 | | * | meq/L | 0.01 | 0.04 | 12/14/06 18:13 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.4 | | * | % | 0.1 | 0.5 | 11/16/06 8:48 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.180 | | * | mmhos/cm | 0.001 | 0.01 | 11/16/06 8:51 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 2.6 | | * | % | 0.1 | 0.5 | 11/16/06 15:16 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.8 | | * | units | 0.1 | 0.1 | 11/16/06 8:51 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 47.00 | | * | % | 0.01 | 0.1 | 11/16/06 8:51 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 93.1 | | * | % Passing | 0.1 | 0.5 | 11/29/06 11:47 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 89.1 | | * | % Passing | 0.1 | 0.5 | 11/21/06 16:41 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 92.2 | | * | % | 0.1 | 0.5 | 11/20/06 15:45 | erf/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 21.3 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 65.0 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 13.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SCL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-5 6-20"

ACZ Sample ID: ***L59731-19***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/22/06 12:01 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:28 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 16:54 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/15/06 8:12 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 12:15 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.5 | B | | mg/Kg | 0.2 | 1 | 12/20/06 15:22 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.1 | H | * | mg/Kg | 0.2 | 1 | 11/29/06 20:12 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.6 | H | * | mg/Kg | 0.1 | 0.5 | 11/29/06 20:12 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.070 | H | * | % | 0.002 | 0.01 | 11/16/06 14:08 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 24 | H | * | mg/Kg | 1 | 5 | 11/28/06 18:15 | jag |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-5 20-40"

ACZ Sample ID: ***L59731-20***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/14/06 17:29 | jlf |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.34 | | * | meq/L | 0.01 | 0.05 | 12/14/06 18:16 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.10 | | * | meq/L | 0.02 | 0.08 | 12/14/06 18:16 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 80 | | | mg/Kg | 20 | 50 | 11/29/06 6:31 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.079 | | * | meq/L | 0.008 | 0.03 | 12/14/06 18:16 | gme |
| Sodium Absorption Ratio | Calculation | 0.08 | B | | | 0.03 | 0.15 | 12/20/06 15:22 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.04 | | * | meq/L | 0.01 | 0.04 | 12/14/06 18:16 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.0 | | * | % | 0.1 | 0.5 | 11/16/06 11:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.121 | | * | mmhos/cm | 0.001 | 0.01 | 11/16/06 10:00 | srs/aep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 2.7 | | * | % | 0.1 | 0.5 | 11/16/06 15:38 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.8 | | * | units | 0.1 | 0.1 | 11/16/06 10:00 | srs/aep |
| Saturation Percent | USDA No. 60 (2) | 52.20 | | * | % | 0.01 | 0.1 | 11/16/06 10:00 | srs/aep |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 94.2 | | * | % Passing | 0.1 | 0.5 | 11/29/06 12:00 | as/rje |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 84.7 | | * | % Passing | 0.1 | 0.5 | 11/21/06 17:00 | as |
| Solids, Percent | CLPSOW390, PART F, D-98 | 94.3 | | * | % | 0.1 | 0.5 | 11/20/06 16:59 | erf/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 21.3 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Sand | | 63.8 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Silt | | 15.0 | | * | % | 0.1 | 0.5 | 11/27/06 0:00 | brg |
| Texture Classification | | SCL | | * | | | | 11/27/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-5 20-40"

ACZ Sample ID: ***L59731-20***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/22/06 12:59 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:30 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 17:00 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/15/06 9:00 | erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 12:30 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.9 | B | | mg/Kg | 0.2 | 1 | 12/20/06 15:22 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.6 | H | * | mg/Kg | 0.2 | 1 | 11/29/06 20:14 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 11/29/06 20:14 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.035 | H | * | % | 0.002 | 0.01 | 11/16/06 14:09 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 20 | H | * | mg/Kg | 1 | 5 | 11/28/06 18:16 | jag |



** Please refer to Qualifier Reports for detail.*

## Report Header Explanations

| | |
|---|---|
| *Batch* | A distinct set of samples analyzed at a specific time |
| *Found* | Value of the QC Type of interest |
| *Limit* | Upper limit for RPD, in %. |
| *Lower* | Lower Recovery Limit, in % (except for LCSS, mg/Kg) |
| *MDL* | Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations. |
| *PCN/SCN* | A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis |
| *PQL* | Practical Quantitation Limit, typically 5 times the MDL. |
| *QC* | True Value of the Control Sample or the amount added to the Spike |
| *Rec* | Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg) |
| *RPD* | Relative Percent Difference, calculation used for Duplicate QC Types |
| *Upper* | Upper Recovery Limit, in % (except for LCSS, mg/Kg) |
| *Sample* | Value of the Sample of interest |

## QC Sample Types

| | | | |
|---|---|---|---|
| *AS* | Analytical Spike (Post Digestion) | *LCSWD* | Laboratory Control Sample - Water Duplicate |
| *ASD* | Analytical Spike (Post Digestion) Duplicate | *LFB* | Laboratory Fortified Blank |
| *CCB* | Continuing Calibration Blank | *LFM* | Laboratory Fortified Matrix |
| *CCV* | Continuing Calivation Verification standard | *LFMD* | Laboratory Fortified Matrix Duplicate |
| *DUP* | Sample Duplicate | *LRB* | Laboratory Reagent Blank |
| *ICB* | Initial Calibration Blank | *MS* | Matrix Spike |
| *ICV* | Initial Calibration Verification standard | *MSD* | Matrix Spike Duplicate |
| *ICSAB* | Inter-element Correction Standard - A plus B solutions | *PBS* | Prep Blank - Soil |
| *LCSS* | Laboratory Control Sample - Soil | *PBW* | Prep Blank - Water |
| *LCSSD* | Laboratory Control Sample - Soil Duplicate | *PQV* | Practical Quantitation Verification standard |
| *LCSW* | Laboratory Control Sample - Water | *SDL* | Serial Dilution |

## QC Sample Type Explanations

| | |
|---|---|
| Blanks | Verifies that there is no or minimal contamination in the prep method or calibration procedure. |
| Control Samples | Verifies the accuracy of the method, including the prep procedure. |
| Duplicates | Verifies the precision of the instrument and/or method. |
| Spikes/Fortified Matrix | Determines sample matrix interferences, if any. |
| Standard | Verifies the validity of the calibration. |

## ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| R | Poor spike recovery accepted because the other spike in the set fell within the given limits. |
| T | High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL. |
| U | Analyte was analyzed for but not detected at the indicated MDL |
| V | High blank data accepted because sample concentration is 10 times higher than blank concentration |
| W | Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride. |
| X | Quality control sample is out of control. |
| Z | Poor spike recovery is accepted because sample concentration is four times greater than spike concentration. |

## Method References


| | |
|---|---|
| (1) | EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983. |
| (2) | EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993. |
| (3) | EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994. |
| (5) | EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996. |
| (6) | Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995. |


## Comments

| | |
|---|---|
| (1) | QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations. |
| (2) | Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis. |
| (3) | Animal matrices for Inorganic analyses are reported on an "as received" basis. |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59731***

**Boron, soluble (Hot Water)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG216774** | | | | | | | | | | | | | |
| WG216774ICV | ICV | 11/18/06 4:16 | II061113-6 | 2 | | 1.938 | mg/L | 96.9 | 90 | 110 | | | |
| WG216774ICB | ICB | 11/18/06 4:20 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| L59459-01DUP | DUP | 11/18/06 4:44 | | | .4 | .4 | mg/L | | | | 0 | 20 | |
| WG216738PBS | PBS | 11/18/06 4:48 | | | | U | mg/L | | -0.15 | 0.15 | | | |
| L59731-09DUP | DUP | 11/18/06 4:56 | | | .57 | .72 | mg/L | | | | 23.3 | 20 | RC |
| L59731-10AS | AS | 11/18/06 5:16 | II061116-2 | 2.5 | .66 | 3.185 | mg/L | 101 | 75 | 125 | | | |
| L59731-10ASD | ASD | 11/18/06 5:20 | II061116-2 | 2.5 | .66 | 3.202 | mg/L | 101.7 | 75 | 125 | 0.53 | 20 | |

**Calcium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217041** | | | | | | | | | | | | | |
| WG217041ICV | ICV | 12/14/06 16:39 | II061113-6 | 100 | | 97.37 | mg/L | 97.4 | 90 | 110 | | | |
| WG217041ICB | ICB | 12/14/06 16:42 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| L59731-01DUP | DUP | 12/14/06 16:59 | | | 1.57 | .904 | meq/L | | | | 53.8 | 20 | RC |

**Carbon, total organic (TOC)** ASA No.9 29-2.2.4 Combustion/IR

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG216535** | | | | | | | | | | | | | |
| WG216535PBS | PBS | 11/14/06 13:00 | | | | U | % | | -0.3 | 0.3 | | | |
| L59731-01DUP | DUP | 11/14/06 17:22 | | | 1.4 | 1.3 | % | | | | 7.4 | 20 | |

**Conductivity @25C** M120.1 - Meter, w/ Saturated Paste Prep

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG216612** | | | | | | | | | | | | | |
| L59731-01DUP | DUP | 11/15/06 12:09 | | | .247 | .223 | mmhos/cn | | | | 10.2 | 20 | |

**Magnesium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217041** | | | | | | | | | | | | | |
| WG217041ICV | ICV | 12/14/06 16:39 | II061113-6 | 100 | | 96.52 | mg/L | 96.5 | 90 | 110 | | | |
| WG217041ICB | ICB | 12/14/06 16:42 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| L59731-01DUP | DUP | 12/14/06 16:59 | | | .12 | .063 | meq/L | | | | 61.8 | 20 | RC |

**Neutralization Potential as CaCO3** M600/2-78-054 3.2.3

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG216720** | | | | | | | | | | | | | |
| WG216720LCSS | LCSS | 11/16/06 8:00 | PCN20880 | 100 | | 91.19 | % | | | | | | |
| L59731-20DUP | DUP | 11/16/06 15:59 | | | 2.7 | 2.61 | % | | | | 3.4 | 20 | |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59731***

**Nitrate/Nitrite as N, extractable (KCL)** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217339** | | | | | | | | | | | | | |
| WG217339ICV | ICV | 11/29/06 19:33 | WI060906-3 | 2.416 | | 2.352 | mg/L | 97.4 | 90 | 110 | | | |
| WG217339ICB | ICB | 11/29/06 19:34 | | | | .027 | mg/L | | -0.06 | 0.06 | | | |
| WG217339LFB | LFB | 11/29/06 19:38 | WI060906-4 | 2 | | 2.055 | mg/L | 102.8 | 90 | 110 | | | |
| WG217122PBS | PBS | 11/29/06 19:39 | | | | .95 | mg/Kg | | -0.6 | 0.6 | | | N1 |
| L59731-01DUP | DUP | 11/29/06 19:42 | | | 1.1 | 1.1 | mg/Kg | | | | 0 | 20 | RA |
| L59731-02AS | AS | 11/29/06 19:44 | WI060906-4 | 20 | 1.1 | 21.28 | mg/Kg | 100.9 | 75 | 125 | | | |

**Nitrite as N, extractable (KCL)** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217339** | | | | | | | | | | | | | |
| WG217339ICV | ICV | 11/29/06 19:33 | WI060906-3 | .609 | | .644 | mg/L | 105.7 | 90 | 110 | | | |
| WG217339ICB | ICB | 11/29/06 19:34 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG217339LFB | LFB | 11/29/06 19:38 | WI060906-4 | 1 | | 1.029 | mg/L | 102.9 | 90 | 110 | | | |
| WG217122PBS | PBS | 11/29/06 19:39 | | | | .78 | mg/Kg | | -0.3 | 0.3 | | | N1 |
| L59731-01DUP | DUP | 11/29/06 19:42 | | | U | U | mg/Kg | | | | 0 | 20 | RA |
| L59731-02AS | AS | 11/29/06 19:44 | WI060906-4 | 10 | U | 9.81 | mg/Kg | 98.1 | 75 | 125 | | | |

**Nitrogen, total Kjeldahl** M351.2 - TKN by Block Digester

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG216678** | | | | | | | | | | | | | |
| WG216503ICV | ICV | 11/16/06 13:02 | WI061027-1 | 4 | | 3.9 | mg/L | 97.5 | 90 | 110 | | | |
| WG216503ICB | ICB | 11/16/06 13:03 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG216503PBS | PBS | 11/16/06 13:04 | | | | .0039 | % | | -0.006 | 0.006 | | | |
| WG216503LFB | LFB | 11/16/06 13:05 | WI061027-5 | 2.5 | | 2.91 | % | 116.4 | 85 | 115 | | | N1 |
| L59731-01MS | MS | 11/16/06 13:08 | 5XPTSTKN | .0535 | .15 | .238 | % | 164.5 | 75 | 125 | | | M1 |
| L59731-02DUP | DUP | 11/16/06 13:10 | | | .3 | .307 | % | | | | 2.3 | 20 | |
| WG216678ICV1 | ICV | 11/16/06 13:46 | WI061027-1 | 4 | | 3.62 | mg/L | 90.5 | 90 | 110 | | | |
| WG216678ICB1 | ICB | 11/16/06 13:47 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG216678ICV2 | ICV | 11/16/06 13:50 | WI061027-1 | 4 | | 3.67 | mg/L | 91.8 | 90 | 110 | | | |
| WG216678ICB2 | ICB | 11/16/06 13:51 | | | | U | mg/L | | -0.3 | 0.3 | | | |

**Percent Clay** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217118** | | | | | | | | | | | | | |
| L59731-01DUP | DUP | 11/27/06 12:45 | | | 16.3 | 16.3 | % | | | | 0 | 20 | |

**Percent Sand** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217118** | | | | | | | | | | | | | |
| L59731-01DUP | DUP | 11/27/06 12:45 | | | 72.5 | 72.5 | % | | | | 0 | 20 | |

**Percent Silt** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217118** | | | | | | | | | | | | | |
| L59731-01DUP | DUP | 11/27/06 12:45 | | | 11.3 | 11.3 | % | | | | 0 | 20 | |

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# Inorganic QC Summary

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59731***

**pH, Saturated Paste** USDA No. 60 (21A)

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG216612** | | | | | | | | | | | | | |
| L59731-01DUP | DUP | 11/15/06 12:09 | | | 7.9 | 7.48 | units | | | | 5.5 | 20 | |

**Phosphorus, extractable (AB-DTPA)** M365.1 - Automated Ascorbic Acid

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217261** | | | | | | | | | | | | | |
| WG217261ICV | ICV | 11/28/06 17:43 | SCN000224 | .65228 | | .686 | mg/L | 105.2 | 90 | 110 | | | |
| WG217261ICB | ICB | 11/28/06 17:45 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG217261LFB | LFB | 11/28/06 17:46 | WI061125-2 | .5 | | .515 | mg/Kg | 103 | 85 | 115 | | | |
| WG216998PBS | PBS | 11/28/06 17:47 | | | | 7.2 | mg/Kg | | -3 | 3 | | | N1 |
| L59731-01AS | AS | 11/28/06 17:49 | WI061125-2 | 50 | 28 | 79.1 | mg/Kg | 102.2 | 75 | 125 | | | |
| L59731-01DUP | DUP | 11/28/06 17:50 | | | 28 | 27.4 | mg/Kg | | | | 2.2 | 20 | |

**Potassium, extractable (AB-DTPA)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217217** | | | | | | | | | | | | | |
| WG217217ICV | ICV | 11/29/06 4:17 | II061113-6 | 20 | | 20.17 | mg/L | 100.9 | 90 | 110 | | | |
| WG217217ICB | ICB | 11/29/06 4:21 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG216998PBS | PBS | 11/29/06 4:37 | | | | U | mg/L | | -60 | 60 | | | |
| L59731-01DUP | DUP | 11/29/06 4:46 | | | 140 | 140 | mg/L | | | | 0 | 20 | |
| L59731-02AS | AS | 11/29/06 4:58 | II061116-2 | 4973.4095 | 80 | 5197 | mg/L | 102.9 | 75 | 125 | | | |
| L59731-02ASD | ASD | 11/29/06 5:02 | II061116-2 | 4973.4095 | 80 | 5305 | mg/L | 105.1 | 75 | 125 | 2.06 | 20 | |

**Potassium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217041** | | | | | | | | | | | | | |
| WG217041ICV | ICV | 12/14/06 16:39 | II061113-6 | 20 | | 19.94 | mg/L | 99.7 | 90 | 110 | | | |
| WG217041ICB | ICB | 12/14/06 16:42 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| L59731-01DUP | DUP | 12/14/06 16:59 | | | .324 | .1741 | meq/L | | | | 60.2 | 20 | RC |

**Saturation Percent** USDA No. 60 (2)

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG216612** | | | | | | | | | | | | | |
| L59731-01DUP | DUP | 11/15/06 12:09 | | | 34.6 | 36.33 | % | | | | 4.9 | 20 | |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59731***

**Selenium, soluble (Hot Water)** SM3500-Se.C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217220** | | | | | | | | | | | | | |
| WG217220ICV | ICV | 11/30/06 10:30 | II061127-5 | .025 | | .0272 | mg/L | 108.8 | 90 | 110 | | | |
| WG217220ICB | ICB | 11/30/06 10:33 | | | | U | mg/L | | -0.003 | 0.003 | | | |
| **WG217223** | | | | | | | | | | | | | |
| L59732-20AS | AS | 11/30/06 14:14 | II061113-3 | .1 | U | .097 | mg/Kg | 97 | 85 | 115 | | | |
| L59732-20ASD | ASD | 11/30/06 14:25 | II061113-3 | .1 | U | .0985 | mg/Kg | 98.5 | 85 | 115 | 1.53 | 20 | |
| WG216738PBS | PBS | 11/30/06 15:18 | | | | U | mg/Kg | | -0.015 | 0.015 | | | |
| L59731-09DUP | DUP | 11/30/06 15:25 | | | U | U | mg/Kg | | | | 0 | 20 | RA |
| L59731-10AS | AS | 11/30/06 15:33 | II061113-3 | .1 | U | .0961 | mg/Kg | 96.1 | 85 | 115 | | | |
| L59731-10ASD | ASD | 11/30/06 15:36 | II061113-3 | .1 | U | .0958 | mg/Kg | 95.8 | 85 | 115 | 0.31 | 20 | |

**Sodium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217041** | | | | | | | | | | | | | |
| WG217041ICV | ICV | 12/14/06 16:39 | II061113-6 | 100 | | 99.89 | mg/L | 99.9 | 90 | 110 | | | |
| WG217041ICB | ICB | 12/14/06 16:42 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| L59731-01DUP | DUP | 12/14/06 16:59 | | | .22 | .161 | meq/L | | | | 30.7 | 20 | RC |

**Solids, Percent** CLPSOW390, PART F, D-98

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG216793** | | | | | | | | | | | | | |
| WG216793PBS | PBS | 11/19/06 15:00 | | | | U | % | | 99.9 | 100.1 | | | |
| L59731-01DUP | DUP | 11/19/06 17:28 | | | 88.1 | 88.45 | % | | | | 0.4 | 20 | |

**Sulfur Organic Residual** M600/2-78-054 3.2.4

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217075** | | | | | | | | | | | | | |
| L59732-20DUP | DUP | 11/25/06 18:00 | | | .02 | .02 | % | | | | 0 | 20 | RA |

**Sulfur Pyritic Sulfide** M600/2-78-054 3.2.4

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217075** | | | | | | | | | | | | | |
| L59732-20DUP | DUP | 11/25/06 18:00 | | | U | U | % | | | | 0 | 20 | RA |

**Sulfur Sulfate** M600/2-78-054 3.2.4

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217075** | | | | | | | | | | | | | |
| L59732-20DUP | DUP | 11/25/06 18:00 | | | .02 | .02 | % | | | | 0 | 20 | RA |

**Sulfur Total** M600/2-78-054 3.2.4

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217075** | | | | | | | | | | | | | |
| WG217075PBS | PBS | 11/24/06 11:00 | | | | U | % | | -0.03 | 0.03 | | | |
| WG217075LCSS | LCSS | 11/24/06 13:23 | PCN25383 | 4.24 | | 4.3 | % | | 80 | 120 | | | |
| L59732-20DUP | DUP | 11/25/06 18:00 | | | .04 | .04 | % | | | | 0 | 20 | RA |

**Carbon Resources** ACZ Project ID: ***L59731***

Project ID:

**Total Sulfur Minus Sulfate** M600/2-78-054 3.2.4

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217075** | | | | | | | | | | | | | |
| L59732-20DUP | DUP | 11/25/06 18:00 | | | .02 | .02 | % | | | | 0 | 20 | RA |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-01** | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-02** | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-03** | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-04** | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-05** | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-06** | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-07** | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-08** | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-09** | WG216774 | Boron, soluble (Hot Water) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217223 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217041 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217075 | Sulfur Organic Residual | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Total | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Total Sulfur minus Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59731-10 | WG216774 | Boron, soluble (Hot Water) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217223 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217041 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217075 | Sulfur Organic Residual | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Total | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Total Sulfur minus Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-11** | WG216774 | Boron, soluble (Hot Water) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217223 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217041 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217075 | Sulfur Organic Residual | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Total | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Total Sulfur minus Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59731-12 | WG216774 | Boron, soluble (Hot Water) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217223 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217041 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217075 | Sulfur Organic Residual | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Total | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Total Sulfur minus Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-13** | WG216774 | Boron, soluble (Hot Water) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217223 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217041 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217075 | Sulfur Organic Residual | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Total | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Total Sulfur minus Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59731-14 | WG216774 | Boron, soluble (Hot Water) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217223 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217041 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217075 | Sulfur Organic Residual | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Total | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Total Sulfur minus Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-15** | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-16** | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-17** | WG216774 | Boron, soluble (Hot Water) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217223 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217041 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217075 | Sulfur Organic Residual | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Total | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Total Sulfur minus Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59731-18 | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-19** | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59731***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59731-20** | WG217041 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217339 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216678 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | N1 | See Case Narrative. |
| | WG217261 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

Metals Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

| | |
|---|---|
| Selenium, soluble (Hot Water) | SM3500-Se.C |

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

| | |
|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 |
| pH, Saturated Paste | USDA No. 60 (21A) |
| Saturation Percent | USDA No. 60 (2) |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 |
| Solids, Percent | CLPSOW390, PART F, D-98 |
| Sulfur Forms | M600/2-78-054 3.2.4 |
| Texture by Hydrometer | ASTM D 422 Hydrometer |

Wet Chemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

| | |
|---|---|
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Sample Receipt

**Carbon Resources**

ACZ Project ID: L59731
Date Received: 10/31/2006
Received By:
Date Printed: 10/31/2006

## Receipt Verification

| | YES | NO | NA |
|---|---|---|---|
| 1) Does this project require special handling procedures such as CLP protocol? | | | X |
| 2) Are the custody seals on the cooler intact? | | | X |
| 3) Are the custody seals on the sample containers intact? | | | X |
| 4) Is there a Chain of Custody or other directive shipping papers present? | X | | |
| 5) Is the Chain of Custody complete? | X | | |
| 6) Is the Chain of Custody in agreement with the samples received? | X | | |
| 7) Is there enough sample for all requested analyses? | X | | |
| 8) Are all samples within holding times for requested analyses? | X | | |
| 9) Were all sample containers received intact? | X | | |
| 10) Are the temperature blanks present? | | | X |
| 11) Are the trip blanks (VOA and/or Cyanide) present? | | | X |
| 12) Are samples requiring no headspace, headspace free? | | | X |
| 13) Do the samples that require a Foreign Soils Permit have one? | | | X |

## Exceptions: If you answered no to any of the above questions, please describe

N/A

## Contact (For any discrepancies, the client must be contacted)

N/A

## Shipping Containers

| Cooler Id | | Temp (°C) | Rad (µR/hr) |
|---|---|---|---|
| BUCKET X 8 | | 22.5 | 16 |
| | | | |
| | | | |
| | | | |

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

## Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Sample Receipt

**Carbon Resources**

ACZ Project ID: L59731
Date Received: 10/31/2006
Received By:

## Sample Container Preservation

| SAMPLE | CLIENT ID | R < 2 | G < 2 | BK < 2 | Y< 2 | YG< 2 | B< 2 | O < 2 | T >12 | N/A | RAD | ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L59731-01 | D-1 0-6" | | | | | | | | | X | | |
| L59731-02 | D-1 6-16" | | | | | | | | | X | | |
| L59731-03 | D-1 16-25" | | | | | | | | | X | | |
| L59731-04 | D-1 25-40" | | | | | | | | | X | | |
| L59731-05 | D-1 40-65" | | | | | | | | | X | | |
| L59731-06 | D-1 65-90" | | | | | | | | | X | | |
| L59731-07 | D-2 0-6" | | | | | | | | | X | | |
| L59731-08 | D-2 6-24" | | | | | | | | | X | | |
| L59731-09 | D-3 0-10" | | | | | | | | | X | | |
| L59731-10 | D-3 10-20" | | | | | | | | | X | | |
| L59731-11 | D-3 20-40" | | | | | | | | | X | | |
| L59731-12 | D-3 40-60" | | | | | | | | | X | | |
| L59731-13 | D-3 60-75" | | | | | | | | | X | | |
| L59731-14 | D-3 | | | | | | | | | X | | |
| L59731-15 | D-4 0-8" | | | | | | | | | X | | |
| L59731-16 | D-4 8-16" | | | | | | | | | X | | |
| L59731-17 | D-4 19-72" | | | | | | | | | X | | |
| L59731-18 | D-5 0-6" | | | | | | | | | X | | |
| L59731-19 | D-5 6-20" | | | | | | | | | X | | |
| L59731-20 | D-5 20-40" | | | | | | | | | X | | |

## Sample Container Preservation Legend

| Abbreviation | Description | Container Type | Preservative/Limits |
|---|---|---|---|
| R | Raw/Nitric | RED | pH must be < 2 |
| B | Filtered/Sulfuric | BLUE | pH must be < 2 |
| BK | Filtered/Nitric | BLACK | pH must be < 2 |
| G | Filtered/Nitric | GREEN | pH must be < 2 |
| O | Raw/Sulfuric | ORANGE | pH must be < 2 |
| P | Raw/NaOH | PURPLE | pH must be > 12 * |
| T | Raw/NaOH Zinc Acetate | TAN | pH must be > 12 |
| Y | Raw/Sulfuric | YELLOW | pH must be < 2 |
| YG | Raw/Sulfuric | YELLOW GLASS | pH must be < 2 |
| N/A | No preservative needed | Not applicable | |
| RAD | Gamma/Beta dose rate | Not applicable | must be < 250 µR/hr |

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L59731

Carbon Resources Soil Sample Increments
Kinney Mine, Scofield Utah
Sampled October 14-18, 2006
By Bruce Chesler and Greg Hunt
Telephone 435-826-4961
Billed to Carbon Resources

Mailed UPS on October 24, 2006 to:
ACZ Laboratory
2773 Downhill Drive
Steamboat Springs, Colorado, 80487
Attn. Sue Webber telephone 1-800-334-5493 Ext.110

Soil Samples sent in 5-gallon white plastic buckets from Escalante, Utah, and coal samples sent separately in a bucket from Cedaredege, Colorado. The coal sample increments are required to have the following additional analyses, along with the soil horizons found above and below them in their respective soil positions. These will include soil horizons and coal materials sampled at 3 locations, (D3, D9A, D9B) including a total of 19 samples.

Total Organic Carbon (Combustion Method, Western States Lab Testing Program, 1998, volume 4.10, page 88)
Soluble Selenium reported in mg/kg (Hydric Generation AA-Spectrometry and Flourimetry of water extracted Selenium)
Available Boron reported in mg/kg (saturation extract)
Acid Potential reported % pyric S
Neutralization Potential Tons CaCo3 equivalent/1000 tons

The remaining samples are as follows:

D1 0-6, 6-16, 16-25, 25-40, 40-65, 65-90 (6 samples)

D2 0-6, 6-24 (2 samples)

D3 Coal and Soil sent in separate shipments 0-10, 10-20, 20-40, 40-60, 60-75, 1 coal (7)

D4 0-8, 8-16, (2 samples)

D5 0-6, 6-20, 20-40, 40-60 (4 samples)

D6 0-7, coal not sampled, 24-48, 48-72 (3 samples)

D7 0-6, 6-20, 20-42, 42-58, 58-70 (5 samples)

D8 0-6, 6-13, 13-26, 26-48 (4 samples)

D9A coal and soil sent in two shipments 0-6, 6-12, 12-30, 30-68, 68-95, 95-115, 115-140 (7 samples)

D9B coal and soil sent separately 0-6, 6-12, 12-30, 30-52, 52-80, 80-102 (6 samples)

D10 0-5, 5-11, 11-23, 23-35 (4 samples)

D11 0-12, did not sample coal, 62-82 (2samples)

D12 0-6, 6-14, 14-28, 28-48, 48-66 (5 samples)

2A-1 0-10, 10-24, 24-44, 44-65, 65-80 (5 samples)

2A-2 0-5, 5-14, 14-25, 25-38 (4 samples)

2A-3 0-9, 9-19, 19-36, 36-52 (4 samples)

2A-5 0-6, 6-12, 12-24, 24-48 (4 samples)

2A-6 0-6, 6-12, 12-24, 24-40, 40-66, 66-80 (6 samples)

2A-7 0-7, 7-20, 20-38 (3 samples)

2B-1 0-9, 9-19, 19-33, 33-51 (4 samples)

1A-1 0-6, 6-17, 17-28, 28-60, 60-100 (5 samples)

1A-2 15-25, 25-40, 40-60, 60-75, 75-90 (5 samples)

1B1 0-7, 7-15, 15-28, 28-60 (4 samples)

Please give me a call if you have any questions on methodology at my office. Phone # 435-826-4961

Thanks,
Bruce Chesler
Representing, Carbon Resources
Escalante, Utah

LSG 10.26.06

**Sue Webber**

**From:** GHuntBBC@aol.com
**Sent:** Friday, October 27, 2006 12:52 PM
**To:** bches@scinternet.net; Sue Webber
**Subject:** Sue Weber Carbon Resources Soil Samples

**FROM:** **Geo-Hunt Consulting**
**16577 Columbine Lane**
**Cedaredge, CO 81413**
**970-856-9477**

**TO:** **Sue Webber, Project Manager**
**ACZ Laboratories, Inc.**
**2773 Downhill Drive,**
**Steamboat Springs, Co 80487**

**RE:** **TRANSMITTAL OF SOIL SAMPLES**

**Dear Sue:**
You have already received a rather large number of samples from BRUCE CHESLER, soil scientist from Escalante Utah, from the Carbon Resources "Kinney" Property, Scofield Utah. Enclosed please find the following seven soil samples taken from the same property and are a part of the same project. These samples should be processed with those received directly from Bruce and all of the results should be returned to Bruce.

D3
D4 19"-72"
D9-A 12"- 30"
D9-A 30"- 68"
D9-B 12"- 30"
D9-B 30"- 50"
D11 11"-48"

Note that some of the bag samples received from Bruce and or I may be labeled either Carbon Resources or Kinney. Both names indicate the same project.

Thank you for your prompt attention to this project.

Greg Hunt

Cc: Bruce Chesler

# Very Fine Sand

analyst: as
date: 12-7-06

| ACZ L# | Total sample wt. gms | % <2000um sieve | Wt. of sxs used for Texture gms | Wt. of sxs between 105um & 53um gm. | % VFS |
|---|---|---|---|---|---|
| L59731-01 | 236.40 | 75.6 | 40.0 | 4.5 | **8.5** |
| L59731-02 | 210.40 | 95.4 | 40.0 | 5.1 | **12.2** |
| L59731-03 | 368.20 | 70.0 | 40.0 | 4.6 | **8.1** |
| L59731-04 | 268.60 | 88.7 | 40.0 | 5.1 | **11.4** |
| L59731-05 | 222.00 | 78.5 | 40.0 | 4.3 | **8.5** |
| L59731-06 | 242.80 | 67.1 | 40.0 | 3.7 | **6.2** |
| L59731-07 | 336.60 | 68.8 | 40.0 | 5.0 | **8.6** |
| L59731-08 | 314.90 | 72.6 | 40.0 | 4.9 | **8.9** |
| L59731-09 | 270.98 | 81.1 | 40.0 | 3.8 | **7.6** |
| L59731-10 | 318.20 | 75.2 | 40.0 | 4.0 | **7.4** |
| L59731-11 | 342.70 | 81.7 | 40.0 | 4.4 | **8.9** |
| L59731-12 | 387.20 | 67.3 | 40.0 | 4.1 | **6.9** |
| L59731-13 | 309.80 | 79.8 | 40.0 | 3.7 | **7.4** |
| L59731-14 | 263.00 | 49.5 | 40.0 | 1.5 | **1.9** |
| L59731-15 | 320.50 | 88.7 | 40.0 | 4.1 | **9.1** |
| L59731-16 | 424.10 | 84.6 | 40.0 | 4.4 | **9.2** |
| L59731-17 | 480.40 | 62.8 | 40.0 | 1.5 | **2.4** |
| L59731-18 | 228.40 | 76.1 | 40.0 | 3.3 | **6.2** |
| L59731-19 | 296.80 | 89.1 | 40.0 | 3.1 | **6.9** |
| L59731-20 | 325.70 | 84.7 | 40.0 | 2.7 | **5.8** |
| dup L59731-01 | 236.40 | 75.6 | 40.0 | 4.2 | **8.0** |

**(wt of sxs between 105um & 53um) / (wt. of sxs used for texture) = VFS of texture**

**(VFS of Texture) x (% <2000um) = % VFS**

**additional data from:**

**-sieve2000 WG216879**

**-sieve53 WG217297**

**-texture WG217118**

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Analytical Report

December 21, 2006

Report to:
Clay Wisdom
Carbon Resources
PO Box 1789
Albuquerque, NM 87192

Bill to:
Clay Wisdom
Carbon Resources
PO Box 11789
Albuquerque, NM 87192

cc: Greg Hunt, Bruce Chesler

Project ID:
ACZ Project ID: L59732

Clay Wisdom:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 31, 2006. This project has been assigned to ACZ's project number, L59732. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L59732. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 21, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

Sue Webber 21/Dec/06

Sue Webber, Project Manager, has reviewed and approved this report in its entirety.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Case Narrative

Carbon Resources

December 21, 2006

Project ID:
ACZ Project ID: L59732

## Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 19 soil samples from Carbon Resources on October 31, 2006. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L59732. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

## Holding Times

All analyses were not performed within EPA recommended holding times. The EPA holding times apply to water samples, not soil so the "H" flags are not applicable.

## Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The following anomalies required further explanation not provided by the Extended Qualifier Report:

1. For Nitrate/Nitrite, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

2. For Phosphorus, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-5 40-60"

ACZ Sample ID: ***L59732-01***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/16/06 18:52 | pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.33 | | * | meq/L | 0.01 | 0.05 | 11/29/06 20:24 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.31 | | * | meq/L | 0.02 | 0.08 | 11/29/06 20:24 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 80 | | * | mg/Kg | 20 | 50 | 12/04/06 14:12 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.076 | | * | meq/L | 0.008 | 0.03 | 11/29/06 20:24 | msh |
| Sodium Absorption Ratio | Calculation | 0.33 | | | | 0.03 | 0.15 | 12/21/06 10:11 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.30 | | * | meq/L | 0.01 | 0.04 | 11/29/06 20:24 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.6 | | * | % | 0.1 | 0.5 | 11/21/06 12:12 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.249 | | * | mmhos/cm | 0.001 | 0.01 | 11/22/06 14:00 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 3.3 | | * | % | 0.1 | 0.5 | 12/07/06 12:28 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.7 | | * | units | 0.1 | 0.1 | 11/22/06 14:00 | srs |
| Saturation Percent | USDA No. 60 (2) | 52.30 | | * | % | 0.01 | 0.1 | 11/22/06 14:00 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 86.9 | | * | % Passing | 0.1 | 0.5 | 12/08/06 8:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 84.4 | | * | % Passing | 0.1 | 0.5 | 11/22/06 10:00 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 91.6 | | * | % | 0.1 | 0.5 | 11/28/06 13:03 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 21.3 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 37.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 41.3 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | SiL | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-5 40-60"

ACZ Sample ID: ***L59732-01***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 11:12 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:31 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 17:06 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 19:00 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 12:44 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 7.9 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:11 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 8.6 | H | * | mg/Kg | 0.2 | 1 | 11/30/06 21:43 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 11/30/06 21:43 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.088 | H | * | % | 0.005 | 0.02 | 12/18/06 15:16 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 18 | H | * | mg/Kg | 1 | 5 | 11/30/06 19:50 | pjb |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-6 0-7"

ACZ Sample ID: ***L59732-02***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/16/06 21:33 | pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 2.48 | | * | meq/L | 0.01 | 0.05 | 11/29/06 20:32 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.38 | | * | meq/L | 0.02 | 0.08 | 11/29/06 20:32 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 240 | | * | mg/Kg | 20 | 50 | 12/04/06 14:18 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.451 | | * | meq/L | 0.008 | 0.03 | 11/29/06 20:32 | msh |
| Sodium Absorption Ratio | Calculation | 0.11 | B | | | 0.03 | 0.15 | 12/21/06 10:12 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.14 | | * | meq/L | 0.01 | 0.04 | 11/29/06 20:32 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.6 | | * | % | 0.1 | 0.5 | 11/21/06 12:36 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.275 | | * | mmhos/cm | 0.001 | 0.01 | 11/22/06 19:03 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 3.7 | | * | % | 0.1 | 0.5 | 12/07/06 12:42 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.5 | | * | units | 0.1 | 0.1 | 11/22/06 19:03 | srs |
| Saturation Percent | USDA No. 60 (2) | 52.10 | | * | % | 0.01 | 0.1 | 11/22/06 19:03 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 87.7 | | * | % Passing | 0.1 | 0.5 | 12/08/06 8:30 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 87.6 | | * | % Passing | 0.1 | 0.5 | 11/22/06 10:23 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 87.9 | | * | % | 0.1 | 0.5 | 11/28/06 14:07 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 22.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 30.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 47.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | SiL | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-6 0-7"

ACZ Sample ID: ***L59732-02***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 11:36 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:33 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 17:18 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 19:12 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 12:58 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 9.0 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:12 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 9.8 | H | * | mg/Kg | 0.2 | 1 | 11/30/06 21:46 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/30/06 21:46 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.093 | H | * | % | 0.008 | 0.04 | 12/18/06 15:18 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 15 | H | * | mg/Kg | 1 | 5 | 11/30/06 19:52 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-6 24-48"

ACZ Sample ID: ***L59732-03***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/17/06 0:14 | pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 3.21 | | * | meq/L | 0.01 | 0.05 | 11/29/06 20:36 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.76 | | * | meq/L | 0.02 | 0.08 | 11/29/06 20:36 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 70 | | * | mg/Kg | 20 | 50 | 12/04/06 14:39 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.094 | | * | meq/L | 0.008 | 0.03 | 11/29/06 20:36 | msh |
| Sodium Absorption Ratio | Calculation | 0.21 | | | | 0.03 | 0.15 | 12/21/06 10:12 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.30 | | * | meq/L | 0.01 | 0.04 | 11/29/06 20:36 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.3 | | * | % | 0.1 | 0.5 | 11/21/06 12:48 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.451 | | * | mmhos/cm | 0.001 | 0.01 | 11/22/06 21:34 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 3.2 | | * | % | 0.1 | 0.5 | 12/07/06 12:57 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.5 | | * | units | 0.1 | 0.1 | 11/22/06 21:34 | srs |
| Saturation Percent | USDA No. 60 (2) | 54.40 | | * | % | 0.01 | 0.1 | 11/22/06 21:34 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 88.7 | | * | % Passing | 0.1 | 0.5 | 12/08/06 9:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 72.4 | | * | % Passing | 0.1 | 0.5 | 11/22/06 10:46 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 94.7 | | * | % | 0.1 | 0.5 | 11/28/06 15:11 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 20.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 40.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 40.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | SiL/L | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-6 24-48"

ACZ Sample ID: ***L59732-03***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 11:48 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:34 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 17:24 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 19:18 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 13:12 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 3.3 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:12 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.1 | H | * | mg/Kg | 0.2 | 1 | 11/30/06 21:48 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/30/06 21:48 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.067 | H | * | % | 0.003 | 0.02 | 12/18/06 15:20 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 12 | H | * | mg/Kg | 1 | 5 | 11/30/06 19:55 | pjb |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-6 48-72"

ACZ Sample ID: ***L59732-04***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/17/06 1:34 | pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 2.96 | | * | meq/L | 0.01 | 0.05 | 11/29/06 20:40 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.69 | | * | meq/L | 0.02 | 0.08 | 11/29/06 20:40 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 100 | | * | mg/Kg | 20 | 50 | 12/04/06 14:43 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.086 | | * | meq/L | 0.008 | 0.03 | 11/29/06 20:40 | msh |
| Sodium Absorption Ratio | Calculation | 0.20 | | | | 0.03 | 0.15 | 12/21/06 10:12 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.28 | | * | meq/L | 0.01 | 0.04 | 11/29/06 20:40 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.4 | | * | % | 0.1 | 0.5 | 11/21/06 13:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.452 | | * | mmhos/cm | 0.001 | 0.01 | 11/23/06 0:06 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 3.3 | | * | % | 0.1 | 0.5 | 12/07/06 13:11 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.4 | | * | units | 0.1 | 0.1 | 11/23/06 0:06 | srs |
| Saturation Percent | USDA No. 60 (2) | 51.00 | | * | % | 0.01 | 0.1 | 11/23/06 0:06 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 91.1 | | * | % Passing | 0.1 | 0.5 | 12/08/06 9:30 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 61.4 | | * | % Passing | 0.1 | 0.5 | 11/22/06 11:10 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 93.0 | | * | % | 0.1 | 0.5 | 11/28/06 16:15 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 20.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 37.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 42.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | SiL | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-6 48-72"

ACZ Sample ID: ***L59732-04***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 12:00 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:36 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 17:30 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 19:25 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 13:26 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 2.3 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:12 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 3.1 | H | * | mg/Kg | 0.2 | 1 | 11/30/06 21:49 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/30/06 21:49 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.083 | H | * | % | 0.003 | 0.02 | 12/18/06 15:21 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 10 | H | * | mg/Kg | 1 | 5 | 11/30/06 19:56 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-7 0-6"

ACZ Sample ID: ***L59732-05***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/17/06 2:55 | pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 4.92 | | * | meq/L | 0.01 | 0.05 | 11/29/06 20:44 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.72 | | * | meq/L | 0.02 | 0.08 | 11/29/06 20:44 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 250 | | * | mg/Kg | 20 | 50 | 12/04/06 14:46 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.672 | | * | meq/L | 0.008 | 0.03 | 11/29/06 20:44 | msh |
| Sodium Absorption Ratio | Calculation | 0.09 | B | | | 0.03 | 0.15 | 12/21/06 10:12 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.16 | | * | meq/L | 0.01 | 0.04 | 11/29/06 20:44 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.3 | | * | % | 0.1 | 0.5 | 11/21/06 13:12 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.689 | | * | mmhos/cm | 0.001 | 0.01 | 11/23/06 2:37 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 2.7 | | * | % | 0.1 | 0.5 | 12/07/06 13:25 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.2 | | * | units | 0.1 | 0.1 | 11/23/06 2:37 | srs |
| Saturation Percent | USDA No. 60 (2) | 49.60 | | * | % | 0.01 | 0.1 | 11/23/06 2:37 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 90.3 | | * | % Passing | 0.1 | 0.5 | 12/08/06 10:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 68.2 | | * | % Passing | 0.1 | 0.5 | 11/22/06 11:33 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 85.8 | | * | % | 0.1 | 0.5 | 11/28/06 17:18 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 20.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 30.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 50.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | SiL | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-7 0-6"

ACZ Sample ID: ***L59732-05***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 12:12 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:38 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 17:36 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 19:31 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 13:41 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.9 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:12 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.9 | H | * | mg/Kg | 0.2 | 1 | 11/30/06 21:51 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 11/30/06 21:51 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.088 | H | * | % | 0.005 | 0.02 | 12/18/06 15:22 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 7 | H | * | mg/Kg | 1 | 5 | 11/30/06 19:57 | pjb |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-7 6-20"

ACZ Sample ID: ***L59732-06***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/17/06 4:15 | pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 2.98 | | * | meq/L | 0.01 | 0.05 | 11/29/06 20:48 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.56 | | * | meq/L | 0.02 | 0.08 | 11/29/06 20:48 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 130 | | * | mg/Kg | 20 | 50 | 12/04/06 14:50 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.149 | | * | meq/L | 0.008 | 0.03 | 11/29/06 20:48 | msh |
| Sodium Absorption Ratio | Calculation | 0.12 | B | | | 0.03 | 0.15 | 12/21/06 10:12 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.17 | | * | meq/L | 0.01 | 0.04 | 11/29/06 20:48 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.1 | | * | % | 0.1 | 0.5 | 11/21/06 13:24 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.462 | | * | mmhos/cm | 0.001 | 0.01 | 11/23/06 5:09 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 3.3 | | * | % | 0.1 | 0.5 | 12/07/06 13:39 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.5 | | * | units | 0.1 | 0.1 | 11/23/06 5:09 | srs |
| Saturation Percent | USDA No. 60 (2) | 47.30 | | * | % | 0.01 | 0.1 | 11/23/06 5:09 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 92.9 | | * | % Passing | 0.1 | 0.5 | 12/08/06 10:30 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 53.9 | | * | % Passing | 0.1 | 0.5 | 11/22/06 11:56 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 87.4 | | * | % | 0.1 | 0.5 | 11/28/06 18:22 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 22.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 30.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 47.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | SiL | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-7 6-20"

ACZ Sample ID: ***L59732-06***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 12:24 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:39 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 17:42 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 19:37 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 13:55 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.4 | B | | mg/Kg | 0.2 | 1 | 12/21/06 10:12 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.2 | H | * | mg/Kg | 0.2 | 1 | 11/30/06 21:52 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/30/06 21:52 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.057 | H | * | % | 0.003 | 0.01 | 12/18/06 15:24 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 10 | H | * | mg/Kg | 1 | 5 | 11/30/06 19:58 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-7 20-42"

ACZ Sample ID: ***L59732-07***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/17/06 8:17 | pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.93 | | * | meq/L | 0.01 | 0.05 | 11/29/06 21:00 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.32 | | * | meq/L | 0.02 | 0.08 | 11/29/06 21:00 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 90 | | * | mg/Kg | 20 | 50 | 12/04/06 14:53 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.128 | | * | meq/L | 0.008 | 0.03 | 11/29/06 21:00 | msh |
| Sodium Absorption Ratio | Calculation | 0.12 | B | | | 0.03 | 0.15 | 12/21/06 10:13 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.10 | | * | meq/L | 0.01 | 0.04 | 11/29/06 21:00 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.9 | | * | % | 0.1 | 0.5 | 11/21/06 13:36 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.203 | | * | mmhos/cm | 0.001 | 0.01 | 11/23/06 7:41 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 3.3 | | * | % | 0.1 | 0.5 | 12/07/06 13:54 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.8 | | * | units | 0.1 | 0.1 | 11/23/06 7:41 | srs |
| Saturation Percent | USDA No. 60 (2) | 43.30 | | * | % | 0.01 | 0.1 | 11/23/06 7:41 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 91.5 | | * | % Passing | 0.1 | 0.5 | 12/08/06 11:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 67.7 | | * | % Passing | 0.1 | 0.5 | 11/22/06 12:20 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 92.5 | | * | % | 0.1 | 0.5 | 11/28/06 19:26 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 21.3 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 32.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 46.3 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | SiL | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-7 20-42"

ACZ Sample ID: ***L59732-07***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 12:36 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:41 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 17:48 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 19:44 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 14:09 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.5 | B | | mg/Kg | 0.2 | 1 | 12/21/06 10:13 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.2 | H | * | mg/Kg | 0.2 | 1 | 11/30/06 21:57 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 11/30/06 21:57 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.045 | H | * | % | 0.003 | 0.02 | 12/18/06 15:25 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 8 | H | * | mg/Kg | 1 | 5 | 11/30/06 19:59 | pjb |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-7 42-58"

ACZ Sample ID: ***L59732-08***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/17/06 9:38 | pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.63 | | * | meq/L | 0.01 | 0.05 | 11/29/06 21:04 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.42 | | * | meq/L | 0.02 | 0.08 | 11/29/06 21:04 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 110 | | * | mg/Kg | 20 | 50 | 12/04/06 14:56 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.086 | | * | meq/L | 0.008 | 0.03 | 11/29/06 21:04 | msh |
| Sodium Absorption Ratio | Calculation | 0.22 | | | | 0.03 | 0.15 | 12/21/06 10:13 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.23 | | * | meq/L | 0.01 | 0.04 | 11/29/06 21:04 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.2 | | * | % | 0.1 | 0.5 | 11/21/06 13:48 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.301 | | * | mmhos/cm | 0.001 | 0.01 | 11/23/06 10:12 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 2.8 | | * | % | 0.1 | 0.5 | 12/07/06 14:08 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.6 | | * | units | 0.1 | 0.1 | 11/23/06 10:12 | srs |
| Saturation Percent | USDA No. 60 (2) | 54.30 | | * | % | 0.01 | 0.1 | 11/23/06 10:12 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 90.9 | | * | % Passing | 0.1 | 0.5 | 12/08/06 11:30 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 70.3 | | * | % Passing | 0.1 | 0.5 | 11/22/06 12:43 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 93.0 | | * | % | 0.1 | 0.5 | 11/28/06 20:30 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 22.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 32.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 45.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | Si/C/L | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-7 42-58"

ACZ Sample ID: ***L59732-08***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 12:48 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:42 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 17:54 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 19:50 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 14:23 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | | U | | mg/Kg | 0.2 | 1 | 12/21/06 10:13 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.9 | BH | * | mg/Kg | 0.2 | 1 | 11/30/06 21:58 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/30/06 21:58 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.068 | H | * | % | 0.003 | 0.02 | 12/18/06 15:26 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 8 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:02 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-7 58-70"

ACZ Sample ID: ***L59732-09***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/17/06 10:58 | pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 3.35 | | * | meq/L | 0.01 | 0.05 | 11/29/06 21:08 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.83 | | * | meq/L | 0.02 | 0.08 | 11/29/06 21:08 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 140 | | * | mg/Kg | 20 | 50 | 12/04/06 15:00 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.106 | | * | meq/L | 0.008 | 0.03 | 11/29/06 21:08 | msh |
| Sodium Absorption Ratio | Calculation | 0.13 | B | | | 0.03 | 0.15 | 12/21/06 10:13 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.20 | | * | meq/L | 0.01 | 0.04 | 11/29/06 21:08 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.8 | | * | % | 0.1 | 0.5 | 11/21/06 14:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.477 | | * | mmhos/cm | 0.001 | 0.01 | 11/23/06 12:44 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.8 | | * | % | 0.1 | 0.5 | 12/07/06 14:22 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.2 | | * | units | 0.1 | 0.1 | 11/23/06 12:44 | srs |
| Saturation Percent | USDA No. 60 (2) | 36.50 | | * | % | 0.01 | 0.1 | 11/23/06 12:44 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 76.4 | | * | % Passing | 0.1 | 0.5 | 12/08/06 12:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 94.6 | | * | % Passing | 0.1 | 0.5 | 11/22/06 13:06 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 95.7 | | * | % | 0.1 | 0.5 | 11/28/06 21:33 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 12.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 52.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 35.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | L | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-7 58-70"

ACZ Sample ID: ***L59732-09***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 13:00 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:44 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 18:00 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 19:56 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 14:38 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | | U | | mg/Kg | 0.2 | 1 | 12/21/06 10:13 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | BH | * | mg/Kg | 0.2 | 1 | 11/30/06 21:59 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/30/06 21:59 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.065 | H | * | % | 0.004 | 0.02 | 12/18/06 15:29 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 16 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:04 | pjb |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-8 0-6"

ACZ Sample ID: ***L59732-10***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/17/06 12:19 | pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 3.91 | | * | meq/L | 0.01 | 0.05 | 11/29/06 21:12 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.79 | | * | meq/L | 0.02 | 0.08 | 11/29/06 21:12 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 360 | | * | mg/Kg | 20 | 50 | 12/04/06 15:03 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 1.110 | | * | meq/L | 0.008 | 0.03 | 11/29/06 21:12 | msh |
| Sodium Absorption Ratio | Calculation | 0.08 | B | | | 0.03 | 0.15 | 12/21/06 10:13 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.13 | | * | meq/L | 0.01 | 0.04 | 11/29/06 21:12 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 2.5 | | * | % | 0.1 | 0.5 | 11/21/06 14:12 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.587 | | * | mmhos/cm | 0.001 | 0.01 | 11/23/06 15:15 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.2 | | * | % | 0.1 | 0.5 | 12/07/06 14:37 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.0 | | * | units | 0.1 | 0.1 | 11/23/06 15:15 | srs |
| Saturation Percent | USDA No. 60 (2) | 64.60 | | * | % | 0.01 | 0.1 | 11/23/06 15:15 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 79.7 | | * | % Passing | 0.1 | 0.5 | 12/08/06 12:30 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 92.1 | | * | % Passing | 0.1 | 0.5 | 11/22/06 13:30 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 80.4 | | * | % | 0.1 | 0.5 | 11/28/06 22:37 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 8.8 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 52.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 38.8 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | L | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-8 0-6"

ACZ Sample ID: ***L59732-10***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 13:12 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:45 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 18:06 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 20:03 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 14:52 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 2.1 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:13 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 2.1 | H | * | mg/Kg | 0.2 | 1 | 11/30/06 22:00 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 11/30/06 22:00 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.22 | H | * | % | 0.01 | 0.06 | 12/18/06 15:30 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 25 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:19 | pjb |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-8 6-13"

ACZ Sample ID: ***L59732-11***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/06/06 18:39 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.13 | | * | meq/L | 0.01 | 0.05 | 11/29/06 21:16 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.28 | | * | meq/L | 0.02 | 0.08 | 11/29/06 21:16 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 280 | | * | mg/Kg | 20 | 50 | 12/04/06 15:07 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.420 | | * | meq/L | 0.008 | 0.03 | 11/29/06 21:16 | msh |
| Sodium Absorption Ratio | Calculation | 0.14 | B | | | 0.03 | 0.15 | 12/21/06 10:13 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.12 | | * | meq/L | 0.01 | 0.04 | 11/29/06 21:16 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.1 | | * | % | 0.1 | 0.5 | 11/21/06 14:24 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.275 | | * | mmhos/cm | 0.001 | 0.01 | 11/23/06 17:47 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.8 | | * | % | 0.1 | 0.5 | 12/07/06 14:51 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.1 | | * | units | 0.1 | 0.1 | 11/23/06 17:47 | srs |
| Saturation Percent | USDA No. 60 (2) | 41.50 | | * | % | 0.01 | 0.1 | 11/23/06 17:47 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 78.9 | | * | % Passing | 0.1 | 0.5 | 12/08/06 13:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 90.5 | | * | % Passing | 0.1 | 0.5 | 11/22/06 13:53 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 84.9 | | * | % | 0.1 | 0.5 | 11/28/06 23:41 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 10.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 55.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 35.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | L | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-8 6-13"

ACZ Sample ID: ***L59732-11***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 13:24 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:47 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 18:12 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 20:09 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 15:06 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.7 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:13 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.7 | H | * | mg/Kg | 0.2 | 1 | 11/30/06 22:02 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 11/30/06 22:02 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.153 | H | * | % | 0.004 | 0.02 | 12/08/06 18:21 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 20 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:06 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-8 13-20"

ACZ Sample ID: ***L59732-12***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/06/06 19:38 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.56 | | * | meq/L | 0.01 | 0.05 | 11/29/06 21:20 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.23 | | * | meq/L | 0.02 | 0.08 | 11/29/06 21:20 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 190 | | * | mg/Kg | 20 | 50 | 12/04/06 15:10 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.235 | | * | meq/L | 0.008 | 0.03 | 11/29/06 21:20 | msh |
| Sodium Absorption Ratio | Calculation | 0.17 | | | | 0.03 | 0.15 | 12/21/06 10:14 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.11 | | * | meq/L | 0.01 | 0.04 | 11/29/06 21:20 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.4 | B | * | % | 0.1 | 0.5 | 11/21/06 14:36 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.164 | | * | mmhos/cm | 0.001 | 0.01 | 11/23/06 20:19 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.6 | | * | % | 0.1 | 0.5 | 12/07/06 15:05 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.0 | | * | units | 0.1 | 0.1 | 11/23/06 20:19 | srs |
| Saturation Percent | USDA No. 60 (2) | 38.80 | | * | % | 0.01 | 0.1 | 11/23/06 20:19 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 75.8 | | * | % Passing | 0.1 | 0.5 | 12/08/06 13:30 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 96.9 | | * | % Passing | 0.1 | 0.5 | 11/22/06 14:16 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 96.5 | | * | % | 0.1 | 0.5 | 11/29/06 0:45 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 12.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 55.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 32.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | L | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-8 13-20"

ACZ Sample ID: ***L59732-12***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 13:36 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:49 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 18:18 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 20:15 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 15:20 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.8 | B | | mg/Kg | 0.2 | 1 | 12/21/06 10:14 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | BH | * | mg/Kg | 0.2 | 1 | 11/30/06 22:03 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 11/30/06 22:03 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.054 | H | * | % | 0.006 | 0.03 | 12/08/06 18:25 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 20 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:07 | pjb |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-8 20-48"

ACZ Sample ID: ***L59732-13***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/06/06 20:38 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.60 | | * | meq/L | 0.01 | 0.05 | 11/29/06 21:24 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.30 | | * | meq/L | 0.02 | 0.08 | 11/29/06 21:24 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 200 | | * | mg/Kg | 20 | 50 | 12/04/06 15:21 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.220 | | * | meq/L | 0.008 | 0.03 | 11/29/06 21:24 | msh |
| Sodium Absorption Ratio | Calculation | 0.17 | | | | 0.03 | 0.15 | 12/21/06 10:14 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.12 | | * | meq/L | 0.01 | 0.04 | 11/29/06 21:24 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.3 | B | * | % | 0.1 | 0.5 | 11/21/06 14:48 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.184 | | * | mmhos/cm | 0.001 | 0.01 | 11/23/06 22:50 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.6 | | * | % | 0.1 | 0.5 | 12/07/06 15:19 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.3 | | * | units | 0.1 | 0.1 | 11/23/06 22:50 | srs |
| Saturation Percent | USDA No. 60 (2) | 38.00 | | * | % | 0.01 | 0.1 | 11/23/06 22:50 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 76.1 | | * | % Passing | 0.1 | 0.5 | 12/08/06 14:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 92.6 | | * | % Passing | 0.1 | 0.5 | 11/22/06 14:40 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 95.7 | | * | % | 0.1 | 0.5 | 11/29/06 1:48 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 16.3 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 53.8 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 30.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | L | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-8 20-48"

ACZ Sample ID: ***L59732-13***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 13:48 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:50 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 18:24 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 20:22 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 15:34 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | | U | | mg/Kg | 0.2 | 1 | 12/21/06 10:14 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | BH | * | mg/Kg | 0.2 | 1 | 11/30/06 22:04 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/30/06 22:04 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.029 | H | * | % | 0.001 | 0.007 | 12/08/06 18:02 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 17 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:08 | pjb |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9A 0-6"

ACZ Sample ID: ***L59732-14***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/06/06 21:08 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 3.48 | | * | meq/L | 0.01 | 0.05 | 11/29/06 21:28 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.39 | | * | meq/L | 0.02 | 0.08 | 11/29/06 21:28 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 170 | | * | mg/Kg | 20 | 50 | 12/04/06 15:24 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.199 | | * | meq/L | 0.008 | 0.03 | 11/29/06 21:28 | msh |
| Sodium Absorption Ratio | Calculation | 0.09 | B | | | 0.03 | 0.15 | 12/21/06 10:14 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.13 | | * | meq/L | 0.01 | 0.04 | 11/29/06 21:28 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 2.0 | | * | % | 0.1 | 0.5 | 11/21/06 15:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.445 | | * | mmhos/cm | 0.001 | 0.01 | 11/24/06 1:22 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 2.0 | | * | % | 0.1 | 0.5 | 12/07/06 15:34 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.5 | | * | units | 0.1 | 0.1 | 11/24/06 1:22 | srs |
| Saturation Percent | USDA No. 60 (2) | 51.60 | | * | % | 0.01 | 0.1 | 11/24/06 1:22 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 85.6 | | * | % Passing | 0.1 | 0.5 | 12/08/06 14:30 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 75.6 | | * | % Passing | 0.1 | 0.5 | 11/22/06 15:03 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 87.3 | | * | % | 0.1 | 0.5 | 11/29/06 2:52 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 16.3 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 47.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 36.3 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | L | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9A 0-6"

ACZ Sample ID: ***L59732-14***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 14:00 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:52 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 18:30 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 20:28 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 15:49 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.0 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:14 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.8 | H | * | mg/Kg | 0.2 | 1 | 11/30/06 22:05 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/30/06 22:05 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.119 | H | * | % | 0.005 | 0.03 | 12/08/06 18:27 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 11 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:09 | pjb |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9A 6-12"

ACZ Sample ID: ***L59732-15***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/06/06 21:37 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 3.25 | | * | meq/L | 0.01 | 0.05 | 11/29/06 21:32 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.54 | | * | meq/L | 0.02 | 0.08 | 11/29/06 21:32 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 120 | | * | mg/Kg | 20 | 50 | 12/04/06 15:28 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.087 | | * | meq/L | 0.008 | 0.03 | 11/29/06 21:32 | msh |
| Sodium Absorption Ratio | Calculation | 0.08 | B | | | 0.03 | 0.15 | 12/21/06 10:14 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.12 | | * | meq/L | 0.01 | 0.04 | 11/29/06 21:32 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 2.2 | | * | % | 0.1 | 0.5 | 11/21/06 15:12 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.466 | | * | mmhos/cm | 0.001 | 0.01 | 11/24/06 3:53 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.9 | | * | % | 0.1 | 0.5 | 12/07/06 15:48 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.7 | | * | units | 0.1 | 0.1 | 11/24/06 3:53 | srs |
| Saturation Percent | USDA No. 60 (2) | 47.60 | | * | % | 0.01 | 0.1 | 11/24/06 3:53 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 84.6 | | * | % Passing | 0.1 | 0.5 | 12/08/06 15:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 79.3 | | * | % Passing | 0.1 | 0.5 | 11/22/06 15:26 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 88.7 | | * | % | 0.1 | 0.5 | 11/29/06 3:56 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 17.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 50.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 32.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | L | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9A 6-12"

ACZ Sample ID: ***L59732-15***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 14:12 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:53 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 18:36 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 20:34 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 16:03 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | | U | | mg/Kg | 0.2 | 1 | 12/21/06 10:14 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.9 | BH | * | mg/Kg | 0.2 | 1 | 11/30/06 22:07 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/30/06 22:07 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.118 | H | * | % | 0.007 | 0.03 | 12/08/06 18:28 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 11 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:11 | pjb |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9A 12-30"

ACZ Sample ID: ***L59732-16***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/13/06 16:48 | jag/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 2.31 | | * | mg/Kg | 0.05 | 0.3 | 11/18/06 5:44 | wfg |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.33 | | * | meq/L | 0.01 | 0.05 | 11/29/06 21:36 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.28 | | * | meq/L | 0.02 | 0.08 | 11/29/06 21:36 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 80 | | * | mg/Kg | 20 | 50 | 12/04/06 15:31 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.099 | | * | meq/L | 0.008 | 0.03 | 11/29/06 21:36 | msh |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 11/30/06 13:59 | djt |
| Sodium Absorption Ratio | Calculation | 0.10 | B | | | 0.03 | 0.15 | 12/21/06 10:14 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.09 | | * | meq/L | 0.01 | 0.04 | 11/29/06 21:36 | msh |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9A 12-30"

ACZ Sample ID: ***L59732-16***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 15 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:14 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 42 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:14 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 27 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:14 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 29.6 | | * | % | 0.1 | 0.5 | 11/21/06 15:24 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.265 | | * | mmhos/cm | 0.001 | 0.01 | 11/24/06 6:25 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 4.2 | | * | % | 0.1 | 0.5 | 12/07/06 16:02 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.5 | | * | units | 0.1 | 0.1 | 11/24/06 6:25 | srs |
| Saturation Percent | USDA No. 60 (2) | 37.50 | | * | % | 0.01 | 0.1 | 11/24/06 6:25 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 94.4 | | * | % Passing | 0.1 | 0.5 | 12/08/06 15:30 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 59.8 | | * | % Passing | 0.1 | 0.5 | 11/22/06 15:50 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 90.9 | | * | % | 0.1 | 0.5 | 11/29/06 5:00 | lwt/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.18 | | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | 0.07 | B | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Sulfate | | 0.23 | | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Total | | 0.48 | | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.25 | | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 12.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 68.8 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 18.8 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | SL | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9A 12-30"

ACZ Sample ID: ***L59732-16***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 14:24 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:55 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/17/06 11:15 | srs/aep |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 18:42 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 20:41 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 16:17 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.7 | B | | mg/Kg | 0.2 | 1 | 12/21/06 10:14 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | BH | * | mg/Kg | 0.2 | 1 | 11/30/06 22:08 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 11/30/06 22:08 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 1.1 | H | * | % | 0.1 | 0.5 | 12/14/06 15:21 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 3 | BH | * | mg/Kg | 1 | 5 | 11/30/06 20:12 | pjb |

ACZ Laboratories, Inc.
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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9A 30-68"

ACZ Sample ID: ***L59732-17***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/13/06 17:23 | jag/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 2.16 | | * | mg/Kg | 0.05 | 0.3 | 11/18/06 5:48 | wfg |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 20.90 | | * | meq/L | 0.01 | 0.05 | 11/29/06 21:48 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 11.00 | | * | meq/L | 0.02 | 0.08 | 11/29/06 21:48 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 100 | | * | mg/Kg | 20 | 50 | 12/04/06 15:34 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.159 | | * | meq/L | 0.008 | 0.03 | 11/29/06 21:48 | msh |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 11/30/06 14:03 | djt |
| Sodium Absorption Ratio | Calculation | 0.03 | B | | | 0.03 | 0.15 | 12/21/06 10:14 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.12 | | * | meq/L | 0.01 | 0.04 | 11/29/06 21:48 | msh |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9A 30-68"

ACZ Sample ID: ***L59732-17***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 19 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:14 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 54 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:14 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 35 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:14 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 24.4 | | * | % | 0.1 | 0.5 | 11/21/06 15:36 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 2.110 | | * | mmhos/cm | 0.001 | 0.01 | 11/24/06 8:56 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 5.4 | | * | % | 0.1 | 0.5 | 12/07/06 16:17 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.1 | | * | units | 0.1 | 0.1 | 11/24/06 8:56 | srs |
| Saturation Percent | USDA No. 60 (2) | 55.20 | | * | % | 0.01 | 0.1 | 11/24/06 8:56 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 97.4 | | * | % Passing | 0.1 | 0.5 | 12/08/06 16:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 51.7 | | * | % Passing | 0.1 | 0.5 | 11/22/06 16:13 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 89.4 | | * | % | 0.1 | 0.5 | 11/29/06 6:03 | lwt/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.23 | | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | | U | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Sulfate | | 0.43 | | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Total | | 0.62 | | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.19 | | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 17.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 57.5 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 25.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | L | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9A 30-68"

ACZ Sample ID: ***L59732-17***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 14:36 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:57 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/17/06 11:30 | srs/aep |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 18:48 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 20:47 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 16:31 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.8 | B | | mg/Kg | 0.2 | 1 | 12/21/06 10:14 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | BH | * | mg/Kg | 0.2 | 1 | 11/30/06 22:13 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 11/30/06 22:13 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.49 | H | * | % | 0.02 | 0.08 | 12/14/06 15:23 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 2 | BH | * | mg/Kg | 1 | 5 | 11/30/06 20:16 | pjb |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9A 80-95"

ACZ Sample ID: ***L59732-18***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/06/06 22:07 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 0.91 | | * | mg/Kg | 0.05 | 0.3 | 11/18/06 6:01 | wfg |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 2.34 | | * | meq/L | 0.01 | 0.05 | 11/29/06 21:52 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.29 | | * | meq/L | 0.02 | 0.08 | 11/29/06 21:52 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 120 | | * | mg/Kg | 20 | 50 | 12/04/06 15:38 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.149 | | * | meq/L | 0.008 | 0.03 | 11/29/06 21:52 | msh |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 11/30/06 14:07 | djt |
| Sodium Absorption Ratio | Calculation | 0.07 | B | | | 0.03 | 0.15 | 12/21/06 10:15 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.09 | | * | meq/L | 0.01 | 0.04 | 11/29/06 21:52 | msh |

ACZ Laboratories, Inc.
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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9A 80-95"

ACZ Sample ID: ***L59732-18***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 2 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:15 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 17 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:15 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 15 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:15 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 4.3 | | * | % | 0.1 | 0.5 | 11/21/06 15:48 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.346 | | * | mmhos/cm | 0.001 | 0.01 | 11/24/06 11:28 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.7 | | * | % | 0.1 | 0.5 | 12/07/06 16:31 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.5 | | * | units | 0.1 | 0.1 | 11/24/06 11:28 | srs |
| Saturation Percent | USDA No. 60 (2) | 49.00 | | * | % | 0.01 | 0.1 | 11/24/06 11:28 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 85.5 | | * | % Passing | 0.1 | 0.5 | 12/08/06 16:30 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 80.3 | | * | % Passing | 0.1 | 0.5 | 11/22/06 16:36 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 90.6 | | * | % | 0.1 | 0.5 | 11/29/06 7:07 | lwt/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.03 | B | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | | U | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Sulfate | | 0.03 | B | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Total | | 0.06 | B | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.03 | B | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 15.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 53.8 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 31.3 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | L | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9A 80-95"

ACZ Sample ID: ***L59732-18***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 14:48 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:58 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/17/06 11:45 | srs/aep |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 18:54 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 20:53 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 16:46 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.6 | B | | mg/Kg | 0.2 | 1 | 12/21/06 10:15 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.4 | H | * | mg/Kg | 0.2 | 1 | 11/30/06 22:14 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 11/30/06 22:14 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.180 | H | * | % | 0.007 | 0.04 | 12/08/06 18:30 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 9 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:17 | pjb |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9A 95-115"

ACZ Sample ID: ***L59732-20***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/06/06 23:36 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 0.86 | | * | mg/Kg | 0.05 | 0.3 | 11/18/06 6:05 | wfg |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.35 | | * | meq/L | 0.01 | 0.05 | 11/29/06 21:56 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.29 | | * | meq/L | 0.02 | 0.08 | 11/29/06 21:56 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 150 | | * | mg/Kg | 20 | 50 | 12/04/06 15:41 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.051 | | * | meq/L | 0.008 | 0.03 | 11/29/06 21:56 | msh |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 11/30/06 14:10 | djt |
| Sodium Absorption Ratio | Calculation | 0.24 | | | | 0.03 | 0.15 | 12/21/06 10:15 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.22 | | * | meq/L | 0.01 | 0.04 | 11/29/06 21:56 | msh |



** Please refer to Qualifier Reports for detail.*

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9A 95-115"

ACZ Sample ID: ***L59732-20***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 1 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:15 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 13 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:15 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 12 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:15 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 2.4 | | * | % | 0.1 | 0.5 | 11/21/06 16:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.254 | | * | mmhos/cm | 0.001 | 0.01 | 11/24/06 14:00 | srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.3 | | * | % | 0.1 | 0.5 | 12/07/06 16:45 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.7 | | * | units | 0.1 | 0.1 | 11/24/06 14:00 | srs |
| Saturation Percent | USDA No. 60 (2) | 51.00 | | * | % | 0.01 | 0.1 | 11/24/06 14:00 | srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 84.5 | | * | % Passing | 0.1 | 0.5 | 12/08/06 17:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 74.4 | | * | % Passing | 0.1 | 0.5 | 11/22/06 17:00 | as/srs |
| Solids, Percent | CLPSOW390, PART F, D-98 | 89.7 | | * | % | 0.1 | 0.5 | 11/29/06 8:11 | lwt/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.02 | B | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | | U | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Sulfate | | 0.02 | B | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Sulfur Total | | 0.04 | B | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.02 | B | * | % | 0.01 | 0.1 | 11/25/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 15.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Sand | | 55.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Silt | | 30.0 | | * | % | 0.1 | 0.5 | 12/07/06 0:00 | brg |
| Texture Classification | | L | | * | | | | 12/07/06 0:00 | brg |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9A 95-115"

ACZ Sample ID: ***L59732-20***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/27/06 15:00 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 10:00 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/17/06 12:00 | srs/aep |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/27/06 19:00 | jjr |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/20/06 21:00 | srs/erf |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/13/06 17:00 | as/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.3 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:15 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.9 | H | * | mg/Kg | 0.2 | 1 | 11/30/06 22:15 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.6 | H | * | mg/Kg | 0.1 | 0.5 | 11/30/06 22:15 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.39 | H | * | % | 0.01 | 0.05 | 12/08/06 18:06 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 11 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:18 | pjb |

## Report Header Explanations

| | |
|---|---|
| *Batch* | A distinct set of samples analyzed at a specific time |
| *Found* | Value of the QC Type of interest |
| *Limit* | Upper limit for RPD, in %. |
| *Lower* | Lower Recovery Limit, in % (except for LCSS, mg/Kg) |
| *MDL* | Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations. |
| *PCN/SCN* | A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis |
| *PQL* | Practical Quantitation Limit, typically 5 times the MDL. |
| *QC* | True Value of the Control Sample or the amount added to the Spike |
| *Rec* | Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg) |
| *RPD* | Relative Percent Difference, calculation used for Duplicate QC Types |
| *Upper* | Upper Recovery Limit, in % (except for LCSS, mg/Kg) |
| *Sample* | Value of the Sample of interest |

## QC Sample Types

| | | | |
|---|---|---|---|
| *AS* | Analytical Spike (Post Digestion) | *LCSWD* | Laboratory Control Sample - Water Duplicate |
| *ASD* | Analytical Spike (Post Digestion) Duplicate | *LFB* | Laboratory Fortified Blank |
| *CCB* | Continuing Calibration Blank | *LFM* | Laboratory Fortified Matrix |
| *CCV* | Continuing Calivation Verification standard | *LFMD* | Laboratory Fortified Matrix Duplicate |
| *DUP* | Sample Duplicate | *LRB* | Laboratory Reagent Blank |
| *ICB* | Initial Calibration Blank | *MS* | Matrix Spike |
| *ICV* | Initial Calibration Verification standard | *MSD* | Matrix Spike Duplicate |
| *ICSAB* | Inter-element Correction Standard - A plus B solutions | *PBS* | Prep Blank - Soil |
| *LCSS* | Laboratory Control Sample - Soil | *PBW* | Prep Blank - Water |
| *LCSSD* | Laboratory Control Sample - Soil Duplicate | *PQV* | Practical Quantitation Verification standard |
| *LCSW* | Laboratory Control Sample - Water | *SDL* | Serial Dilution |

## QC Sample Type Explanations

| | |
|---|---|
| Blanks | Verifies that there is no or minimal contamination in the prep method or calibration procedure. |
| Control Samples | Verifies the accuracy of the method, including the prep procedure. |
| Duplicates | Verifies the precision of the instrument and/or method. |
| Spikes/Fortified Matrix | Determines sample matrix interferences, if any. |
| Standard | Verifies the validity of the calibration. |

## ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| R | Poor spike recovery accepted because the other spike in the set fell within the given limits. |
| T | High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL. |
| U | Analyte was analyzed for but not detected at the indicated MDL |
| V | High blank data accepted because sample concentration is 10 times higher than blank concentration |
| W | Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride. |
| X | Quality control sample is out of control. |
| Z | Poor spike recovery is accepted because sample concentration is four times greater than spike concentration. |

## Method References


| | |
|---|---|
| (1) | EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983. |
| (2) | EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993. |
| (3) | EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994. |
| (5) | EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996. |
| (6) | Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995. |


## Comments

| | |
|---|---|
| (1) | QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations. |
| (2) | Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis. |
| (3) | Animal matrices for Inorganic analyses are reported on an "as received" basis. |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59732***

**Boron, soluble (Hot Water)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG216774** | | | | | | | | | | | | | |
| WG216774ICV | ICV | 11/18/06 4:16 | II061113-6 | 2 | | 1.938 | mg/L | 96.9 | 90 | 110 | | | |
| WG216774ICB | ICB | 11/18/06 4:20 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| L59459-01DUP | DUP | 11/18/06 4:44 | | | .4 | .4 | mg/L | | | | 0 | 20 | |
| WG216738PBS | PBS | 11/18/06 4:48 | | | | U | mg/L | | -0.15 | 0.15 | | | |
| L59731-09DUP | DUP | 11/18/06 4:56 | | | .57 | .72 | mg/L | | | | 23.3 | 20 | RC |
| L59731-10AS | AS | 11/18/06 5:16 | II061116-2 | 2.5 | .66 | 3.185 | mg/L | 101 | 75 | 125 | | | |
| L59731-10ASD | ASD | 11/18/06 5:20 | II061116-2 | 2.5 | .66 | 3.202 | mg/L | 101.7 | 75 | 125 | 0.53 | 20 | |

**Calcium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217319** | | | | | | | | | | | | | |
| WG217319ICV | ICV | 11/29/06 20:05 | II061128-2 | 100 | | 98.76 | mg/L | 98.8 | 90 | 110 | | | |
| WG217319ICB | ICB | 11/29/06 20:09 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| L59732-01DUP | DUP | 11/29/06 20:28 | | | 1.33 | 1.853 | meq/L | | | | 32.8 | 20 | RC |

**Carbon, total organic (TOC)** ASA No.9 29-2.2.4 Combustion/IR

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG216966** | | | | | | | | | | | | | |
| WG216966PBS | PBS | 11/21/06 12:00 | | | | U | % | | -0.3 | 0.3 | | | |
| L59732-01DUP | DUP | 11/21/06 12:24 | | | 1.6 | 1.6 | % | | | | 0 | 20 | |

**Conductivity @25C** M120.1 - Meter, w/ Saturated Paste Prep

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217046** | | | | | | | | | | | | | |
| L59732-01DUP | DUP | 11/22/06 16:31 | | | .249 | .347 | mmhos/cn | | | | 32.9 | 20 | RA TB |

**Magnesium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217319** | | | | | | | | | | | | | |
| WG217319ICV | ICV | 11/29/06 20:05 | II061128-2 | 100 | | 96.21 | mg/L | 96.2 | 90 | 110 | | | |
| WG217319ICB | ICB | 11/29/06 20:09 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| L59732-01DUP | DUP | 11/29/06 20:28 | | | .31 | .442 | meq/L | | | | 35.1 | 20 | RC |

**Neutralization Potential as CaCO3** M600/2-78-054 3.2.3

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217777** | | | | | | | | | | | | | |
| WG217777LCSS | LCSS | 12/07/06 12:14 | PCN20880 | 100 | | 102.96 | % | | | | | | |
| L59732-20DUP | DUP | 12/07/06 16:59 | | | 1.3 | 1.3 | % | | | | 0 | 20 | |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59732***

**Nitrate/Nitrite as N, extractable (KCL)** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217443** | | | | | | | | | | | | | |
| WG217443ICV | ICV | 11/30/06 20:53 | WI060906-3 | 2.416 | | 2.399 | mg/L | 99.3 | 90 | 110 | | | |
| WG217443ICB | ICB | 11/30/06 20:54 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| **WG217444** | | | | | | | | | | | | | |
| WG217444ICV | ICV | 11/30/06 21:38 | WI060906-3 | 2.416 | | 2.261 | mg/L | 93.6 | 90 | 110 | | | |
| WG217444ICB | ICB | 11/30/06 21:39 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| WG217444LFB | LFB | 11/30/06 21:41 | WI060906-4 | 2 | | 1.937 | mg/Kg | 96.9 | 85 | 115 | | | |
| WG217125PBS | PBS | 11/30/06 21:42 | | | | 1.27 | mg/Kg | | -0.6 | 0.6 | | | N1 |
| L59732-01DUP | DUP | 11/30/06 21:44 | | | 8.6 | 8.5 | mg/Kg | | | | 1.2 | 20 | |
| L59732-02AS | AS | 11/30/06 21:47 | WI060906-4 | 20 | 9.8 | 28.23 | mg/Kg | 92.2 | 75 | 125 | | | |

**Nitrite as N, extractable (KCL)** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217443** | | | | | | | | | | | | | |
| WG217443ICV | ICV | 11/30/06 20:53 | WI060906-3 | .609 | | .661 | mg/L | 108.5 | 90 | 110 | | | |
| WG217443ICB | ICB | 11/30/06 20:54 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| **WG217444** | | | | | | | | | | | | | |
| WG217444ICV | ICV | 11/30/06 21:38 | WI060906-3 | .609 | | .652 | mg/L | 107.1 | 90 | 110 | | | |
| WG217444ICB | ICB | 11/30/06 21:39 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG217444LFB | LFB | 11/30/06 21:41 | WI060906-4 | 1 | | 1.003 | mg/Kg | 100.3 | 85 | 115 | | | |
| WG217125PBS | PBS | 11/30/06 21:42 | | | | U | mg/Kg | | -0.3 | 0.3 | | | |
| L59732-01DUP | DUP | 11/30/06 21:44 | | | .7 | .72 | mg/Kg | | | | 2.8 | 20 | RA |
| L59732-02AS | AS | 11/30/06 21:47 | WI060906-4 | 10 | .8 | 10.25 | mg/Kg | 94.5 | 75 | 125 | | | |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59732***

**Nitrogen, total Kjeldahl** M351.2 - TKN by Block Digester

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217861** | | | | | | | | | | | | | |
| WG217691ICV | ICV | 12/08/06 17:01 | WI061129-2 | 4 | | 3.92 | mg/L | 98 | 90 | 110 | | | |
| WG217691ICB | ICB | 12/08/06 17:02 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG217691PBS2 | PBS | 12/08/06 17:36 | | | | U | % | | -0.003 | 0.003 | | | |
| WG217691LFB2 | LFB | 12/08/06 17:37 | WI061129-6 | 2.5 | | 2.47 | % | 98.8 | 85 | 115 | | | |
| L59735-14MS | MS | 12/08/06 17:39 | WI061129-6 | .0325 | .019 | .0476 | % | 88 | 75 | 125 | | | |
| WG217691PBS1 | PBS | 12/08/06 17:53 | | | | U | % | | -0.003 | 0.003 | | | |
| WG217691LFB1 | LFB | 12/08/06 17:54 | WI061129-6 | 2.5 | | 2.54 | % | 101.6 | 85 | 115 | | | |
| L59735-15DUP | DUP | 12/08/06 18:14 | | | .19 | .232 | % | | | | 19.9 | 20 | |
| L59732-11DUP | DUP | 12/08/06 18:24 | | | .153 | .1393 | % | | | | 9.4 | 20 | |
| L59732-12MS | MS | 12/08/06 18:26 | 5XPTSTKN | .0345 | .054 | .095 | % | 118.8 | 75 | 125 | | | |
| **WG218152** | | | | | | | | | | | | | |
| WG218152ICV1 | ICV | 12/14/06 15:10 | WI061129-2 | 4 | | 3.93 | mg/L | 98.3 | 90 | 110 | | | |
| WG218073ICB | ICB | 12/14/06 15:12 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG218073PBS | PBS | 12/14/06 15:19 | | | | U | % | | -0.006 | 0.006 | | | |
| WG218073LFB | LFB | 12/14/06 15:20 | WI061129-6 | 2.5 | | 2.66 | % | 106.4 | 85 | 115 | | | |
| L60028-01MS | MS | 12/14/06 15:27 | 100XTKN | .0535 | 6 | 5.94 | % | -112.1 | 75 | 125 | | | M3 |
| L60098-01DUP | DUP | 12/14/06 15:29 | | | 6.7 | 6.97 | % | | | | 4 | 20 | |
| **WG218282** | | | | | | | | | | | | | |
| WG218275ICV | ICV | 12/18/06 11:56 | WI061129-2 | 4 | | 3.9 | mg/L | 97.5 | 90 | 110 | | | |
| WG218275ICB | ICB | 12/18/06 11:57 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| **WG218283** | | | | | | | | | | | | | |
| WG218274PBS | PBS | 12/18/06 13:45 | | | | U | % | | -0.0024 | 0.0024 | | | |
| WG218274LFB | LFB | 12/18/06 13:46 | WI061129-6 | 2.5 | | 2.36 | % | 94.4 | 85 | 115 | | | |
| WG218274ICV | ICV | 12/18/06 15:14 | WI061129-2 | 4 | | 3.82 | mg/L | 95.5 | 90 | 110 | | | |
| WG218274ICB | ICB | 12/18/06 15:15 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| L59732-01MS | MS | 12/18/06 15:17 | 5XPTSTKN | .0235 | .088 | .116 | % | 119.1 | 75 | 125 | | | |
| L59732-02DUP | DUP | 12/18/06 15:19 | | | .093 | .1318 | % | | | | 34.5 | 20 | RD |

**Percent Clay** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217417** | | | | | | | | | | | | | |
| L59732-01DUP | DUP | 12/07/06 9:24 | | | 21.3 | 21.3 | % | | | | 0 | 20 | |

**Percent Sand** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217417** | | | | | | | | | | | | | |
| L59732-01DUP | DUP | 12/07/06 9:24 | | | 37.5 | 37.5 | % | | | | 0 | 20 | |

**Percent Silt** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217417** | | | | | | | | | | | | | |
| L59732-01DUP | DUP | 12/07/06 9:24 | | | 41.3 | 41.3 | % | | | | 0 | 20 | |

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# Inorganic QC Summary

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59732***

**pH, Saturated Paste** USDA No. 60 (21A)

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217046** | | | | | | | | | | | | | |
| L59732-01DUP | DUP | 11/22/06 16:31 | | | 7.7 | 7.69 | units | | | | 0.1 | 20 | |

**Phosphorus, extractable (AB-DTPA)** M365.1 - Automated Ascorbic Acid

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217438** | | | | | | | | | | | | | |
| WG217438ICV | ICV | 11/30/06 18:55 | SCN000224 | .65228 | | .649 | mg/L | 99.5 | 90 | 110 | | | |
| WG217438ICB | ICB | 11/30/06 18:57 | | | | .013 | mg/L | | -0.03 | 0.03 | | | |
| **WG217440** | | | | | | | | | | | | | |
| WG217440ICV | ICV | 11/30/06 19:33 | SCN000224 | .65228 | | .663 | mg/L | 101.6 | 90 | 110 | | | |
| WG217440ICB | ICB | 11/30/06 19:35 | | | | .013 | mg/L | | -0.03 | 0.03 | | | |
| WG217440LFB1 | LFB | 11/30/06 19:36 | WI061125-2 | .5 | | .484 | mg/Kg | 96.8 | 85 | 115 | | | |
| L59811-01DUP | DUP | 11/30/06 19:39 | | | 8 | 7.6 | mg/Kg | | | | 5.1 | 20 | RA |
| L59811-02AS | AS | 11/30/06 19:42 | WI061125-2 | 50 | 6 | 51.3 | mg/Kg | 90.6 | 75 | 125 | | | |
| WG217005PBS | PBS | 11/30/06 19:49 | | | | 7.1 | mg/Kg | | -3 | 3 | | | N1 |
| L59732-01DUP | DUP | 11/30/06 19:51 | | | 18 | 17.5 | mg/Kg | | | | 2.8 | 20 | |
| L59732-02AS | AS | 11/30/06 19:54 | WI061125-2 | 50 | 15 | 62.5 | mg/Kg | 95 | 75 | 125 | | | |
| WG217440LFB2 | LFB | 11/30/06 20:10 | WI061125-2 | .5 | | .505 | mg/Kg | 101 | 85 | 115 | | | |

**Potassium, extractable (AB-DTPA)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217467** | | | | | | | | | | | | | |
| WG217467ICV | ICV | 12/04/06 13:51 | II061128-2 | 20 | | 18.58 | mg/L | 92.9 | 90 | 110 | | | |
| WG217467ICB | ICB | 12/04/06 13:54 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG217005PBS | PBS | 12/04/06 14:08 | | | | U | mg/L | | -60 | 60 | | | |
| L59732-01DUP | DUP | 12/04/06 14:15 | | | 80 | 88 | mg/L | | | | 9.5 | 20 | RA |
| L59732-02AS | AS | 12/04/06 14:22 | II061116-2 | 4973.4095 | 240 | 5814 | mg/L | 112.1 | 75 | 125 | | | |
| L59732-02ASD | ASD | 12/04/06 14:25 | II061116-2 | 4973.4095 | 240 | 6145 | mg/L | 118.7 | 75 | 125 | 5.54 | 20 | |

**Potassium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217319** | | | | | | | | | | | | | |
| WG217319ICV | ICV | 11/29/06 20:05 | II061128-2 | 20 | | 19.22 | mg/L | 96.1 | 90 | 110 | | | |
| WG217319ICB | ICB | 11/29/06 20:09 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| L59732-01DUP | DUP | 11/29/06 20:28 | | | .076 | .0599 | meq/L | | | | 23.7 | 20 | RA |

**Saturation Percent** USDA No. 60 (2)

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217046** | | | | | | | | | | | | | |
| L59732-01DUP | DUP | 11/22/06 16:31 | | | 52.3 | 51.04 | % | | | | 2.4 | 20 | |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59732***

**Selenium, soluble (Hot Water)** SM3500-Se.C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217220** | | | | | | | | | | | | | |
| WG217220ICV | ICV | 11/30/06 10:30 | II061127-5 | .025 | | .0272 | mg/L | 108.8 | 90 | 110 | | | |
| WG217220ICB | ICB | 11/30/06 10:33 | | | | U | mg/L | | -0.003 | 0.003 | | | |
| **WG217223** | | | | | | | | | | | | | |
| L59732-20AS | AS | 11/30/06 14:14 | II061113-3 | .1 | U | .097 | mg/Kg | 97 | 85 | 115 | | | |
| L59732-20ASD | ASD | 11/30/06 14:25 | II061113-3 | .1 | U | .0985 | mg/Kg | 98.5 | 85 | 115 | 1.53 | 20 | |
| WG216738PBS | PBS | 11/30/06 15:18 | | | | U | mg/Kg | | -0.015 | 0.015 | | | |
| L59731-09DUP | DUP | 11/30/06 15:25 | | | U | U | mg/Kg | | | | 0 | 20 | RA |
| L59731-10AS | AS | 11/30/06 15:33 | II061113-3 | .1 | U | .0961 | mg/Kg | 96.1 | 85 | 115 | | | |
| L59731-10ASD | ASD | 11/30/06 15:36 | II061113-3 | .1 | U | .0958 | mg/Kg | 95.8 | 85 | 115 | 0.31 | 20 | |

**Sodium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217319** | | | | | | | | | | | | | |
| WG217319ICV | ICV | 11/29/06 20:05 | II061128-2 | 100 | | 95.35 | mg/L | 95.4 | 90 | 110 | | | |
| WG217319ICB | ICB | 11/29/06 20:09 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| L59732-01DUP | DUP | 11/29/06 20:28 | | | .3 | .578 | meq/L | | | | 63.3 | 20 | RC |

**Solids, Percent** CLPSOW390, PART F, D-98

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217210** | | | | | | | | | | | | | |
| WG217210PBS | PBS | 11/28/06 12:00 | | | | U | % | | 99.9 | 100.1 | | | |
| L59732-20DUP | DUP | 11/29/06 9:15 | | | 89.7 | 89.49 | % | | | | 0.2 | 20 | |

**Sulfur Organic Residual** M600/2-78-054 3.2.4

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217075** | | | | | | | | | | | | | |
| L59732-20DUP | DUP | 11/25/06 18:00 | | | .02 | .02 | % | | | | 0 | 20 | RA |

**Sulfur Pyritic Sulfide** M600/2-78-054 3.2.4

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217075** | | | | | | | | | | | | | |
| L59732-20DUP | DUP | 11/25/06 18:00 | | | U | U | % | | | | 0 | 20 | RA |

**Sulfur Sulfate** M600/2-78-054 3.2.4

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217075** | | | | | | | | | | | | | |
| L59732-20DUP | DUP | 11/25/06 18:00 | | | .02 | .02 | % | | | | 0 | 20 | RA |

**Sulfur Total** M600/2-78-054 3.2.4

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217075** | | | | | | | | | | | | | |
| WG217075PBS | PBS | 11/24/06 11:00 | | | | U | % | | -0.03 | 0.03 | | | |
| WG217075LCSS | LCSS | 11/24/06 13:23 | PCN25383 | 4.24 | | 4.3 | % | | 80 | 120 | | | |
| L59732-20DUP | DUP | 11/25/06 18:00 | | | .04 | .04 | % | | | | 0 | 20 | RA |

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# Inorganic QC Summary

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59732***

**Total Sulfur Minus Sulfate** M600/2-78-054 3.2.4

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217075** | | | | | | | | | | | | | |
| L59732-20DUP | DUP | 11/25/06 18:00 | | | .02 | .02 | % | | | | 0 | 20 | RA |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59732-01 | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218283 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59732-02 | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218283 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59732-03 | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218283 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59732-04** | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218283 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59732-05 | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218283 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59732-06** | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218283 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59732-07 | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218283 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59732-08** | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218283 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59732-09** | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218283 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59732-10** | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218283 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59732-11** | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59732-12** | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59732-13** | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59732-14** | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59732-15 | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59732-16 | WG216774 | Boron, soluble (Hot Water) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217223 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217319 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217075 | Sulfur Organic Residual | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Total | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Total Sulfur minus Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218152 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M3 | The accuracy of the spike recovery does not apply because analyte concentration in the sample is disproportionate to the spike level. The recovery of the method control sample was acceptable. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59732-17 | WG216774 | Boron, soluble (Hot Water) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217223 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217319 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217075 | Sulfur Organic Residual | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Total | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Total Sulfur minus Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218152 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M3 | The accuracy of the spike recovery does not apply because analyte concentration in the sample is disproportionate to the spike level. The recovery of the method control sample was acceptable. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59732-18 | WG216774 | Boron, soluble (Hot Water) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217223 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217319 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217075 | Sulfur Organic Residual | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Total | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Total Sulfur minus Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59732***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59732-20** | WG216774 | Boron, soluble (Hot Water) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217319 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217467 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217319 | Potassium, soluble (Sat. Paste) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217223 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217319 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217046 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217075 | Sulfur Organic Residual | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Sulfur Total | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | | Total Sulfur minus Sulfate | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217444 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217440 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Certification Qualifiers

**Carbon Resources**

ACZ Project ID: ***L59732***

Metals Analysis

**The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.**

| | |
|---|---|
| Selenium, soluble (Hot Water) | SM3500-Se.C |

Soil Analysis

**The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.**

| | |
|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 |
| pH, Saturated Paste | USDA No. 60 (21A) |
| Saturation Percent | USDA No. 60 (2) |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 |
| Solids, Percent | CLPSOW390, PART F, D-98 |
| Sulfur Forms | M600/2-78-054 3.2.4 |
| Texture by Hydrometer | ASTM D 422 Hydrometer |

Wet Chemistry

**The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.**

| | |
|---|---|
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid |

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# Sample Receipt

**Carbon Resources**

ACZ Project ID: L59732
Date Received: 10/31/2006
Received By:
Date Printed: 10/31/2006

## Receipt Verification

| | YES | NO | NA |
|---|---|---|---|
| 1) Does this project require special handling procedures such as CLP protocol? | | | X |
| 2) Are the custody seals on the cooler intact? | | | X |
| 3) Are the custody seals on the sample containers intact? | | | X |
| 4) Is there a Chain of Custody or other directive shipping papers present? | X | | |
| 5) Is the Chain of Custody complete? | X | | |
| 6) Is the Chain of Custody in agreement with the samples received? | X | | |
| 7) Is there enough sample for all requested analyses? | X | | |
| 8) Are all samples within holding times for requested analyses? | X | | |
| 9) Were all sample containers received intact? | X | | |
| 10) Are the temperature blanks present? | | | X |
| 11) Are the trip blanks (VOA and/or Cyanide) present? | | | X |
| 12) Are samples requiring no headspace, headspace free? | | | X |
| 13) Do the samples that require a Foreign Soils Permit have one? | | | X |

## Exceptions: If you answered no to any of the above questions, please describe

N/A

## Contact (For any discrepancies, the client must be contacted)

N/A

## Shipping Containers

| Cooler Id | | Temp (°C) | Rad (µR/hr) |
|---|---|---|---|
| BUCKET X 8 | | 22.5 | 16 |
| | | | |
| | | | |
| | | | |

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

## Notes

ACZ Laboratories, Inc.
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# Sample Receipt

**Carbon Resources**

ACZ Project ID: L59732
Date Received: 10/31/2006
Received By:

## Sample Container Preservation

| SAMPLE | CLIENT ID | R < 2 | G < 2 | BK < 2 | Y< 2 | YG< 2 | B< 2 | O < 2 | T >12 | N/A | RAD | ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L59732-01 | D-5 40-60" | | | | | | | | | X | | |
| L59732-02 | D-6 0-7" | | | | | | | | | X | | |
| L59732-03 | D-6 24-48" | | | | | | | | | X | | |
| L59732-04 | D-6 48-72" | | | | | | | | | X | | |
| L59732-05 | D-7 0-6" | | | | | | | | | X | | |
| L59732-06 | D-7 6-20" | | | | | | | | | X | | |
| L59732-07 | D-7 20-42" | | | | | | | | | X | | |
| L59732-08 | D-7 42-58" | | | | | | | | | X | | |
| L59732-09 | D-7 58-70" | | | | | | | | | X | | |
| L59732-10 | D-8 0-6" | | | | | | | | | X | | |
| L59732-11 | D-8 6-13" | | | | | | | | | X | | |
| L59732-12 | D-8 13-20" | | | | | | | | | X | | |
| L59732-13 | D-8 20-48" | | | | | | | | | X | | |
| L59732-14 | D-9A 0-6" | | | | | | | | | X | | |
| L59732-15 | D-9A 6-12" | | | | | | | | | X | | |
| L59732-16 | D-9A 12-30" | | | | | | | | | X | | |
| L59732-17 | D-9A 30-68" | | | | | | | | | X | | |
| L59732-18 | D-9A 80-95" | | | | | | | | | X | | |
| L59732-20 | D-9A 95-115" | | | | | | | | | X | | |

## Sample Container Preservation Legend

| Abbreviation | Description | Container Type | Preservative/Limits |
|---|---|---|---|
| R | Raw/Nitric | RED | pH must be < 2 |
| B | Filtered/Sulfuric | BLUE | pH must be < 2 |
| BK | Filtered/Nitric | BLACK | pH must be < 2 |
| G | Filtered/Nitric | GREEN | pH must be < 2 |
| O | Raw/Sulfuric | ORANGE | pH must be < 2 |
| P | Raw/NaOH | PURPLE | pH must be > 12 * |
| T | Raw/NaOH Zinc Acetate | TAN | pH must be > 12 |
| Y | Raw/Sulfuric | YELLOW | pH must be < 2 |
| YG | Raw/Sulfuric | YELLOW GLASS | pH must be < 2 |
| N/A | No preservative needed | Not applicable | |
| RAD | Gamma/Beta dose rate | Not applicable | must be < 250 µR/hr |

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L59732

Carbon Resources Soil Sample Increments
Kinney Mine, Scofield Utah
Sampled October 14-18, 2006
By Bruce Chesler and Greg Hunt
Telephone 435-826-4961
Billed to Carbon Resources

Mailed UPS on October 24, 2006 to:
ACZ Laboratory
2773 Downhill Drive
Steamboat Springs, Colorado, 80487
Attn. Sue Webber telephone 1-800-334-5493 Ext.110

Soil Samples sent in 5-gallon white plastic buckets from Escalante, Utah, and coal samples sent separately in a bucket from Cedaredege, Colorado. The coal sample increments are required to have the following additional analyses, along with the soil horizons found above and below them in their respective soil positions. These will include soil horizons and coal materials sampled at 3 locations, (D3, D9A, D9B) including a total of 19 samples.

Total Organic Carbon (Combustion Method, Western States Lab Testing Program, 1998, volume 4.10, page 88)
Soluble Selenium reported in mg/kg (Hydric Generation AA-Spectrometry and Flourimetry of water extracted Selenium)
Available Boron reported in mg/kg (saturation extract)
Acid Potential reported % pyric S
Neutralization Potential Tons CaCo3 equivalent/1000 tons

The remaining samples are as follows:

D1 0-6, 6-16, 16-25, 25-40, 40-65, 65-90 (6 samples)

D2 0-6, 6-24 (2 samples)

D3 Coal and Soil sent in separate shipments 0-10, 10-20, 20-40, 40-60, 60-75, 1 coal (7)

D4 0-8, 8-16, (2 samples)

D5 0-6, 6-20, 20-40, 40-60 (4 samples)

D6 0-7, coal not sampled, 24-48, 48-72 (3 samples)

D7 0-6, 6-20, 20-42, 42-58, 58-70 (5 samples)

D8 0-6, 6-13, 13-26, 26-48 (4 samples)

D9A coal and soil sent in two shipments 0-6, 6-12, 12-30, 30-68, 68-95, 95-115, 115-140 (7 samples)

D9B coal and soil sent separately 0-6, 6-12, 12-30, 30-52, 52-80, 80-102 (6 samples)

D10 0-5, 5-11, 11-23, 23-35 (4 samples)

D11 0-12, did not sample coal, 62-82 (2samples)

D12 0-6, 6-14, 14-28, 28-48, 48-66 (5 samples)

2A-1 0-10, 10-24, 24-44, 44-65, 65-80 (5 samples)

2A-2 0-5, 5-14, 14-25, 25-38 (4 samples)

2A-3 0-9, 9-19, 19-36, 36-52 (4 samples)

2A-5 0-6, 6-12, 12-24, 24-48 (4 samples)

2A-6 0-6, 6-12, 12-24, 24-40, 40-66, 66-80 (6 samples)

2A-7 0-7, 7-20, 20-38 (3 samples)

2B-1 0-9, 9-19, 19-33, 33-51 (4 samples)

1A-1 0-6, 6-17, 17-28, 28-60, 60-100 (5 samples)

1A-2 15-25, 25-40, 40-60, 60-75, 75-90 (5 samples)

1B1 0-7, 7-15, 15-28, 28-60 (4 samples)

Please give me a call if you have any questions on methodology at my office. Phone # 435-826-4961

Thanks,
Bruce Chesler
Representing, Carbon Resources
Escalante, Utah

LDC 10.26.06

**Sue Webber**

**From:** GHuntBBC@aol.com
**Sent:** Friday, October 27, 2006 12:52 PM
**To:** bches@scinternet.net; Sue Webber
**Subject:** Sue Weber Carbon Resources Soil Samples

**FROM:** **Geo-Hunt Consulting**
**16577 Columbine Lane**
**Cedaredge, CO 81413**
**970-856-9477**

**TO:** **Sue Webber, Project Manager**
**ACZ Laboratories, Inc.**
**2773 Downhill Drive,**
**Steamboat Springs, Co 80487**

**RE:** **TRANSMITTAL OF SOIL SAMPLES**

**Dear Sue:**
You have already received a rather large number of samples from BRUCE CHESLER, soil scientist from Escalante Utah, from the Carbon Resources "Kinney" Property, Scofield Utah. Enclosed please find the following seven soil samples taken from the same property and are a part of the same project. These samples should be processed with those received directly from Bruce and all of the results should be returned to Bruce.

D3
D4 19"-72"
D9-A 12"- 30"
D9-A 30"- 68"
D9-B 12"- 30"
D9-B 30"- 50"
D11 11"-48"

Note that some of the bag samples received from Bruce and or I may be labeled either Carbon Resources or Kinney. Both names indicate the same project.

Thank you for your prompt attention to this project.

Greg Hunt

Cc: Bruce Chesler

10/31/2006

# Very Fine Sand

analyst: as
date: 12-12-06

| ACZ L# | Total sample wt. gms | % <2000um sieve | Wt. of sxs used for Texture gms | Wt. of sxs between 105um & 53um gm. | % VFS |
|---|---|---|---|---|---|
| L59732-01 | 219.77 | 84.4 | 40.0 | 6.2 | **13.10** |
| L59732-02 | 300.77 | 87.6 | 40.0 | 5.6 | **12.30** |
| L59732-03 | 240.99 | 72.4 | 40.0 | 6.2 | **11.30** |
| L59732-04 | 272.23 | 61.4 | 40.0 | 5.8 | **8.9** |
| L59732-05 | 211.88 | 68.2 | 40.0 | 5.7 | **9.7** |
| L59732-06 | 228.73 | 53.9 | 40.0 | 5.2 | **7.1** |
| L59732-07 | 225.47 | 67.7 | 40.0 | 5.0 | **8.5** |
| L59732-08 | 257.01 | 70.3 | 40.0 | 5.2 | **9.1** |
| L59732-09 | 234.19 | 94.6 | 40.0 | 10.0 | **23.6** |
| L59732-10 | 212.60 | 92.1 | 40.0 | 8.8 | **20.3** |
| L59732-11 | 186.83 | 90.5 | 40.0 | 9.3 | **21.1** |
| L59732-12 | 207.24 | 96.9 | 40.0 | 10.0 | **24.2** |
| L59732-13 | 208.49 | 92.6 | 40.0 | 10.3 | **23.9** |
| L59732-14 | 221.90 | 75.6 | 40.0 | 7.6 | **14.4** |
| L59732-15 | 232.91 | 79.3 | 40.0 | 7.8 | **15.4** |
| L59732-16 | 274.03 | 59.8 | 40.0 | 3.8 | **5.6** |
| L59732-17 | 254.63 | 51.7 | 40.0 | 2.0 | **2.6** |
| L59732-18 | 181.46 | 80.3 | 40.0 | 7.2 | **14.5** |
| L59732-20 | 200.70 | 74.4 | 40.0 | 8.3 | **15.5** |
| | | | | | |
| dup L59732-01 | 219.77 | 84.4 | 40. | 6.6 | **13.9** |

**(wt of sxs between 105um & 53um) / (wt. of sxs used for texture) = VFS of texture**

**(VFS of Texture) x (% <2000um) = % VFS**

**additional data from:**

**-sieve2000 WG216880**

**-sieve53 WG217642**

**-texture WG217417**

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Analytical Report**

December 21, 2006

Report to:
Clay Wisdom
Carbon Resources
PO Box 1789
Albuquerque, NM 87192

Bill to:
Clay Wisdom
Carbon Resources
PO Box 11789
Albuquerque, NM 87192

cc: Greg Hunt, Bruce Chesler

Project ID:
ACZ Project ID: L59733

Clay Wisdom:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 31, 2006. This project has been assigned to ACZ's project number, L59733. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L59733. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 21, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

Sue Webber 21/Dec/06

Sue Webber, Project Manager, has reviewed and approved this report in its entirety.

Carbon Resources

December 21, 2006

Project ID:
ACZ Project ID: L59733

## Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 20 soil samples from Carbon Resources on October 31, 2006. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L59733. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

## Holding Times

All analyses were not performed within EPA recommended holding times. The EPA holding times apply to water samples, not soil so the "H" flags are not applicable.

## Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The following anomalies required further explanation not provided by the Extended Qualifier Report:

1. For Nitrate/Nitrite, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

2. For Phosphorus, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9A 115-145"

ACZ Sample ID: ***L59733-01***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 14:49 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 0.57 | | * | mg/Kg | 0.05 | 0.3 | 12/08/06 5:29 | gme |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 12.70 | | | meq/L | 0.01 | 0.05 | 12/07/06 4:26 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 2.67 | | | meq/L | 0.02 | 0.08 | 12/07/06 4:26 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 200 | | * | mg/Kg | 20 | 50 | 12/06/06 12:49 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.351 | | | meq/L | 0.008 | 0.03 | 12/07/06 4:26 | msh |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 12/01/06 11:43 | djt |
| Sodium Absorption Ratio | Calculation | 0.10 | B | | | 0.03 | 0.15 | 12/21/06 10:26 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.30 | | | meq/L | 0.01 | 0.04 | 12/07/06 4:26 | msh |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9A 115-145"

ACZ Sample ID: ***L59733-01***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 0 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:26 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 5 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:26 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 5 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:26 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.3 | B | * | % | 0.1 | 0.5 | 12/05/06 9:22 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 1.250 | | * | mmhos/cm | 0.001 | 0.01 | 11/30/06 10:00 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.5 | | * | % | 0.1 | 0.5 | 11/30/06 9:32 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.1 | | * | units | 0.1 | 0.1 | 11/30/06 10:00 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 42.50 | | * | % | 0.01 | 0.1 | 11/30/06 10:00 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 81.2 | | * | % Passing | 0.1 | 0.5 | 12/11/06 9:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 81.5 | | * | % Passing | 0.1 | 0.5 | 11/24/06 8:00 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 89.5 | | * | % | 0.1 | 0.5 | 11/28/06 13:00 | lwt/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.01 | B | * | % | 0.01 | 0.1 | 11/30/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | | U | * | % | 0.01 | 0.1 | 11/30/06 0:00 | lwt/srs |
| Sulfur Sulfate | | 0.01 | B | * | % | 0.01 | 0.1 | 11/30/06 0:00 | lwt/srs |
| Sulfur Total | | 0.02 | B | * | % | 0.01 | 0.1 | 11/30/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.01 | B | * | % | 0.01 | 0.1 | 11/30/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 22.5 | | * | % | 0.1 | 0.5 | 12/08/06 0:00 | srs |
| Sand | | 50.0 | | * | % | 0.1 | 0.5 | 12/08/06 0:00 | srs |
| Silt | | 27.5 | | * | % | 0.1 | 0.5 | 12/08/06 0:00 | srs |
| Texture Classification | | L | | * | | | | 12/08/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9A 115-145"

ACZ Sample ID: ***L59733-01***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 9:20 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:00 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/28/06 15:13 | jjr |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 16:11 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 16:00 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:00 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 3.6 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:26 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.2 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:13 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.6 | H | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:13 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.046 | H | * | % | 0.004 | 0.02 | 11/18/06 20:41 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 13 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:29 | paulb |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9B 0-6"

ACZ Sample ID: ***L59733-02***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 15:06 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 0.46 | | * | mg/Kg | 0.05 | 0.3 | 12/08/06 5:45 | gme |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 2.76 | | | meq/L | 0.01 | 0.05 | 12/07/06 4:30 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.39 | | | meq/L | 0.02 | 0.08 | 12/07/06 4:30 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 250 | | * | mg/Kg | 20 | 50 | 12/06/06 12:56 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.317 | | | meq/L | 0.008 | 0.03 | 12/07/06 4:30 | msh |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 12/01/06 11:54 | djt |
| Sodium Absorption Ratio | Calculation | 0.18 | | | | 0.03 | 0.15 | 12/21/06 10:26 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.23 | | | meq/L | 0.01 | 0.04 | 12/07/06 4:30 | msh |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9B 0-6"

ACZ Sample ID: ***L59733-02***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 0 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:26 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 24 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:26 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 24 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:26 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.7 | | * | % | 0.1 | 0.5 | 12/05/06 10:08 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.430 | | * | mmhos/cm | 0.001 | 0.01 | 11/30/06 11:21 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 2.4 | | * | % | 0.1 | 0.5 | 11/30/06 9:49 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.4 | | * | units | 0.1 | 0.1 | 11/30/06 11:21 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 41.50 | | * | % | 0.01 | 0.1 | 11/30/06 11:21 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 85.0 | | * | % Passing | 0.1 | 0.5 | 12/11/06 10:15 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 82.3 | | * | % Passing | 0.1 | 0.5 | 11/24/06 12:15 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 86.6 | | * | % | 0.1 | 0.5 | 11/28/06 14:01 | lwt/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.02 | B | * | % | 0.01 | 0.1 | 11/30/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | | U | * | % | 0.01 | 0.1 | 11/30/06 0:00 | lwt/srs |
| Sulfur Sulfate | | | U | * | % | 0.01 | 0.1 | 11/30/06 0:00 | lwt/srs |
| Sulfur Total | | 0.02 | B | * | % | 0.01 | 0.1 | 11/30/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.02 | B | * | % | 0.01 | 0.1 | 11/30/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 25.0 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Sand | | 35.0 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Silt | | 40.0 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Texture Classification | | SiL | | * | | | | 12/09/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9B 0-6"

ACZ Sample ID: ***L59733-02***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 10:02 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:03 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/28/06 15:26 | jjr |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 16:34 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 16:06 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:03 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 2.9 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:26 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 3.5 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:16 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.6 | H | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:16 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.133 | H | * | % | 0.003 | 0.02 | 11/18/06 20:43 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 20 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:31 | paulb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9B 6-12"

ACZ Sample ID: ***L59733-03***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 15:23 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 0.49 | | * | mg/Kg | 0.05 | 0.3 | 12/08/06 5:49 | gme |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 2.47 | | | meq/L | 0.01 | 0.05 | 12/07/06 4:34 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.39 | | | meq/L | 0.02 | 0.08 | 12/07/06 4:34 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 170 | | * | mg/Kg | 20 | 50 | 12/08/06 1:51 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.120 | | | meq/L | 0.008 | 0.03 | 12/07/06 4:34 | msh |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 12/01/06 11:57 | djt |
| Sodium Absorption Ratio | Calculation | 0.17 | | | | 0.03 | 0.15 | 12/21/06 10:26 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.21 | | | meq/L | 0.01 | 0.04 | 12/07/06 4:34 | msh |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9B 6-12"

ACZ Sample ID: ***L59733-03***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 0 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:26 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 22 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:26 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 22 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:26 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 2.4 | | * | % | 0.1 | 0.5 | 12/05/06 10:31 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.370 | | * | mmhos/cm | 0.001 | 0.01 | 11/30/06 12:42 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 2.2 | | * | % | 0.1 | 0.5 | 11/30/06 10:05 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.4 | | * | units | 0.1 | 0.1 | 11/30/06 12:42 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 34.90 | | * | % | 0.01 | 0.1 | 11/30/06 12:42 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 80.7 | | * | % Passing | 0.1 | 0.5 | 12/11/06 11:31 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 88.2 | | * | % Passing | 0.1 | 0.5 | 11/24/06 16:31 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 85.7 | | * | % | 0.1 | 0.5 | 11/28/06 15:02 | lwt/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.03 | B | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | | U | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Sulfate | | | U | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Total | | 0.03 | B | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.03 | B | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 17.5 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Sand | | 51.3 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Silt | | 31.3 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Texture Classification | | L | | * | | | | 12/09/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9B 6-12"

ACZ Sample ID: ***L59733-03***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 10:22 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:06 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/28/06 15:40 | jjr |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 16:45 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 16:12 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:06 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.9 | B | | mg/Kg | 0.2 | 1 | 12/21/06 10:26 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.6 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:18 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:18 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.24 | H | * | % | 0.02 | 0.1 | 11/18/06 20:45 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 31 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:33 | paulb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9B 12-30"

ACZ Sample ID: ***L59733-04***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 15:32 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 2.27 | | * | mg/Kg | 0.05 | 0.3 | 12/08/06 6:01 | gme |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 18.50 | | | meq/L | 0.01 | 0.05 | 12/07/06 4:38 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 3.87 | | | meq/L | 0.02 | 0.08 | 12/07/06 4:38 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 120 | | * | mg/Kg | 20 | 50 | 12/08/06 2:15 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.174 | | | meq/L | 0.008 | 0.03 | 12/07/06 4:38 | msh |
| Selenium, soluble (Hot Water) | SM3500-Se.C | 0.007 | B | * | mg/Kg | 0.005 | 0.03 | 12/01/06 12:01 | djt |
| Sodium Absorption Ratio | Calculation | 0.07 | B | | | 0.03 | 0.15 | 12/21/06 10:26 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.25 | | | meq/L | 0.01 | 0.04 | 12/07/06 4:38 | msh |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9B 12-30"

ACZ Sample ID: ***L59733-04***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 16 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:26 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 51 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:26 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 35 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:26 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 23.1 | | * | % | 0.1 | 0.5 | 12/05/06 10:54 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 1.610 | | * | mmhos/cm | 0.001 | 0.01 | 11/30/06 14:03 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 5.1 | | * | % | 0.1 | 0.5 | 11/30/06 10:21 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.1 | | * | units | 0.1 | 0.1 | 11/30/06 14:03 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 50.30 | | * | % | 0.01 | 0.1 | 11/30/06 14:03 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 96.3 | | * | % Passing | 0.1 | 0.5 | 12/11/06 12:47 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 47.2 | | * | % Passing | 0.1 | 0.5 | 11/24/06 20:47 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 91.9 | | * | % | 0.1 | 0.5 | 11/28/06 16:02 | lwt/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.20 | | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | 0.12 | | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Sulfate | | 0.20 | | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Total | | 0.52 | | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.32 | | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 23.8 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Sand | | 50.0 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Silt | | 26.3 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Texture Classification | | L | | * | | | | 12/09/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9B 12-30"

ACZ Sample ID: ***L59733-04***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 10:43 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:09 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/28/06 15:53 | jjr |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 16:57 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 16:18 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:09 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.5 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:26 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.5 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:19 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:19 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.73 | | * | % | 0.04 | 0.2 | 11/18/06 20:46 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 3 | BH | * | mg/Kg | 1 | 5 | 11/30/06 20:34 | paulb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9B 30-52"

ACZ Sample ID: ***L59733-05***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 15:41 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 1.41 | | * | mg/Kg | 0.05 | 0.3 | 12/08/06 6:05 | gme |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 25.10 | | | meq/L | 0.01 | 0.05 | 12/07/06 4:46 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 1.48 | | | meq/L | 0.02 | 0.08 | 12/07/06 4:46 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 30 | B | * | mg/Kg | 20 | 50 | 12/08/06 2:19 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.062 | | | meq/L | 0.008 | 0.03 | 12/07/06 4:46 | msh |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 12/01/06 12:05 | djt |
| Sodium Absorption Ratio | Calculation | 0.04 | B | | | 0.03 | 0.15 | 12/21/06 10:27 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.16 | | | meq/L | 0.01 | 0.04 | 12/07/06 4:46 | msh |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9B 30-52"

ACZ Sample ID: ***L59733-05***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 35 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:27 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 46 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:27 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 11 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:27 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 54.0 | | * | % | 0.1 | 0.5 | 12/05/06 11:17 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 1.770 | | * | mmhos/cm | 0.001 | 0.01 | 11/30/06 16:45 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 4.6 | | * | % | 0.1 | 0.5 | 11/30/06 10:38 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.1 | | * | units | 0.1 | 0.1 | 11/30/06 16:45 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 59.00 | | * | % | 0.01 | 0.1 | 11/30/06 16:45 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 97.1 | | * | % Passing | 0.1 | 0.5 | 12/11/06 14:03 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 72.1 | | * | % Passing | 0.1 | 0.5 | 11/25/06 1:03 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 91.5 | | * | % | 0.1 | 0.5 | 11/28/06 17:03 | lwt/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.51 | | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | 0.08 | B | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Sulfate | | 0.54 | | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Total | | 1.13 | | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.59 | | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 2.5 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Sand | | 93.8 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Silt | | 3.8 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Texture Classification | | S | | * | | | | 12/09/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9B 30-52"

ACZ Sample ID: ***L59733-05***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 11:04 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:12 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/28/06 16:06 | jjr |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 17:08 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 16:30 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:12 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.2 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:27 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.2 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:24 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:24 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 1.43 | | * | % | 0.05 | 0.3 | 11/18/06 22:38 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 1 | BH | * | mg/Kg | 1 | 5 | 11/30/06 20:35 | paulb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9B 52-80"

ACZ Sample ID: ***L59733-06***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 15:49 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 1.73 | | * | mg/Kg | 0.05 | 0.3 | 12/08/06 6:09 | gme |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 20.10 | | | meq/L | 0.01 | 0.05 | 12/07/06 4:50 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 6.54 | | | meq/L | 0.02 | 0.08 | 12/07/06 4:50 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 150 | | * | mg/Kg | 20 | 50 | 12/08/06 2:23 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.424 | | | meq/L | 0.008 | 0.03 | 12/07/06 4:50 | msh |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 12/01/06 12:08 | djt |
| Sodium Absorption Ratio | Calculation | 0.05 | B | | | 0.03 | 0.15 | 12/21/06 10:27 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.21 | | | meq/L | 0.01 | 0.04 | 12/07/06 4:50 | msh |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9B 52-80"

ACZ Sample ID: ***L59733-06***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 2 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:27 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 7 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:27 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 5 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:27 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.4 | | * | % | 0.1 | 0.5 | 12/05/06 11:39 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 1.850 | | * | mmhos/cm | 0.001 | 0.01 | 11/30/06 18:06 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.7 | | * | % | 0.1 | 0.5 | 11/30/06 10:54 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.0 | | * | units | 0.1 | 0.1 | 11/30/06 18:06 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 38.00 | | * | % | 0.01 | 0.1 | 11/30/06 18:06 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 78.6 | | * | % Passing | 0.1 | 0.5 | 12/11/06 15:18 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 82.7 | | * | % Passing | 0.1 | 0.5 | 11/25/06 5:18 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 95.5 | | * | % | 0.1 | 0.5 | 11/28/06 18:04 | lwt/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.02 | B | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | | U | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Sulfate | | 0.04 | B | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Total | | 0.05 | B | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.01 | B | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 13.8 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Sand | | 60.0 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Silt | | 26.3 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Texture Classification | | SL | | * | | | | 12/09/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9B 52-80"

ACZ Sample ID: ***L59733-06***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 11:25 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:15 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/28/06 16:20 | jjr |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 17:20 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 16:36 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:15 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.4 | B | | mg/Kg | 0.2 | 1 | 12/21/06 10:27 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.1 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:25 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:25 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.094 | H | * | % | 0.002 | 0.01 | 11/18/06 20:48 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 11 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:37 | paulb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9B 80-102"

ACZ Sample ID: ***L59733-07***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 16:15 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 0.86 | | * | mg/Kg | 0.05 | 0.3 | 12/08/06 6:13 | gme |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 19.40 | | | meq/L | 0.01 | 0.05 | 12/07/06 5:02 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 6.62 | | | meq/L | 0.02 | 0.08 | 12/07/06 5:02 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 180 | | * | mg/Kg | 20 | 50 | 12/08/06 2:27 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.583 | | | meq/L | 0.008 | 0.03 | 12/07/06 5:02 | msh |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 12/01/06 12:19 | djt |
| Sodium Absorption Ratio | Calculation | 0.06 | B | | | 0.03 | 0.15 | 12/21/06 10:27 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.24 | | | meq/L | 0.01 | 0.04 | 12/07/06 5:02 | msh |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-9B 80-102"

ACZ Sample ID: ***L59733-07***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 0 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:27 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 6 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:27 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 6 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:27 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.9 | | * | % | 0.1 | 0.5 | 12/05/06 12:02 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 1.730 | | * | mmhos/cm | 0.001 | 0.01 | 11/30/06 19:27 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.6 | | * | % | 0.1 | 0.5 | 11/30/06 11:10 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.0 | | * | units | 0.1 | 0.1 | 11/30/06 19:27 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 37.90 | | * | % | 0.01 | 0.1 | 11/30/06 19:27 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 79.8 | | * | % Passing | 0.1 | 0.5 | 12/11/06 16:34 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 82.7 | | * | % Passing | 0.1 | 0.5 | 11/25/06 9:34 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 95.9 | | * | % | 0.1 | 0.5 | 11/28/06 19:05 | lwt/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.01 | B | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | | U | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Sulfate | | 0.02 | B | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Total | | 0.03 | B | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.01 | B | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 15.0 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Sand | | 53.8 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Silt | | 31.3 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Texture Classification | | L | | * | | | | 12/09/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-9B 80-102"

ACZ Sample ID: ***L59733-07***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 11:45 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:18 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/28/06 16:33 | jjr |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 17:31 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 16:42 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:18 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.4 | B | | mg/Kg | 0.2 | 1 | 12/21/06 10:27 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.1 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:27 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:27 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.060 | H | * | % | 0.002 | 0.01 | 11/18/06 20:53 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 11 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:40 | paulb |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-10 0-5"

ACZ Sample ID: ***L59733-08***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 16:24 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 3.23 | | | meq/L | 0.01 | 0.05 | 12/07/06 5:07 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.67 | | | meq/L | 0.02 | 0.08 | 12/07/06 5:07 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 410 | | * | mg/Kg | 20 | 50 | 12/08/06 2:31 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 1.110 | | | meq/L | 0.008 | 0.03 | 12/07/06 5:07 | msh |
| Sodium Absorption Ratio | Calculation | 0.16 | | | | 0.03 | 0.15 | 12/21/06 10:27 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.23 | | | meq/L | 0.01 | 0.04 | 12/07/06 5:07 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 3.3 | | * | % | 0.1 | 0.5 | 12/05/06 12:25 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.530 | | * | mmhos/cm | 0.001 | 0.01 | 11/30/06 20:48 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.0 | | * | % | 0.1 | 0.5 | 11/30/06 11:27 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.3 | | * | units | 0.1 | 0.1 | 11/30/06 20:48 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 50.70 | | * | % | 0.01 | 0.1 | 11/30/06 20:48 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 68.2 | | * | % Passing | 0.1 | 0.5 | 12/11/06 17:50 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 81.6 | | * | % Passing | 0.1 | 0.5 | 11/25/06 13:50 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 82.6 | | * | % | 0.1 | 0.5 | 11/28/06 20:05 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 15.0 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Sand | | 47.5 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Silt | | 37.5 | | * | % | 0.1 | 0.5 | 12/09/06 0:00 | srs |
| Texture Classification | | L | | * | | | | 12/09/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-10 0-5"

ACZ Sample ID: ***L59733-08***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 12:06 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:22 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 17:42 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 16:48 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:22 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.8 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:27 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.8 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:28 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:28 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.307 | H | * | % | 0.009 | 0.04 | 11/18/06 22:56 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 21 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:41 | paulb |



** Please refer to Qualifier Reports for detail.*

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-10 5-11"

ACZ Sample ID: ***L59733-09***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 16:32 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.34 | | | meq/L | 0.01 | 0.05 | 12/07/06 5:11 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.28 | | | meq/L | 0.02 | 0.08 | 12/07/06 5:11 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 180 | | * | mg/Kg | 20 | 50 | 12/08/06 2:35 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.147 | | | meq/L | 0.008 | 0.03 | 12/07/06 5:11 | msh |
| Sodium Absorption Ratio | Calculation | 0.40 | | | | 0.03 | 0.15 | 12/21/06 10:27 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.36 | | | meq/L | 0.01 | 0.04 | 12/07/06 5:11 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 3.1 | | * | % | 0.1 | 0.5 | 12/05/06 12:48 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.280 | | * | mmhos/cm | 0.001 | 0.01 | 11/30/06 22:09 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.7 | | * | % | 0.1 | 0.5 | 11/30/06 11:43 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.3 | | * | units | 0.1 | 0.1 | 11/30/06 22:09 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 48.30 | | * | % | 0.01 | 0.1 | 11/30/06 22:09 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 91.1 | | * | % Passing | 0.1 | 0.5 | 12/11/06 19:06 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 47.4 | | * | % Passing | 0.1 | 0.5 | 11/25/06 18:06 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 87.4 | | * | % | 0.1 | 0.5 | 11/28/06 21:06 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 25.0 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Sand | | 33.8 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Silt | | 41.3 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Texture Classification | | SiL | | * | | | | 12/10/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

**Carbon Resources**
Project ID:
Sample ID: D-10 5-11"

ACZ Sample ID: ***L59733-09***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 12:27 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:25 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 17:54 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 16:54 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:25 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.5 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:27 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 2.1 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:29 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.6 | H | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:29 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.115 | H | * | % | 0.003 | 0.01 | 11/18/06 22:43 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 13 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:42 | paulb |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-10 11-23"

ACZ Sample ID: ***L59733-10***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 16:41 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.82 | | | meq/L | 0.01 | 0.05 | 12/07/06 5:15 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.25 | | | meq/L | 0.02 | 0.08 | 12/07/06 5:15 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 130 | | * | mg/Kg | 20 | 50 | 12/08/06 2:39 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.094 | | | meq/L | 0.008 | 0.03 | 12/07/06 5:15 | msh |
| Sodium Absorption Ratio | Calculation | 0.49 | | | | 0.03 | 0.15 | 12/21/06 10:28 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.36 | | | meq/L | 0.01 | 0.04 | 12/07/06 5:15 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.8 | | * | % | 0.1 | 0.5 | 12/05/06 13:11 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.220 | | * | mmhos/cm | 0.001 | 0.01 | 11/30/06 23:30 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.7 | | * | % | 0.1 | 0.5 | 11/30/06 12:00 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.4 | | * | units | 0.1 | 0.1 | 11/30/06 23:30 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 61.70 | | * | % | 0.01 | 0.1 | 11/30/06 23:30 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 97.0 | | * | % Passing | 0.1 | 0.5 | 12/11/06 20:22 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 23.0 | | * | % Passing | 0.1 | 0.5 | 11/25/06 22:22 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 91.7 | | * | % | 0.1 | 0.5 | 11/28/06 22:07 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 38.8 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Sand | | 26.3 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Silt | | 35.0 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Texture Classification | | SiCL | | * | | | | 12/10/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-10 11-23"

ACZ Sample ID: ***L59733-10***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 12:47 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:28 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 18:05 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 17:00 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:28 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.9 | B | | mg/Kg | 0.2 | 1 | 12/21/06 10:28 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.5 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:30 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.6 | H | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:30 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.083 | H | * | % | 0.002 | 0.01 | 11/18/06 20:56 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 7 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:43 | paulb |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-10 23-35"

ACZ Sample ID: ***L59733-11***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 16:50 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.81 | | | meq/L | 0.01 | 0.05 | 12/07/06 5:19 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.39 | | | meq/L | 0.02 | 0.08 | 12/07/06 5:19 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 130 | | * | mg/Kg | 20 | 50 | 12/08/06 2:43 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.187 | | | meq/L | 0.008 | 0.03 | 12/07/06 5:19 | msh |
| Sodium Absorption Ratio | Calculation | 0.43 | | | | 0.03 | 0.15 | 12/21/06 10:28 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.34 | | | meq/L | 0.01 | 0.04 | 12/07/06 5:19 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.7 | | * | % | 0.1 | 0.5 | 12/05/06 13:34 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.250 | | * | mmhos/cm | 0.001 | 0.01 | 12/01/06 0:51 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.0 | | * | % | 0.1 | 0.5 | 11/30/06 12:16 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.3 | | * | units | 0.1 | 0.1 | 12/01/06 0:51 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 69.60 | | * | % | 0.01 | 0.1 | 12/01/06 0:51 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 98.0 | | * | % Passing | 0.1 | 0.5 | 12/11/06 21:37 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 18.9 | | * | % Passing | 0.1 | 0.5 | 11/26/06 2:37 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 91.2 | | * | % | 0.1 | 0.5 | 11/28/06 23:07 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 42.5 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Sand | | 22.5 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Silt | | 35.0 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Texture Classification | | SIC | | * | | | | 12/10/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-10 23-35"

ACZ Sample ID: ***L59733-11***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 13:08 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:31 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 18:17 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 17:06 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:31 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 2.0 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:28 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 2.7 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:31 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:31 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.056 | H | * | % | 0.002 | 0.01 | 11/18/06 20:57 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 8 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:44 | paulb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-11 0-12"

ACZ Sample ID: ***L59733-12***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 16:58 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 2.98 | | | meq/L | 0.01 | 0.05 | 12/07/06 5:23 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.35 | | | meq/L | 0.02 | 0.08 | 12/07/06 5:23 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 230 | | * | mg/Kg | 20 | 50 | 12/08/06 2:47 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.217 | | | meq/L | 0.008 | 0.03 | 12/07/06 5:23 | msh |
| Sodium Absorption Ratio | Calculation | 0.20 | | | | 0.03 | 0.15 | 12/21/06 10:28 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.26 | | | meq/L | 0.01 | 0.04 | 12/07/06 5:23 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.6 | | * | % | 0.1 | 0.5 | 12/05/06 13:57 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.420 | | * | mmhos/cm | 0.001 | 0.01 | 12/01/06 2:12 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 3.1 | | * | % | 0.1 | 0.5 | 11/30/06 12:32 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.6 | | * | units | 0.1 | 0.1 | 12/01/06 2:12 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 40.80 | | * | % | 0.01 | 0.1 | 12/01/06 2:12 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 88.3 | | * | % Passing | 0.1 | 0.5 | 12/11/06 22:53 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 57.9 | | * | % Passing | 0.1 | 0.5 | 11/26/06 6:53 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 85.5 | | * | % | 0.1 | 0.5 | 11/29/06 0:08 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 25.0 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Sand | | 42.5 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Silt | | 32.5 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Texture Classification | | L | | * | | | | 12/10/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-11 0-12"

ACZ Sample ID: ***L59733-12***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 13:29 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:34 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 18:28 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 17:12 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:34 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.8 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:28 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 2.4 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:33 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.6 | H | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:33 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.076 | H | * | % | 0.002 | 0.01 | 11/18/06 20:59 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 15 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:45 | paulb |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-11 11-48"

ACZ Sample ID: ***L59733-13***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 17:07 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Boron, soluble (Hot Water) | M6010B ICP | 1.41 | | * | mg/Kg | 0.05 | 0.3 | 12/08/06 6:17 | gme |
| Calcium, soluble (Sat. Paste) | M6010B ICP | 20.50 | | | meq/L | 0.01 | 0.05 | 12/07/06 5:27 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 2.88 | | | meq/L | 0.02 | 0.08 | 12/07/06 5:27 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 110 | | * | mg/Kg | 20 | 50 | 12/08/06 2:51 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.109 | | | meq/L | 0.008 | 0.03 | 12/07/06 5:27 | msh |
| Selenium, soluble (Hot Water) | SM3500-Se.C | | U | * | mg/Kg | 0.005 | 0.03 | 12/01/06 12:23 | djt |
| Sodium Absorption Ratio | Calculation | 0.06 | B | | | 0.03 | 0.15 | 12/21/06 10:28 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.23 | | | meq/L | 0.01 | 0.04 | 12/07/06 5:27 | msh |



** Please refer to Qualifier Reports for detail.*

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-11 11-48"

ACZ Sample ID: ***L59733-13***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Acid Generation Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 12 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:28 | calc |
| Acid Neutralization Potential (calc) | M600/2-78-054 1.3 | 35 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:28 | calc |
| Acid-Base Potential (calc on Sulfur total) | M600/2-78-054 1.3 | 23 | | | t CaCO3/Kt | 1 | 5 | 12/21/06 10:28 | calc |
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 25.0 | | * | % | 0.1 | 0.5 | 12/05/06 14:19 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 1.630 | | * | mmhos/cm | 0.001 | 0.01 | 12/01/06 3:33 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 3.5 | | * | % | 0.1 | 0.5 | 11/30/06 12:49 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.1 | | * | units | 0.1 | 0.1 | 12/01/06 3:33 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 53.20 | | * | % | 0.01 | 0.1 | 12/01/06 3:33 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 93.1 | | * | % Passing | 0.1 | 0.5 | 12/12/06 0:09 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 65.8 | | * | % Passing | 0.1 | 0.5 | 11/26/06 11:09 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 86.4 | | * | % | 0.1 | 0.5 | 11/29/06 1:09 | lwt/srs |
| Sulfur Forms | M600/2-78-054 3.2.4 | | | | | | | | |
| Sulfur Organic Residual | | 0.22 | | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Pyritic Sulfide | | 0.07 | B | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Sulfate | | 0.10 | | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Sulfur Total | | 0.39 | | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Total Sulfur minus Sulfate | | 0.29 | | * | % | 0.01 | 0.1 | 12/01/06 0:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 17.5 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Sand | | 62.5 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Silt | | 20.0 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Texture Classification | | SL | | * | | | | 12/10/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-11 11-48"

ACZ Sample ID: ***L59733-13***
Date Sampled: *10/25/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 13:50 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:37 | erf |
| Hot Water Extraction | ASA No. 9 M80-3, M25-9 | | | | | | | 11/28/06 16:46 | jjr |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 18:40 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 17:18 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:37 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.7 | B | | mg/Kg | 0.2 | 1 | 12/21/06 10:28 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.5 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:34 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:34 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.240 | | * | % | 0.007 | 0.03 | 11/18/06 22:44 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 2 | BH | * | mg/Kg | 1 | 5 | 11/30/06 20:47 | paulb |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-11 62-82"

ACZ Sample ID: ***L59733-14***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 17:15 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 12.80 | | | meq/L | 0.01 | 0.05 | 12/07/06 5:31 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 4.28 | | | meq/L | 0.02 | 0.08 | 12/07/06 5:31 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 140 | | * | mg/Kg | 20 | 50 | 12/08/06 3:03 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.157 | | | meq/L | 0.008 | 0.03 | 12/07/06 5:31 | msh |
| Sodium Absorption Ratio | Calculation | 0.08 | B | | | 0.03 | 0.15 | 12/21/06 10:28 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.26 | | | meq/L | 0.01 | 0.04 | 12/07/06 5:31 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 3.6 | | * | % | 0.1 | 0.5 | 12/05/06 14:42 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 1.330 | | * | mmhos/cm | 0.001 | 0.01 | 12/01/06 4:54 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 5.3 | | * | % | 0.1 | 0.5 | 11/30/06 13:05 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.6 | | * | units | 0.1 | 0.1 | 12/01/06 4:54 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 44.80 | | * | % | 0.01 | 0.1 | 12/01/06 4:54 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 93.7 | | * | % Passing | 0.1 | 0.5 | 12/12/06 1:25 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 32.8 | | * | % Passing | 0.1 | 0.5 | 11/26/06 15:25 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 90.3 | | * | % | 0.1 | 0.5 | 11/29/06 2:10 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 18.8 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Sand | | 51.3 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Silt | | 30.0 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Texture Classification | | L | | * | | | | 12/10/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-11 62-82"

ACZ Sample ID: ***L59733-14***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 14:10 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:40 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 18:51 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 17:24 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:40 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 0.6 | B | | mg/Kg | 0.2 | 1 | 12/21/06 10:28 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.3 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:35 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:35 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.153 | H | * | % | 0.004 | 0.02 | 11/18/06 22:45 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 9 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:48 | paulb |



** Please refer to Qualifier Reports for detail.*

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-12 0-6"

ACZ Sample ID: ***L59733-15***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 17:24 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 2.11 | | | meq/L | 0.01 | 0.05 | 12/07/06 5:35 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.62 | | | meq/L | 0.02 | 0.08 | 12/07/06 5:35 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 440 | | * | mg/Kg | 20 | 50 | 12/08/06 3:07 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 1.060 | | | meq/L | 0.008 | 0.03 | 12/07/06 5:35 | msh |
| Sodium Absorption Ratio | Calculation | 0.18 | | | | 0.03 | 0.15 | 12/21/06 10:28 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.21 | | | meq/L | 0.01 | 0.04 | 12/07/06 5:35 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 3.2 | | * | % | 0.1 | 0.5 | 12/05/06 15:05 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.420 | | * | mmhos/cm | 0.001 | 0.01 | 12/01/06 6:15 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.7 | | * | % | 0.1 | 0.5 | 11/30/06 13:21 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.8 | | * | units | 0.1 | 0.1 | 12/01/06 6:15 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 55.90 | | * | % | 0.01 | 0.1 | 12/01/06 6:15 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 76.6 | | * | % Passing | 0.1 | 0.5 | 12/12/06 2:40 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 91.0 | | * | % Passing | 0.1 | 0.5 | 11/26/06 19:40 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 79.0 | | * | % | 0.1 | 0.5 | 11/29/06 3:10 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 12.5 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Sand | | 50.0 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Silt | | 37.5 | | * | % | 0.1 | 0.5 | 12/10/06 0:00 | srs |
| Texture Classification | | L | | * | | | | 12/10/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-12 0-6"

ACZ Sample ID: ***L59733-15***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 14:31 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:44 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 19:02 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 17:30 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:44 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 2.6 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:28 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 2.6 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:40 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:40 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.246 | H | * | % | 0.009 | 0.04 | 11/18/06 22:46 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 22 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:49 | paulb |

ACZ Laboratories, Inc.
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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-12 6-14"

ACZ Sample ID: ***L59733-16***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 17:33 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.23 | | | meq/L | 0.01 | 0.05 | 12/07/06 5:39 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.41 | | | meq/L | 0.02 | 0.08 | 12/07/06 5:39 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 240 | | * | mg/Kg | 20 | 50 | 12/08/06 3:11 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.376 | | | meq/L | 0.008 | 0.03 | 12/07/06 5:39 | msh |
| Sodium Absorption Ratio | Calculation | 0.30 | | | | 0.03 | 0.15 | 12/21/06 10:28 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.28 | | | meq/L | 0.01 | 0.04 | 12/07/06 5:39 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.0 | | * | % | 0.1 | 0.5 | 12/05/06 15:28 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.270 | | * | mmhos/cm | 0.001 | 0.01 | 12/01/06 7:36 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.7 | | * | % | 0.1 | 0.5 | 11/30/06 13:38 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.8 | | * | units | 0.1 | 0.1 | 12/01/06 7:36 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 42.70 | | * | % | 0.01 | 0.1 | 12/01/06 7:36 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 77.3 | | * | % Passing | 0.1 | 0.5 | 12/12/06 3:56 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 84.0 | | * | % Passing | 0.1 | 0.5 | 11/26/06 23:56 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 84.8 | | * | % | 0.1 | 0.5 | 11/29/06 4:11 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 13.8 | | * | % | 0.1 | 0.5 | 12/11/06 0:00 | srs |
| Sand | | 52.5 | | * | % | 0.1 | 0.5 | 12/11/06 0:00 | srs |
| Silt | | 33.8 | | * | % | 0.1 | 0.5 | 12/11/06 0:00 | srs |
| Texture Classification | | L | | * | | | | 12/11/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-12 6-14"

ACZ Sample ID: ***L59733-16***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 14:52 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:47 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 19:14 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 17:36 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:47 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 2.0 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:28 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 2.7 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:41 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:41 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.108 | H | * | % | 0.003 | 0.01 | 11/18/06 21:05 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 16 | H | * | mg/Kg | 1 | 5 | 11/30/06 20:50 | paulb |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-12 14-28"

ACZ Sample ID: ***L59733-17***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 17:59 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.82 | | | meq/L | 0.01 | 0.05 | 12/07/06 5:51 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.31 | | | meq/L | 0.02 | 0.08 | 12/07/06 5:51 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 170 | | * | mg/Kg | 20 | 50 | 12/08/06 3:16 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.195 | | | meq/L | 0.008 | 0.03 | 12/07/06 5:51 | msh |
| Sodium Absorption Ratio | Calculation | 0.35 | | | | 0.03 | 0.15 | 12/21/06 10:28 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.27 | | | meq/L | 0.01 | 0.04 | 12/07/06 5:51 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.7 | | * | % | 0.1 | 0.5 | 12/05/06 15:51 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.210 | | * | mmhos/cm | 0.001 | 0.01 | 12/01/06 8:57 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.5 | | * | % | 0.1 | 0.5 | 11/30/06 13:54 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.0 | | * | units | 0.1 | 0.1 | 12/01/06 8:57 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 36.50 | | * | % | 0.01 | 0.1 | 12/01/06 8:57 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 81.2 | | * | % Passing | 0.1 | 0.5 | 12/12/06 5:12 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 69.5 | | * | % Passing | 0.1 | 0.5 | 11/27/06 4:12 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 94.7 | | * | % | 0.1 | 0.5 | 11/29/06 5:12 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 12.5 | | * | % | 0.1 | 0.5 | 12/11/06 0:00 | srs |
| Sand | | 51.3 | | * | % | 0.1 | 0.5 | 12/11/06 0:00 | srs |
| Silt | | 36.3 | | * | % | 0.1 | 0.5 | 12/11/06 0:00 | srs |
| Texture Classification | | L | | * | | | | 12/11/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-12 14-28"

ACZ Sample ID: ***L59733-17***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 15:12 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:50 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 19:25 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 17:42 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:50 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.9 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:28 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 2.6 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:42 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:42 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.42 | H | * | % | 0.01 | 0.06 | 11/18/06 22:47 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 13 | H | * | mg/Kg | 1 | 5 | 11/30/06 21:06 | paulb |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-12 28-48"

ACZ Sample ID: ***L59733-18***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 18:07 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.15 | | | meq/L | 0.01 | 0.05 | 12/07/06 5:55 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.36 | | | meq/L | 0.02 | 0.08 | 12/07/06 5:55 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 170 | | * | mg/Kg | 20 | 50 | 12/08/06 3:20 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.163 | | | meq/L | 0.008 | 0.03 | 12/07/06 5:55 | msh |
| Sodium Absorption Ratio | Calculation | 0.32 | | | | 0.03 | 0.15 | 12/21/06 10:28 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.28 | | | meq/L | 0.01 | 0.04 | 12/07/06 5:55 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.4 | B | * | % | 0.1 | 0.5 | 12/05/06 16:14 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.250 | | * | mmhos/cm | 0.001 | 0.01 | 12/01/06 10:18 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.6 | | * | % | 0.1 | 0.5 | 11/30/06 14:10 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.1 | | * | units | 0.1 | 0.1 | 12/01/06 10:18 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 36.40 | | * | % | 0.01 | 0.1 | 12/01/06 10:18 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 82.9 | | * | % Passing | 0.1 | 0.5 | 12/12/06 6:28 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 67.4 | | * | % Passing | 0.1 | 0.5 | 11/27/06 8:28 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 94.6 | | * | % | 0.1 | 0.5 | 11/29/06 6:12 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 18.8 | | * | % | 0.1 | 0.5 | 12/11/06 0:00 | srs |
| Sand | | 53.8 | | * | % | 0.1 | 0.5 | 12/11/06 0:00 | srs |
| Silt | | 27.5 | | * | % | 0.1 | 0.5 | 12/11/06 0:00 | srs |
| Texture Classification | | L | | * | | | | 12/11/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-12 28-48"

ACZ Sample ID: ***L59733-18***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 15:33 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:53 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 19:37 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 17:48 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:53 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.8 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:28 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 2.5 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:44 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:44 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.047 | H | * | % | 0.002 | 0.009 | 11/18/06 21:07 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 11 | H | * | mg/Kg | 1 | 5 | 11/30/06 21:07 | paulb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: D-12 48-66"

ACZ Sample ID: ***L59733-19***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 18:16 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.63 | | | meq/L | 0.01 | 0.05 | 12/07/06 5:59 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.33 | | | meq/L | 0.02 | 0.08 | 12/07/06 5:59 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 140 | | * | mg/Kg | 20 | 50 | 12/08/06 3:24 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.088 | | | meq/L | 0.008 | 0.03 | 12/07/06 5:59 | msh |
| Sodium Absorption Ratio | Calculation | 0.27 | | | | 0.03 | 0.15 | 12/21/06 10:29 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.27 | | | meq/L | 0.01 | 0.04 | 12/07/06 5:59 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.2 | B | * | % | 0.1 | 0.5 | 12/05/06 16:37 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.300 | | * | mmhos/cm | 0.001 | 0.01 | 12/01/06 11:39 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 2.6 | | * | % | 0.1 | 0.5 | 11/30/06 14:27 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.7 | | * | units | 0.1 | 0.1 | 12/01/06 11:39 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 38.00 | | * | % | 0.01 | 0.1 | 12/01/06 11:39 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 76.5 | | * | % Passing | 0.1 | 0.5 | 12/12/06 7:44 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 84.4 | | * | % Passing | 0.1 | 0.5 | 11/27/06 12:44 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 93.9 | | * | % | 0.1 | 0.5 | 11/29/06 7:13 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 18.8 | | * | % | 0.1 | 0.5 | 12/11/06 0:00 | srs |
| Sand | | 56.3 | | * | % | 0.1 | 0.5 | 12/11/06 0:00 | srs |
| Silt | | 25.0 | | * | % | 0.1 | 0.5 | 12/11/06 0:00 | srs |
| Texture Classification | | L | | * | | | | 12/11/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: D-12 48-66"

ACZ Sample ID: ***L59733-19***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 15:54 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:56 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 19:48 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 17:54 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:56 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.9 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:29 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 2.5 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:45 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.6 | H | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:45 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.034 | H | * | % | 0.002 | 0.008 | 11/18/06 21:09 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 11 | H | * | mg/Kg | 1 | 5 | 11/30/06 21:08 | paulb |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-1 0-10"

ACZ Sample ID: ***L59733-20***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 18:24 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.59 | | | meq/L | 0.01 | 0.05 | 12/07/06 22:18 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.45 | | | meq/L | 0.02 | 0.08 | 12/07/06 22:18 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 280 | | * | mg/Kg | 20 | 50 | 12/08/06 3:28 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.522 | | | meq/L | 0.008 | 0.03 | 12/07/06 22:18 | gme |
| Sodium Absorption Ratio | Calculation | 0.19 | | | | 0.03 | 0.15 | 12/21/06 10:29 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.20 | | | meq/L | 0.01 | 0.04 | 12/07/06 22:18 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.2 | | * | % | 0.1 | 0.5 | 12/05/06 16:59 | brg/srs |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.310 | | * | mmhos/cm | 0.001 | 0.01 | 12/01/06 13:00 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.5 | | * | % | 0.1 | 0.5 | 11/30/06 14:43 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.6 | | * | units | 0.1 | 0.1 | 12/01/06 13:00 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 46.80 | | * | % | 0.01 | 0.1 | 12/01/06 13:00 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 75.8 | | * | % Passing | 0.1 | 0.5 | 12/12/06 8:59 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 91.8 | | * | % Passing | 0.1 | 0.5 | 11/27/06 16:59 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 86.0 | | * | % | 0.1 | 0.5 | 11/29/06 8:14 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 12.5 | | * | % | 0.1 | 0.5 | 12/11/06 0:00 | srs |
| Sand | | 57.5 | | * | % | 0.1 | 0.5 | 12/11/06 0:00 | srs |
| Silt | | 30.0 | | * | % | 0.1 | 0.5 | 12/11/06 0:00 | srs |
| Texture Classification | | L | | * | | | | 12/11/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-1 0-10"

ACZ Sample ID: ***L59733-20***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 11/30/06 16:15 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/08/06 9:59 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 11/28/06 20:00 | jjr/as |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 11/29/06 18:00 | erf/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/28/06 11:59 | lwt/srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 4.4 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:29 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.7 | H | * | mg/Kg | 0.2 | 1 | 12/02/06 18:46 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.3 | BH | * | mg/Kg | 0.1 | 0.5 | 12/02/06 18:46 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.160 | H | * | % | 0.005 | 0.03 | 11/18/06 22:48 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 14 | H | * | mg/Kg | 1 | 5 | 11/30/06 21:09 | paulb |



** Please refer to Qualifier Reports for detail.*

## Report Header Explanations

| | |
|---|---|
| *Batch* | A distinct set of samples analyzed at a specific time |
| *Found* | Value of the QC Type of interest |
| *Limit* | Upper limit for RPD, in %. |
| *Lower* | Lower Recovery Limit, in % (except for LCSS, mg/Kg) |
| *MDL* | Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations. |
| *PCN/SCN* | A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis |
| *PQL* | Practical Quantitation Limit, typically 5 times the MDL. |
| *QC* | True Value of the Control Sample or the amount added to the Spike |
| *Rec* | Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg) |
| *RPD* | Relative Percent Difference, calculation used for Duplicate QC Types |
| *Upper* | Upper Recovery Limit, in % (except for LCSS, mg/Kg) |
| *Sample* | Value of the Sample of interest |

## QC Sample Types

| | | | |
|---|---|---|---|
| *AS* | Analytical Spike (Post Digestion) | *LCSWD* | Laboratory Control Sample - Water Duplicate |
| *ASD* | Analytical Spike (Post Digestion) Duplicate | *LFB* | Laboratory Fortified Blank |
| *CCB* | Continuing Calibration Blank | *LFM* | Laboratory Fortified Matrix |
| *CCV* | Continuing Calivation Verification standard | *LFMD* | Laboratory Fortified Matrix Duplicate |
| *DUP* | Sample Duplicate | *LRB* | Laboratory Reagent Blank |
| *ICB* | Initial Calibration Blank | *MS* | Matrix Spike |
| *ICV* | Initial Calibration Verification standard | *MSD* | Matrix Spike Duplicate |
| *ICSAB* | Inter-element Correction Standard - A plus B solutions | *PBS* | Prep Blank - Soil |
| *LCSS* | Laboratory Control Sample - Soil | *PBW* | Prep Blank - Water |
| *LCSSD* | Laboratory Control Sample - Soil Duplicate | *PQV* | Practical Quantitation Verification standard |
| *LCSW* | Laboratory Control Sample - Water | *SDL* | Serial Dilution |

## QC Sample Type Explanations

| | |
|---|---|
| Blanks | Verifies that there is no or minimal contamination in the prep method or calibration procedure. |
| Control Samples | Verifies the accuracy of the method, including the prep procedure. |
| Duplicates | Verifies the precision of the instrument and/or method. |
| Spikes/Fortified Matrix | Determines sample matrix interferences, if any. |
| Standard | Verifies the validity of the calibration. |

## ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| R | Poor spike recovery accepted because the other spike in the set fell within the given limits. |
| T | High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL. |
| U | Analyte was analyzed for but not detected at the indicated MDL |
| V | High blank data accepted because sample concentration is 10 times higher than blank concentration |
| W | Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride. |
| X | Quality control sample is out of control. |
| Z | Poor spike recovery is accepted because sample concentration is four times greater than spike concentration. |

## Method References


| | |
|---|---|
| (1) | EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983. |
| (2) | EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993. |
| (3) | EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994. |
| (5) | EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996. |
| (6) | Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995. |


## Comments

| | |
|---|---|
| (1) | QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations. |
| (2) | Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis. |
| (3) | Animal matrices for Inorganic analyses are reported on an "as received" basis. |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59733***

**Boron, soluble (Hot Water)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217803** | | | | | | | | | | | | | |
| WG217803ICV | ICV | 12/08/06 5:05 | II061128-2 | 2 | | 1.951 | mg/L | 97.6 | 90 | 110 | | | |
| WG217803ICB | ICB | 12/08/06 5:09 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG217115PBS | PBS | 12/08/06 5:25 | | | | U | mg/L | | -0.15 | 0.15 | | | |
| L59733-01AS | AS | 12/08/06 5:37 | II061207-3 | 2.5 | .57 | 3.138 | mg/L | 102.7 | 75 | 125 | | | |
| L59733-01ASD | ASD | 12/08/06 5:41 | II061207-3 | 2.5 | .57 | 3.206 | mg/L | 105.4 | 75 | 125 | 2.14 | 20 | |
| L59733-13DUP | DUP | 12/08/06 6:21 | | | 1.41 | 1.5 | mg/L | | | | 6.2 | 20 | |

**Calcium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217718** | | | | | | | | | | | | | |
| WG217718ICV | ICV | 12/07/06 4:06 | II061128-2 | 100 | | 97.89 | mg/L | 97.9 | 90 | 110 | | | |
| WG217718ICB | ICB | 12/07/06 4:10 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| L59733-04DUP | DUP | 12/07/06 4:42 | | | 18.5 | 20.114 | meq/L | | | | 8.4 | 20 | |
| **WG217767** | | | | | | | | | | | | | |
| WG217767ICV | ICV | 12/07/06 21:50 | II061128-2 | 100 | | 99.54 | mg/L | 99.5 | 90 | 110 | | | |
| WG217767ICB | ICB | 12/07/06 21:54 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| L59733-04DUP | DUP | 12/07/06 22:14 | | | 19.3 | 20.487 | meq/L | | | | 6 | 20 | |

**Carbon, total organic (TOC)** ASA No.9 29-2.2.4 Combustion/IR

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217361** | | | | | | | | | | | | | |
| WG217361PBS | PBS | 12/05/06 9:00 | | | | U | % | | -0.3 | 0.3 | | | |
| L59733-01DUP | DUP | 12/05/06 9:45 | | | .3 | .3 | % | | | | 0 | 20 | RA |

**Conductivity @25C** M120.1 - Meter, w/ Saturated Paste Prep

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217371** | | | | | | | | | | | | | |
| L59733-04DUP | DUP | 11/30/06 15:24 | | | 1.61 | 1.67 | mmhos/cm | | | | 3.7 | 20 | |

**Magnesium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217718** | | | | | | | | | | | | | |
| WG217718ICV | ICV | 12/07/06 4:06 | II061128-2 | 100 | | 94.63 | mg/L | 94.6 | 90 | 110 | | | |
| WG217718ICB | ICB | 12/07/06 4:10 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| L59733-04DUP | DUP | 12/07/06 4:42 | | | 3.87 | 4.068 | meq/L | | | | 5 | 20 | |
| **WG217767** | | | | | | | | | | | | | |
| WG217767ICV | ICV | 12/07/06 21:50 | II061128-2 | 100 | | 95.97 | mg/L | 96 | 90 | 110 | | | |
| WG217767ICB | ICB | 12/07/06 21:54 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| L59733-04DUP | DUP | 12/07/06 22:14 | | | 3.99 | 4.158 | meq/L | | | | 4.1 | 20 | |

**Neutralization Potential as CaCO3** M600/2-78-054 3.2.3

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217349** | | | | | | | | | | | | | |
| WG217349LCSS | LCSS | 11/30/06 9:16 | PCN20880 | 100 | | 121.35 | % | | | | | | |
| L59733-20DUP | DUP | 11/30/06 15:00 | | | .5 | .55 | % | | | | 9.5 | 20 | RA |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59733***

**Nitrate/Nitrite as N, extractable (KCL)** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217513** | | | | | | | | | | | | | |
| WG217513ICV | ICV | 12/02/06 18:06 | WI060906-3 | 2.416 | | 2.411 | mg/L | 99.8 | 90 | 110 | | | |
| WG217513ICB | ICB | 12/02/06 18:07 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| WG217513LFB | LFB | 12/02/06 18:11 | WI060906-4 | 2 | | 2.126 | mg/L | 106.3 | 90 | 110 | | | |
| WG217253PBS | PBS | 12/02/06 18:12 | | | | 1.36 | mg/Kg | | -0.6 | 0.6 | | | N1 |
| L59733-01DUP | DUP | 12/02/06 18:14 | | | 4.2 | 4.16 | mg/Kg | | | | 1 | 20 | |
| L59733-02AS | AS | 12/02/06 18:17 | WI060906-4 | 20 | 3.5 | 24.58 | mg/Kg | 105.4 | 75 | 125 | | | |

**Nitrite as N, extractable (KCL)** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217513** | | | | | | | | | | | | | |
| WG217513ICV | ICV | 12/02/06 18:06 | WI060906-3 | .609 | | .661 | mg/L | 108.5 | 90 | 110 | | | |
| WG217513ICB | ICB | 12/02/06 18:07 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG217513LFB | LFB | 12/02/06 18:11 | WI060906-4 | 1 | | 1.061 | mg/L | 106.1 | 90 | 110 | | | |
| WG217253PBS | PBS | 12/02/06 18:12 | | | | U | mg/Kg | | -0.3 | 0.3 | | | N1 |
| L59733-01DUP | DUP | 12/02/06 18:14 | | | .6 | .66 | mg/Kg | | | | 9.5 | 20 | RA |
| L59733-02AS | AS | 12/02/06 18:17 | WI060906-4 | 10 | .6 | 10.75 | mg/Kg | 101.5 | 75 | 125 | | | |

**Nitrogen, total Kjeldahl** M351.2 - TKN by Block Digester

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG216825** | | | | | | | | | | | | | |
| WG216639ICV | ICV | 11/18/06 20:36 | WI061027-1 | 4 | | 3.88 | mg/L | 97 | 90 | 110 | | | |
| WG216639ICB | ICB | 11/18/06 20:37 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG216639LFB1 | LFB | 11/18/06 20:40 | WI061027-5 | 2.5 | | 2.48 | % | 99.2 | 85 | 115 | | | |
| L59733-01MS | MS | 11/18/06 20:42 | 2XTKN | .05375 | .046 | .1107 | % | 120.4 | 75 | 125 | | | |
| L59733-02DUP | DUP | 11/18/06 20:44 | | | .133 | .1336 | % | | | | 0.5 | 20 | |
| WG216639PBS1 | PBS | 11/18/06 20:52 | | | | .0021 | % | | -0.006 | 0.006 | | | |
| WG216639PBS2 | PBS | 11/18/06 21:11 | | | | .003 | % | | -0.006 | 0.006 | | | |
| WG216639LFB2 | LFB | 11/18/06 21:12 | WI061027-5 | 2.5 | | 2.4 | % | 96 | 85 | 115 | | | |

**Percent Clay** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217692** | | | | | | | | | | | | | |
| L59733-01DUP | DUP | 12/08/06 23:51 | | | 22.5 | 22.5 | % | | | | 0 | 20 | |

**Percent Sand** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217692** | | | | | | | | | | | | | |
| L59733-01DUP | DUP | 12/08/06 23:51 | | | 50 | 50 | % | | | | 0 | 20 | |

**Percent Silt** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217692** | | | | | | | | | | | | | |
| L59733-01DUP | DUP | 12/08/06 23:51 | | | 27.5 | 27.5 | % | | | | 0 | 20 | |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59733***

**pH, Saturated Paste** USDA No. 60 (21A)

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217371** | | | | | | | | | | | | | |
| L59733-04DUP | DUP | 11/30/06 15:24 | | | 7.1 | 7.05 | units | | | | 0.7 | 20 | |

**Phosphorus, extractable (AB-DTPA)** M365.1 - Automated Ascorbic Acid

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217438** | | | | | | | | | | | | | |
| WG217438ICV | ICV | 11/30/06 18:55 | SCN000224 | .65228 | | .649 | mg/L | 99.5 | 90 | 110 | | | |
| WG217438ICB | ICB | 11/30/06 18:57 | | | | .013 | mg/L | | -0.03 | 0.03 | | | |
| **WG217441** | | | | | | | | | | | | | |
| WG217441ICV | ICV | 11/30/06 20:23 | SCN000224 | .65228 | | .681 | mg/L | 104.4 | 90 | 110 | | | |
| WG217441ICB | ICB | 11/30/06 20:25 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG217441LFB | LFB | 11/30/06 20:26 | WI061125-2 | .5 | | .51 | mg/Kg | 102 | 85 | 115 | | | |
| WG217336PBS | PBS | 11/30/06 20:28 | | | | 5.6 | mg/Kg | | -3 | 3 | | | N1 |
| L59733-01DUP | DUP | 11/30/06 20:30 | | | 13 | 16.7 | mg/Kg | | | | 24.9 | 20 | RD |
| L59733-02AS | AS | 11/30/06 20:32 | WI061125-2 | 50 | 20 | 67 | mg/Kg | 94 | 75 | 125 | | | |

**Potassium, extractable (AB-DTPA)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217482** | | | | | | | | | | | | | |
| WG217336PBS | PBS | 12/06/06 12:45 | | | | U | mg/L | | -60 | 60 | | | |
| L59733-01DUP | DUP | 12/06/06 12:52 | | | 200 | 200 | mg/L | | | | 0 | 20 | |
| L59733-02AS | AS | 12/06/06 13:03 | II061116-2 | 4973.4095 | 250 | 5501 | mg/L | 105.6 | 75 | 125 | | | |
| L59733-02ASD | ASD | 12/06/06 13:06 | II061116-2 | 4973.4095 | 250 | 5822 | mg/L | 112 | 75 | 125 | 5.67 | 20 | |
| **WG217804** | | | | | | | | | | | | | |
| WG217804ICV | ICV | 12/08/06 1:19 | II061128-2 | 20 | | 20.17 | mg/L | 100.9 | 90 | 110 | | | |
| WG217804ICB | ICB | 12/08/06 1:23 | | | | .47 | mg/L | | -0.9 | 0.9 | | | |
| WG217336PBS | PBS | 12/08/06 1:39 | | | | U | mg/L | | -60 | 60 | | | |
| L59733-01DUP | DUP | 12/08/06 1:47 | | | 170 | 190 | mg/L | | | | 11.1 | 20 | RA |
| L59733-03AS | AS | 12/08/06 1:59 | II061207-3 | 4975.507 | 170 | 5097 | mg/L | 99 | 75 | 125 | | | |
| L59733-03ASD | ASD | 12/08/06 2:03 | II061207-3 | 4975.507 | 170 | 5109 | mg/L | 99.3 | 75 | 125 | 0.24 | 20 | |

**Potassium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217718** | | | | | | | | | | | | | |
| WG217718ICV | ICV | 12/07/06 4:06 | II061128-2 | 20 | | 19.84 | mg/L | 99.2 | 90 | 110 | | | |
| WG217718ICB | ICB | 12/07/06 4:10 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| L59733-04DUP | DUP | 12/07/06 4:42 | | | .174 | .1807 | meq/L | | | | 3.8 | 20 | |
| **WG217767** | | | | | | | | | | | | | |
| WG217767ICV | ICV | 12/07/06 21:50 | II061128-2 | 20 | | 20.19 | mg/L | 101 | 90 | 110 | | | |
| WG217767ICB | ICB | 12/07/06 21:54 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| L59733-04DUP | DUP | 12/07/06 22:14 | | | .18 | .1771 | meq/L | | | | 1.6 | 20 | |

**Saturation Percent** USDA No. 60 (2)

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217371** | | | | | | | | | | | | | |
| L59733-04DUP | DUP | 11/30/06 15:24 | | | 50.3 | 53.48 | % | | | | 6.1 | 20 | |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59733***

**Selenium, soluble (Hot Water)** SM3500-Se.C

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217424** | | | | | | | | | | | | | |
| WG217424ICV | ICV | 12/01/06 9:55 | II061127-5 | .025 | | .027 | mg/L | 108 | 90 | 110 | | | |
| WG217424ICB | ICB | 12/01/06 9:59 | | | | U | mg/L | | -0.003 | 0.003 | | | |
| **WG217426** | | | | | | | | | | | | | |
| WG217115PBS | PBS | 12/01/06 11:39 | | | | U | mg/Kg | | -0.015 | 0.015 | | | |
| L59733-01AS | AS | 12/01/06 11:46 | II061113-3 | .1 | U | .1011 | mg/Kg | 101.1 | 85 | 115 | | | |
| L59733-01ASD | ASD | 12/01/06 11:50 | II061113-3 | .1 | U | .1008 | mg/Kg | 100.8 | 85 | 115 | 0.3 | 20 | |
| L59733-13DUP | DUP | 12/01/06 12:27 | | | U | U | mg/Kg | | | | 0 | 20 | RA |

**Sodium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217718** | | | | | | | | | | | | | |
| WG217718ICV | ICV | 12/07/06 4:06 | II061128-2 | 100 | | 99.24 | mg/L | 99.2 | 90 | 110 | | | |
| WG217718ICB | ICB | 12/07/06 4:10 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| L59733-04DUP | DUP | 12/07/06 4:42 | | | .25 | .241 | meq/L | | | | 3.6 | 20 | |
| **WG217767** | | | | | | | | | | | | | |
| WG217767ICV | ICV | 12/07/06 21:50 | II061128-2 | 100 | | 100.03 | mg/L | 100 | 90 | 110 | | | |
| WG217767ICB | ICB | 12/07/06 21:54 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| L59733-04DUP | DUP | 12/07/06 22:14 | | | .25 | .244 | meq/L | | | | 2.4 | 20 | |

**Solids, Percent** CLPSOW390, PART F, D-98

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217212** | | | | | | | | | | | | | |
| WG217212PBS | PBS | 11/28/06 12:00 | | | | U | % | | 99.9 | 100.1 | | | |
| L59733-20DUP | DUP | 11/29/06 9:15 | | | 86 | 85.32 | % | | | | 0.8 | 20 | |

**Sulfur Organic Residual** M600/2-78-054 3.2.4

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217420** | | | | | | | | | | | | | |
| L59733-13DUP | DUP | 12/01/06 17:00 | | | .22 | .22 | % | | | | 0 | 20 | |

**Sulfur Pyritic Sulfide** M600/2-78-054 3.2.4

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217420** | | | | | | | | | | | | | |
| L59733-13DUP | DUP | 12/01/06 17:00 | | | .07 | .05 | % | | | | 33.3 | 20 | RA |

**Sulfur Sulfate** M600/2-78-054 3.2.4

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217420** | | | | | | | | | | | | | |
| L59733-13DUP | DUP | 12/01/06 17:00 | | | .1 | .12 | % | | | | 18.2 | 20 | |

**Carbon Resources**

ACZ Project ID: ***L59733***

Project ID:

**Sulfur Total** M600/2-78-054 3.2.4

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217420** | | | | | | | | | | | | | |
| WG217420PBS | PBS | 11/30/06 16:00 | | | | U | % | | -0.03 | 0.03 | | | |
| WG217420LCSS | LCSS | 11/30/06 18:30 | PCN25383 | 4.24 | | 4.32 | % | | 80 | 120 | | | |
| L59733-13DUP | DUP | 12/01/06 17:00 | | | .39 | .39 | % | | | | 0 | 20 | |

**Total Sulfur Minus Sulfate** M600/2-78-054 3.2.4

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217420** | | | | | | | | | | | | | |
| L59733-13DUP | DUP | 12/01/06 17:00 | | | .29 | .27 | % | | | | 7.1 | 20 | |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59733***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59733-01** | WG217803 | Boron, soluble (Hot Water) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217482 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217426 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217420 | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |

ACZ Laboratories, Inc.
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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59733***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59733-02 | WG217803 | Boron, soluble (Hot Water) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217482 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217426 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217420 | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |

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# Inorganic Extended Qualifier Report

## Carbon Resources

ACZ Project ID: ***L59733***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59733-03 | WG217803 | Boron, soluble (Hot Water) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217426 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217420 | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59733***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59733-04** | WG217803 | Boron, soluble (Hot Water) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217426 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217420 | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59733***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59733-05** | WG217803 | Boron, soluble (Hot Water) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217426 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217420 | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |

**Carbon Resources**

ACZ Project ID: ***L59733***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59733-06** | WG217803 | Boron, soluble (Hot Water) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217426 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217420 | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59733***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59733-07 | WG217803 | Boron, soluble (Hot Water) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217426 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217420 | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59733***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59733-08 | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| L59733-09 | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59733***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59733-10** | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| **L59733-11** | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59733***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59733-12** | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59733***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59733-13** | WG217803 | Boron, soluble (Hot Water) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217426 | Selenium, soluble (Hot Water) | SM3500-Se.C | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217420 | Sulfur Pyritic Sulfide | M600/2-78-054 3.2.4 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |

ACZ Laboratories, Inc.
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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59733***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59733-14 | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| L59733-15 | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |

**Carbon Resources**

ACZ Project ID: ***L59733***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59733-16 | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| L59733-17 | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59733***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59733-18 | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| L59733-19 | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |

**Carbon Resources**

ACZ Project ID: ***L59733***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59733-20** | WG217804 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217361 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217349 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217513 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217441 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| | | | M365.1 - Automated Ascorbic Acid | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |

## Metals Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

| | |
|---|---|
| Selenium, soluble (Hot Water) | SM3500-Se.C |

## Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

| | |
|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 |
| pH, Saturated Paste | USDA No. 60 (21A) |
| Saturation Percent | USDA No. 60 (2) |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 |
| Solids, Percent | CLPSOW390, PART F, D-98 |
| Sulfur Forms | M600/2-78-054 3.2.4 |
| Texture by Hydrometer | ASTM D 422 Hydrometer |

## Wet Chemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

| | |
|---|---|
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Sample Receipt

**Carbon Resources**

ACZ Project ID: L59733
Date Received: 10/31/2006
Received By:
Date Printed: 10/31/2006

## Receipt Verification

| | YES | NO | NA |
|---|---|---|---|
| 1) Does this project require special handling procedures such as CLP protocol? | | | X |
| 2) Are the custody seals on the cooler intact? | | | X |
| 3) Are the custody seals on the sample containers intact? | | | X |
| 4) Is there a Chain of Custody or other directive shipping papers present? | X | | |
| 5) Is the Chain of Custody complete? | X | | |
| 6) Is the Chain of Custody in agreement with the samples received? | X | | |
| 7) Is there enough sample for all requested analyses? | X | | |
| 8) Are all samples within holding times for requested analyses? | X | | |
| 9) Were all sample containers received intact? | X | | |
| 10) Are the temperature blanks present? | | | X |
| 11) Are the trip blanks (VOA and/or Cyanide) present? | | | X |
| 12) Are samples requiring no headspace, headspace free? | | | X |
| 13) Do the samples that require a Foreign Soils Permit have one? | | | X |

## Exceptions: If you answered no to any of the above questions, please describe

N/A

## Contact (For any discrepancies, the client must be contacted)

N/A

## Shipping Containers

| Cooler Id | | Temp (°C) | Rad (µR/hr) |
|---|---|---|---|
| BUCKET X 8 | | 22.5 | 16 |
| | | | |
| | | | |
| | | | |

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

## Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Sample Receipt

**Carbon Resources**

ACZ Project ID: L59733
Date Received: 10/31/2006
Received By:

## Sample Container Preservation

| SAMPLE | CLIENT ID | R < 2 | G < 2 | BK < 2 | Y< 2 | YG< 2 | B< 2 | O < 2 | T >12 | N/A | RAD | ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L59733-01 | D-9A 115-145" | | | | | | | | | X | | |
| L59733-02 | D-9B 0-6" | | | | | | | | | X | | |
| L59733-03 | D-9B 6-12" | | | | | | | | | X | | |
| L59733-04 | D-9B 12-30" | | | | | | | | | X | | |
| L59733-05 | D-9B 30-52" | | | | | | | | | X | | |
| L59733-06 | D-9B 52-80" | | | | | | | | | X | | |
| L59733-07 | D-9B 80-102" | | | | | | | | | X | | |
| L59733-08 | D-10 0-5" | | | | | | | | | X | | |
| L59733-09 | D-10 5-11" | | | | | | | | | X | | |
| L59733-10 | D-10 11-23" | | | | | | | | | X | | |
| L59733-11 | D-10 23-35" | | | | | | | | | X | | |
| L59733-12 | D-11 0-12" | | | | | | | | | X | | |
| L59733-13 | D-11 11-48" | | | | | | | | | X | | |
| L59733-14 | D-11 62-82" | | | | | | | | | X | | |
| L59733-15 | D-12 0-6" | | | | | | | | | X | | |
| L59733-16 | D-12 6-14" | | | | | | | | | X | | |
| L59733-17 | D-12 14-28" | | | | | | | | | X | | |
| L59733-18 | D-12 28-48" | | | | | | | | | X | | |
| L59733-19 | D-12 48-66" | | | | | | | | | X | | |
| L59733-20 | 2A-1 0-10" | | | | | | | | | X | | |

## Sample Container Preservation Legend

| Abbreviation | Description | Container Type | Preservative/Limits |
|---|---|---|---|
| R | Raw/Nitric | RED | pH must be < 2 |
| B | Filtered/Sulfuric | BLUE | pH must be < 2 |
| BK | Filtered/Nitric | BLACK | pH must be < 2 |
| G | Filtered/Nitric | GREEN | pH must be < 2 |
| O | Raw/Sulfuric | ORANGE | pH must be < 2 |
| P | Raw/NaOH | PURPLE | pH must be > 12 * |
| T | Raw/NaOH Zinc Acetate | TAN | pH must be > 12 |
| Y | Raw/Sulfuric | YELLOW | pH must be < 2 |
| YG | Raw/Sulfuric | YELLOW GLASS | pH must be < 2 |
| N/A | No preservative needed | Not applicable | |
| RAD | Gamma/Beta dose rate | Not applicable | must be < 250 µR/hr |

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L59733

Carbon Resources Soil Sample Increments
Kinney Mine, Scofield Utah
Sampled October 14-18, 2006
By Bruce Chesler and Greg Hunt
Telephone 435-826-4961
Billed to Carbon Resources

Mailed UPS on October 24, 2006 to:
ACZ Laboratory
2773 Downhill Drive
Steamboat Springs, Colorado, 80487
Attn. Sue Webber telephone 1-800-334-5493 Ext.110

Soil Samples sent in 5-gallon white plastic buckets from Escalante, Utah, and coal samples sent separately in a bucket from Cedaredege, Colorado. The coal sample increments are required to have the following additional analyses, along with the soil horizons found above and below them in their respective soil positions. These will include soil horizons and coal materials sampled at 3 locations, (D3, D9A, D9B) including a total of 19 samples.

Total Organic Carbon (Combustion Method, Western States Lab Testing Program, 1998, volume 4.10, page 88)
Soluble Selenium reported in mg/kg (Hydric Generation AA-Spectrometry and Flourimetry of water extracted Selenium)
Available Boron reported in mg/kg (saturation extract)
Acid Potential reported % pyric S
Neutralization Potential Tons CaCo3 equivalent/1000 tons

The remaining samples are as follows:

D1 0-6, 6-16, 16-25, 25-40, 40-65, 65-90 (6 samples)

D2 0-6, 6-24 (2 samples)

D3 Coal and Soil sent in separate shipments 0-10, 10-20, 20-40, 40-60, 60-75, 1 coal (7)

D4 0-8, 8-16, (2 samples)

D5 0-6, 6-20, 20-40, 40-60 (4 samples)

D6 0-7, coal not sampled, 24-48, 48-72 (3 samples)

D7 0-6, 6-20, 20-42, 42-58, 58-70 (5 samples)

D8 0-6, 6-13, 13-26, 26-48 (4 samples)

D9A coal and soil sent in two shipments 0-6, 6-12, 12-30, 30-68, 68-95, 95-115, 115-140 (7 samples)

D9B coal and soil sent separately 0-6, 6-12, 12-30, 30-52, 52-80, 80-102 (6 samples)

D10 0-5, 5-11, 11-23, 23-35 (4 samples)

D11 0-12, did not sample coal, 62-82 (2samples)

D12 0-6, 6-14, 14-28, 28-48, 48-66 (5 samples)

2A-1 0-10, 10-24, 24-44, 44-65, 65-80 (5 samples)

2A-2 0-5, 5-14, 14-25, 25-38 (4 samples)

2A-3 0-9, 9-19, 19-36, 36-52 (4 samples)

2A-5 0-6, 6-12, 12-24, 24-48 (4 samples)

2A-6 0-6, 6-12, 12-24, 24-40, 40-66, 66-80 (6 samples)

2A-7 0-7, 7-20, 20-38 (3 samples)

2B-1 0-9, 9-19, 19-33, 33-51 (4 samples)

1A-1 0-6, 6-17, 17-28, 28-60, 60-100 (5 samples)

1A-2 15-25, 25-40, 40-60, 60-75, 75-90 (5 samples)

1B1 0-7, 7-15, 15-28, 28-60 (4 samples)

Please give me a call if you have any questions on methodology at my office. Phone # 435-826-4961

Thanks,
Bruce Chesler
Representing, Carbon Resources
Escalante, Utah

LBC 10.26.06

**Sue Webber**

**From:** GHuntBBC@aol.com
**Sent:** Friday, October 27, 2006 12:52 PM
**To:** bches@scinternet.net; Sue Webber
**Subject:** Sue Weber Carbon Resources Soil Samples

**FROM:** **Geo-Hunt Consulting**
**16577 Columbine Lane**
**Cedaredge, CO 81413**
**970-856-9477**

**TO:** **Sue Webber, Project Manager**
**ACZ Laboratories, Inc.**
**2773 Downhill Drive,**
**Steamboat Springs, Co 80487**

**RE:** **TRANSMITTAL OF SOIL SAMPLES**

**Dear Sue:**
You have already received a rather large number of samples from BRUCE CHESLER, soil scientist from Escalante Utah, from the Carbon Resources "Kinney" Property, Scofield Utah. Enclosed please find the following seven soil samples taken from the same property and are a part of the same project. These samples should be processed with those received directly from Bruce and all of the results should be returned to Bruce.

D3
D4 19"-72"
D9-A 12"- 30"
D9-A 30"- 68"
D9-B 12"- 30"
D9-B 30"- 50"
D11 11"-48"

Note that some of the bag samples received from Bruce and or I may be labeled either Carbon Resources or Kinney. Both names indicate the same project.

Thank you for your prompt attention to this project.

Greg Hunt

Cc: Bruce Chesler

10/31/2006

# Very Fine Sand

analyst: as
date: 12-12-06

| ACZ L# | Total sample wt. gms | % <2000um sieve | Wt. of sxs used for Texture gms | Wt. of sxs between 105um & 53um gm. | % VFS |
|---|---|---|---|---|---|
| L59733-01 | 472.47 | 81.5 | 40.0 | 9.3 | **18.9** |
| L59733-02 | 398.08 | 82.3 | 40.0 | 7.3 | **15.0** |
| L59733-03 | 421.36 | 88.2 | 40.0 | 8.8 | **19.4** |
| L59733-04 | 612.70 | 47.2 | 40.0 | 3.1 | **3.7** |
| L59733-05 | 303.22 | 72.1 | 40.0 | 1.6 | **2.9** |
| L59733-06 | 461.95 | 82.7 | 40.0 | 10.4 | **21.5** |
| L59733-07 | 376.62 | 82.7 | 40.0 | 9.8 | **20.3** |
| L59733-08 | 378.34 | 81.6 | 40.0 | 15.6 | **31.8** |
| L59733-09 | 452.80 | 47.4 | 40.0 | 7.5 | **8.9** |
| L59733-10 | 685.40 | 23.0 | 40.0 | 5.2 | **3.0** |
| L59733-11 | 562.02 | 18.9 | 40.0 | 4.3 | **2.0** |
| L59733-12 | 469.62 | 57.9 | 40.0 | 8.1 | **11.7** |
| L59733-13 | 513.03 | 65.8 | 40.0 | 4.2 | **6.9** |
| L59733-14 | 503.22 | 32.8 | 40.0 | 7.7 | **6.3** |
| L59733-15 | 269.96 | 91.0 | 40.0 | 10.3 | **23.4** |
| L59733-16 | 228.31 | 84.0 | 40.0 | 10.8 | **22.7** |
| L59733-17 | 401.90 | 69.5 | 40.0 | 10.8 | **18.8** |
| L59733-18 | 323.45 | 67.4 | 40.0 | 10.2 | **17.2** |
| L59733-19 | 369.49 | 84.4 | 40.0 | 11.2 | **23.6** |
| L59733-20 | 252.39 | 91.8 | 40.0 | 10.6 | **24.3** |
| dup L59733-01 | 472.47 | 81.5 | 40 | 9.0 | **18.3** |

**(wt of sxs between 105um & 53um) / (wt. of sxs used for texture) = VFS of texture**

**(VFS of Texture) x (% <2000um) = % VFS**

**additional data from:**

**-sieve2000 WG217205**

**-sieve53 WG217644**

**-texture WG217692**

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Analytical Report

December 21, 2006

Report to:
Clay Wisdom
Carbon Resources
PO Box 1789
Albuquerque, NM 87192

Bill to:
Clay Wisdom
Carbon Resources
PO Box 11789
Albuquerque, NM 87192

cc: Greg Hunt, Bruce Chesler

Project ID:
ACZ Project ID: L59734

Clay Wisdom:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 31, 2006. This project has been assigned to ACZ's project number, L59734. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L59734. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 21, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

Sue Webber 21/Dec/06

Sue Webber, Project Manager, has reviewed and approved this report in its entirety.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Case Narrative

Carbon Resources

December 21, 2006

Project ID:
ACZ Project ID: L59734

## Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 20 soil samples from Carbon Resources on October 31, 2006. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L59734. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

## Holding Times

All analyses were not performed within EPA recommended holding times. The EPA holding times apply to water samples, not soil so the "H" flags are not applicable.

## Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The following anomalies required further explanation not provided by the Extended Qualifier Report:

1. For Nitrate/Nitrite, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

2. For Phosphorus, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-1 10-24"

ACZ Sample ID: ***L59734-01***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 18:50 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.33 | | * | meq/L | 0.01 | 0.05 | 12/07/06 1:57 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.51 | | * | meq/L | 0.02 | 0.08 | 12/07/06 1:57 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 220 | | * | mg/Kg | 20 | 50 | 12/10/06 2:54 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.337 | | * | meq/L | 0.008 | 0.03 | 12/07/06 1:57 | gme |
| Sodium Absorption Ratio | Calculation | 0.37 | | | | 0.03 | 0.15 | 12/21/06 10:41 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.36 | | * | meq/L | 0.01 | 0.04 | 12/07/06 1:57 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.4 | B | * | % | 0.1 | 0.5 | 12/07/06 12:20 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.287 | | * | mmhos/cm | 0.001 | 0.01 | 12/04/06 12:00 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.5 | | * | % | 0.1 | 0.5 | 12/05/06 9:50 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.7 | | * | units | 0.1 | 0.1 | 12/04/06 12:00 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 34.60 | | * | % | 0.01 | 0.1 | 12/04/06 12:00 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 84.6 | | * | % Passing | 0.1 | 0.5 | 12/13/06 8:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 72.0 | | * | % Passing | 0.1 | 0.5 | 11/28/06 8:00 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 94.6 | | * | % | 0.1 | 0.5 | 11/28/06 13:57 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 20.0 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Sand | | 50.0 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Silt | | 30.0 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/12/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-1 10-24"

ACZ Sample ID: ***L59734-01***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/04/06 18:08 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:00 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 11:14 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:00 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 10:00 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 7.4 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:41 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 8.0 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:42 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.6 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:42 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.066 | H | * | % | 0.007 | 0.04 | 11/18/06 22:50 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 39 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:26 | pjb |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-1 24-44"

ACZ Sample ID: ***L59734-02***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 19:07 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.26 | | * | meq/L | 0.01 | 0.05 | 12/07/06 2:01 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.25 | | * | meq/L | 0.02 | 0.08 | 12/07/06 2:01 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 120 | | * | mg/Kg | 20 | 50 | 12/10/06 3:02 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.061 | | * | meq/L | 0.008 | 0.03 | 12/07/06 2:01 | gme |
| Sodium Absorption Ratio | Calculation | 0.20 | | | | 0.03 | 0.15 | 12/21/06 10:42 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.18 | | * | meq/L | 0.01 | 0.04 | 12/07/06 2:01 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.4 | B | * | % | 0.1 | 0.5 | 12/07/06 15:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.190 | | * | mmhos/cm | 0.001 | 0.01 | 12/04/06 14:15 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 8.1 | | * | % | 0.1 | 0.5 | 12/11/06 9:00 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.5 | | * | units | 0.1 | 0.1 | 12/04/06 14:15 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 44.30 | | * | % | 0.01 | 0.1 | 12/04/06 14:15 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 86.1 | | * | % Passing | 0.1 | 0.5 | 12/13/06 9:21 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 83.9 | | * | % Passing | 0.1 | 0.5 | 11/28/06 9:44 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 94.2 | | * | % | 0.1 | 0.5 | 11/28/06 14:55 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 27.5 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Sand | | 35.0 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Silt | | 37.5 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Texture Classification | | CL | | * | | | | 12/12/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-1 24-44"

ACZ Sample ID: ***L59734-02***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/04/06 20:25 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:03 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 11:42 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:03 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 10:06 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 34 | | | mg/Kg | 1 | 5 | 12/21/06 10:42 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 35 | H | * | mg/Kg | 1 | 5 | 12/08/06 22:29 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:45 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.048 | H | * | % | 0.002 | 0.01 | 11/18/06 21:15 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 17 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:29 | pjb |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-1 44-65"

ACZ Sample ID: ***L59734-03***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 19:42 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.37 | | * | meq/L | 0.01 | 0.05 | 12/07/06 2:05 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.29 | | * | meq/L | 0.02 | 0.08 | 12/07/06 2:05 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 90 | | * | mg/Kg | 20 | 50 | 12/10/06 3:14 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.084 | | * | meq/L | 0.008 | 0.03 | 12/07/06 2:05 | gme |
| Sodium Absorption Ratio | Calculation | 0.39 | | | | 0.03 | 0.15 | 12/21/06 10:42 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.36 | | * | meq/L | 0.01 | 0.04 | 12/07/06 2:05 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.2 | B | * | % | 0.1 | 0.5 | 12/07/06 16:20 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.237 | | * | mmhos/cm | 0.001 | 0.01 | 12/04/06 16:30 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 12.2 | | * | % | 0.1 | 0.5 | 12/12/06 2:20 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.7 | | * | units | 0.1 | 0.1 | 12/04/06 16:30 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 40.60 | | * | % | 0.01 | 0.1 | 12/04/06 16:30 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 87.7 | | * | % Passing | 0.1 | 0.5 | 12/13/06 10:42 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 90.6 | | * | % Passing | 0.1 | 0.5 | 11/28/06 11:28 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 95.0 | | * | % | 0.1 | 0.5 | 11/28/06 15:53 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 26.3 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Sand | | 42.5 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Silt | | 31.3 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/12/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-1 44-65"

ACZ Sample ID: ***L59734-03***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/04/06 21:34 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:06 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 11:57 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:06 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 10:12 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 7.6 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:42 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 8.4 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:47 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:47 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.024 | H | * | % | 0.002 | 0.01 | 11/18/06 22:29 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 8 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:30 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-1 65-80"

ACZ Sample ID: ***L59734-04***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 19:51 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.51 | | * | meq/L | 0.01 | 0.05 | 12/07/06 2:09 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.34 | | * | meq/L | 0.02 | 0.08 | 12/07/06 2:09 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 60 | | * | mg/Kg | 20 | 50 | 12/10/06 3:30 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.075 | | * | meq/L | 0.008 | 0.03 | 12/07/06 2:09 | gme |
| Sodium Absorption Ratio | Calculation | 0.41 | | | | 0.03 | 0.15 | 12/21/06 10:42 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.40 | | * | meq/L | 0.01 | 0.04 | 12/07/06 2:09 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.2 | B | * | % | 0.1 | 0.5 | 12/07/06 17:40 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.241 | | * | mmhos/cm | 0.001 | 0.01 | 12/04/06 18:45 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 14.8 | | * | % | 0.1 | 0.5 | 12/12/06 11:00 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.8 | | * | units | 0.1 | 0.1 | 12/04/06 18:45 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 34.30 | | * | % | 0.01 | 0.1 | 12/04/06 18:45 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 86.5 | | * | % Passing | 0.1 | 0.5 | 12/13/06 12:03 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 90.1 | | * | % Passing | 0.1 | 0.5 | 11/28/06 13:12 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 95.1 | | * | % | 0.1 | 0.5 | 11/28/06 16:51 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 20.0 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Sand | | 55.0 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Silt | | 25.0 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/12/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-1 65-80"

ACZ Sample ID: ***L59734-04***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/04/06 22:42 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:09 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 12:11 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:09 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 10:18 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 6.4 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:42 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 7.1 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:49 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:49 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.028 | H | * | % | 0.002 | 0.01 | 11/18/06 22:31 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 9 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:32 | pjb |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-2 0-5"

ACZ Sample ID: ***L59734-05***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 19:59 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.47 | | * | meq/L | 0.01 | 0.05 | 12/07/06 2:13 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.46 | | * | meq/L | 0.02 | 0.08 | 12/07/06 2:13 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 290 | | * | mg/Kg | 20 | 50 | 12/10/06 3:34 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.491 | | * | meq/L | 0.008 | 0.03 | 12/07/06 2:13 | gme |
| Sodium Absorption Ratio | Calculation | 0.33 | | | | 0.03 | 0.15 | 12/21/06 10:42 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.33 | | * | meq/L | 0.01 | 0.04 | 12/07/06 2:13 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.8 | | * | % | 0.1 | 0.5 | 12/07/06 19:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.305 | | * | mmhos/cm | 0.001 | 0.01 | 12/04/06 21:00 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.8 | | * | % | 0.1 | 0.5 | 12/05/06 10:41 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.0 | | * | units | 0.1 | 0.1 | 12/04/06 21:00 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 44.30 | | * | % | 0.01 | 0.1 | 12/04/06 21:00 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 80.5 | | * | % Passing | 0.1 | 0.5 | 12/13/06 13:25 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 88.9 | | * | % Passing | 0.1 | 0.5 | 11/28/06 14:56 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 87.3 | | * | % | 0.1 | 0.5 | 11/28/06 17:49 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 16.3 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Sand | | 47.5 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Silt | | 36.3 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/12/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-2 0-5"

ACZ Sample ID: ***L59734-05***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/04/06 23:51 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:12 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 12:25 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:12 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 10:25 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 5.2 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:42 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 6.0 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:50 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:50 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.072 | H | * | % | 0.002 | 0.01 | 11/18/06 22:32 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 17 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:33 | pjb |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-2 5-14"

ACZ Sample ID: ***L59734-06***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 20:08 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.49 | | * | meq/L | 0.01 | 0.05 | 12/07/06 2:17 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.44 | | * | meq/L | 0.02 | 0.08 | 12/07/06 2:17 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 450 | | * | mg/Kg | 20 | 50 | 12/10/06 3:38 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.906 | | * | meq/L | 0.008 | 0.03 | 12/07/06 2:17 | gme |
| Sodium Absorption Ratio | Calculation | 0.33 | | | | 0.03 | 0.15 | 12/21/06 10:42 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.33 | | * | meq/L | 0.01 | 0.04 | 12/07/06 2:17 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.4 | | * | % | 0.1 | 0.5 | 12/07/06 20:20 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.320 | | * | mmhos/cm | 0.001 | 0.01 | 12/04/06 23:15 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.6 | | * | % | 0.1 | 0.5 | 12/05/06 11:06 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.0 | | * | units | 0.1 | 0.1 | 12/04/06 23:15 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 45.20 | | * | % | 0.01 | 0.1 | 12/04/06 23:15 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 78.0 | | * | % Passing | 0.1 | 0.5 | 12/13/06 14:46 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 88.5 | | * | % Passing | 0.1 | 0.5 | 11/28/06 16:41 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 86.3 | | * | % | 0.1 | 0.5 | 11/28/06 18:47 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 15.0 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Sand | | 48.8 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Silt | | 36.3 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/12/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-2 5-14"

ACZ Sample ID: ***L59734-06***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 0:59 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:15 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 12:39 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:15 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 10:31 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 7.0 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:42 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 7.8 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:51 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:51 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.22 | H | * | % | 0.05 | 0.2 | 12/14/06 15:13 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 27 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:34 | pjb |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-2 14-25"

ACZ Sample ID: ***L59734-07***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 20:16 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.65 | | * | meq/L | 0.01 | 0.05 | 12/07/06 2:21 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.23 | | * | meq/L | 0.02 | 0.08 | 12/07/06 2:21 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 210 | | * | mg/Kg | 20 | 50 | 12/10/06 3:42 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.195 | | * | meq/L | 0.008 | 0.03 | 12/07/06 2:21 | gme |
| Sodium Absorption Ratio | Calculation | 0.43 | | | | 0.03 | 0.15 | 12/21/06 10:42 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.29 | | * | meq/L | 0.01 | 0.04 | 12/07/06 2:21 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.5 | | * | % | 0.1 | 0.5 | 12/07/06 21:40 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.155 | | * | mmhos/cm | 0.001 | 0.01 | 12/05/06 1:30 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.5 | | * | % | 0.1 | 0.5 | 12/05/06 11:31 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.9 | | * | units | 0.1 | 0.1 | 12/05/06 1:30 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 32.30 | | * | % | 0.01 | 0.1 | 12/05/06 1:30 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 87.0 | | * | % Passing | 0.1 | 0.5 | 12/13/06 16:07 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 64.5 | | * | % Passing | 0.1 | 0.5 | 11/28/06 18:25 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 96.3 | | * | % | 0.1 | 0.5 | 11/28/06 19:44 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 18.8 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Sand | | 35.0 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Silt | | 46.3 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Texture Classification | | SiL | | * | | | | 12/12/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-2 14-25"

ACZ Sample ID: ***L59734-07***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 2:08 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:18 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 12:54 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:18 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 10:37 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 47.0 | | | mg/Kg | 0.4 | 2 | 12/21/06 10:42 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 47.7 | H | * | mg/Kg | 0.4 | 2 | 12/08/06 22:32 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:56 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.043 | H | * | % | 0.002 | 0.01 | 11/18/06 22:34 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 17 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:37 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-2 25-38"

ACZ Sample ID: ***L59734-08***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 20:25 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.47 | | * | meq/L | 0.01 | 0.05 | 12/07/06 2:34 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.23 | | * | meq/L | 0.02 | 0.08 | 12/07/06 2:34 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 160 | | * | mg/Kg | 20 | 50 | 12/10/06 3:46 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.124 | | * | meq/L | 0.008 | 0.03 | 12/07/06 2:34 | gme |
| Sodium Absorption Ratio | Calculation | 0.37 | | | | 0.03 | 0.15 | 12/21/06 10:42 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.22 | | * | meq/L | 0.01 | 0.04 | 12/07/06 2:34 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.2 | B | * | % | 0.1 | 0.5 | 12/07/06 23:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.121 | | * | mmhos/cm | 0.001 | 0.01 | 12/05/06 3:45 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.7 | | * | % | 0.1 | 0.5 | 12/05/06 11:56 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.9 | | * | units | 0.1 | 0.1 | 12/05/06 3:45 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 37.80 | | * | % | 0.01 | 0.1 | 12/05/06 3:45 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 84.4 | | * | % Passing | 0.1 | 0.5 | 12/13/06 17:29 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 70.7 | | * | % Passing | 0.1 | 0.5 | 11/28/06 20:09 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 94.1 | | * | % | 0.1 | 0.5 | 11/28/06 20:42 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 26.3 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Sand | | 37.5 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Silt | | 36.3 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Texture Classification | | SiL | | * | | | | 12/12/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-2 25-38"

ACZ Sample ID: ***L59734-08***
Date Sampled: *10/14/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 3:17 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:22 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 13:08 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:21 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 10:44 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 41.8 | | | mg/Kg | 0.4 | 2 | 12/21/06 10:42 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 42.5 | H | * | mg/Kg | 0.4 | 2 | 12/08/06 22:33 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:57 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.045 | H | * | % | 0.005 | 0.02 | 11/18/06 22:52 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 10 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:38 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-3 0-9"

ACZ Sample ID: ***L59734-09***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 20:34 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.90 | | * | meq/L | 0.01 | 0.05 | 12/07/06 2:38 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.28 | | * | meq/L | 0.02 | 0.08 | 12/07/06 2:38 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 320 | | * | mg/Kg | 20 | 50 | 12/10/06 3:50 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.535 | | * | meq/L | 0.008 | 0.03 | 12/07/06 2:38 | gme |
| Sodium Absorption Ratio | Calculation | 0.23 | | | | 0.03 | 0.15 | 12/21/06 10:42 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.18 | | * | meq/L | 0.01 | 0.04 | 12/07/06 2:38 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.7 | | * | % | 0.1 | 0.5 | 12/08/06 0:20 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.200 | | * | mmhos/cm | 0.001 | 0.01 | 12/05/06 6:00 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.6 | | * | % | 0.1 | 0.5 | 12/05/06 12:22 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.7 | | * | units | 0.1 | 0.1 | 12/05/06 6:00 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 45.50 | | * | % | 0.01 | 0.1 | 12/05/06 6:00 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 72.8 | | * | % Passing | 0.1 | 0.5 | 12/13/06 18:50 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 86.8 | | * | % Passing | 0.1 | 0.5 | 11/28/06 21:53 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 87.7 | | * | % | 0.1 | 0.5 | 11/28/06 21:40 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 11.3 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Sand | | 56.3 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Silt | | 32.5 | | * | % | 0.1 | 0.5 | 12/12/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/12/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-3 0-9"

ACZ Sample ID: ***L59734-09***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 4:25 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:25 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 13:22 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:24 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 10:50 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 9.7 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:42 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 9.7 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:58 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 12/13/06 19:25 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.074 | H | * | % | 0.002 | 0.01 | 11/18/06 22:36 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 14 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:39 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-3 9-19"

ACZ Sample ID: ***L59734-10***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 11/15/06 20:42 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.47 | | * | meq/L | 0.01 | 0.05 | 12/07/06 2:42 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.23 | | * | meq/L | 0.02 | 0.08 | 12/07/06 2:42 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 240 | | * | mg/Kg | 20 | 50 | 12/10/06 3:54 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.205 | | * | meq/L | 0.008 | 0.03 | 12/07/06 2:42 | gme |
| Sodium Absorption Ratio | Calculation | 0.33 | | | | 0.03 | 0.15 | 12/21/06 10:42 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.20 | | * | meq/L | 0.01 | 0.04 | 12/07/06 2:42 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.7 | | * | % | 0.1 | 0.5 | 12/08/06 1:40 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.137 | | * | mmhos/cm | 0.001 | 0.01 | 12/05/06 8:15 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.5 | B | * | % | 0.1 | 0.5 | 12/05/06 12:47 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.8 | | * | units | 0.1 | 0.1 | 12/05/06 8:15 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 33.60 | | * | % | 0.01 | 0.1 | 12/05/06 8:15 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 82.1 | | * | % Passing | 0.1 | 0.5 | 12/13/06 20:11 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 80.7 | | * | % Passing | 0.1 | 0.5 | 11/28/06 23:37 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 94.5 | | * | % | 0.1 | 0.5 | 11/28/06 22:38 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 21.3 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Sand | | 45.0 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Silt | | 33.8 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/13/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-3 9-19"

ACZ Sample ID: ***L59734-10***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 5:34 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:28 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 13:37 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:27 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 10:56 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 5.1 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:42 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 5.8 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 22:00 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 22:00 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.139 | H | * | % | 0.005 | 0.02 | 11/18/06 22:55 | pjb |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 9 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:40 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-3 19-36"

ACZ Sample ID: ***L59734-11***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/01/06 16:09 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.54 | | * | meq/L | 0.01 | 0.05 | 12/07/06 2:46 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.19 | | * | meq/L | 0.02 | 0.08 | 12/07/06 2:46 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 110 | | * | mg/Kg | 20 | 50 | 12/10/06 3:58 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.111 | | * | meq/L | 0.008 | 0.03 | 12/07/06 2:46 | gme |
| Sodium Absorption Ratio | Calculation | 0.41 | | | | 0.03 | 0.15 | 12/21/06 10:43 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.25 | | * | meq/L | 0.01 | 0.04 | 12/07/06 2:46 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.5 | | * | % | 0.1 | 0.5 | 12/08/06 3:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.139 | | * | mmhos/cm | 0.001 | 0.01 | 12/05/06 10:30 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.5 | | * | % | 0.1 | 0.5 | 12/05/06 13:12 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.7 | | * | units | 0.1 | 0.1 | 12/05/06 10:30 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 32.00 | | * | % | 0.01 | 0.1 | 12/05/06 10:30 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 80.6 | | * | % Passing | 0.1 | 0.5 | 12/13/06 21:33 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 75.3 | | * | % Passing | 0.1 | 0.5 | 11/29/06 1:22 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 94.7 | | * | % | 0.1 | 0.5 | 11/28/06 23:36 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 22.5 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Sand | | 47.5 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Silt | | 30.0 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/13/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-3 19-36"

ACZ Sample ID: ***L59734-11***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 6:42 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:31 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 13:51 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:30 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 11:03 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 4.1 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:43 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.8 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 22:01 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 22:01 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.010 | H | * | % | 0.002 | 0.008 | 12/04/06 13:33 | jlf |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 9 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:42 | pjb |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-3 36-52"

ACZ Sample ID: ***L59734-12***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/01/06 17:04 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.08 | | * | meq/L | 0.01 | 0.05 | 12/07/06 2:50 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.31 | | * | meq/L | 0.02 | 0.08 | 12/07/06 2:50 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 130 | | * | mg/Kg | 20 | 50 | 12/10/06 4:02 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.073 | | * | meq/L | 0.008 | 0.03 | 12/07/06 2:50 | gme |
| Sodium Absorption Ratio | Calculation | 0.33 | | | | 0.03 | 0.15 | 12/21/06 10:43 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.28 | | * | meq/L | 0.01 | 0.04 | 12/07/06 2:50 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.5 | | * | % | 0.1 | 0.5 | 12/08/06 4:20 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.192 | | * | mmhos/cm | 0.001 | 0.01 | 12/05/06 12:45 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.8 | | * | % | 0.1 | 0.5 | 12/05/06 13:37 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.2 | | * | units | 0.1 | 0.1 | 12/05/06 12:45 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 42.60 | | * | % | 0.01 | 0.1 | 12/05/06 12:45 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 91.0 | | * | % Passing | 0.1 | 0.5 | 12/13/06 22:54 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 61.3 | | * | % Passing | 0.1 | 0.5 | 11/29/06 3:06 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 93.5 | | * | % | 0.1 | 0.5 | 11/29/06 0:34 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 28.8 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Sand | | 31.3 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Silt | | 40.0 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Texture Classification | | SiL | | * | | | | 12/13/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-3 36-52"

ACZ Sample ID: ***L59734-12***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 7:51 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:34 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 14:05 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:33 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 11:09 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 11.1 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:43 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 11.8 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 22:02 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 22:02 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.042 | H | * | % | 0.002 | 0.01 | 12/04/06 13:35 | jlf |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 33 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:43 | pjb |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-5 0-6"

ACZ Sample ID: ***L59734-13***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/01/06 17:58 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.87 | | * | meq/L | 0.01 | 0.05 | 12/07/06 2:54 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.52 | | * | meq/L | 0.02 | 0.08 | 12/07/06 2:54 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 340 | | * | mg/Kg | 20 | 50 | 12/10/06 4:14 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.675 | | * | meq/L | 0.008 | 0.03 | 12/07/06 2:54 | gme |
| Sodium Absorption Ratio | Calculation | 0.38 | | | | 0.03 | 0.15 | 12/21/06 10:43 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.42 | | * | meq/L | 0.01 | 0.04 | 12/07/06 2:54 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.8 | | * | % | 0.1 | 0.5 | 12/08/06 5:40 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.362 | | * | mmhos/cm | 0.001 | 0.01 | 12/05/06 15:00 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.8 | | * | % | 0.1 | 0.5 | 12/05/06 14:03 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.8 | | * | units | 0.1 | 0.1 | 12/05/06 15:00 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 44.70 | | * | % | 0.01 | 0.1 | 12/05/06 15:00 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 80.6 | | * | % Passing | 0.1 | 0.5 | 12/14/06 0:15 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 80.4 | | * | % Passing | 0.1 | 0.5 | 11/29/06 4:50 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 87.1 | | * | % | 0.1 | 0.5 | 11/29/06 1:32 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 16.3 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Sand | | 46.3 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Silt | | 37.5 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/13/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-5 0-6"

ACZ Sample ID: ***L59734-13***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 8:59 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:37 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 14:19 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:36 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 11:15 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 11.4 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:43 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 11.4 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 22:03 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | | UH | * | mg/Kg | 0.1 | 0.5 | 12/13/06 19:27 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.184 | H | * | % | 0.007 | 0.04 | 12/14/06 15:14 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 25 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:44 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-5 6-12"

ACZ Sample ID: ***L59734-14***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/01/06 18:26 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 2.15 | | * | meq/L | 0.01 | 0.05 | 12/07/06 2:58 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.42 | | * | meq/L | 0.02 | 0.08 | 12/07/06 2:58 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 350 | | * | mg/Kg | 20 | 50 | 12/10/06 4:17 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.543 | | * | meq/L | 0.008 | 0.03 | 12/07/06 2:58 | gme |
| Sodium Absorption Ratio | Calculation | 0.33 | | | | 0.03 | 0.15 | 12/21/06 10:43 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.38 | | * | meq/L | 0.01 | 0.04 | 12/07/06 2:58 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.4 | | * | % | 0.1 | 0.5 | 12/08/06 7:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.358 | | * | mmhos/cm | 0.001 | 0.01 | 12/05/06 17:15 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.7 | | * | % | 0.1 | 0.5 | 12/05/06 14:28 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.0 | | * | units | 0.1 | 0.1 | 12/05/06 17:15 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 39.60 | | * | % | 0.01 | 0.1 | 12/05/06 17:15 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 87.5 | | * | % Passing | 0.1 | 0.5 | 12/14/06 1:37 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 60.5 | | * | % Passing | 0.1 | 0.5 | 11/29/06 6:34 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 89.0 | | * | % | 0.1 | 0.5 | 11/29/06 2:29 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 21.3 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Sand | | 46.3 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Silt | | 32.5 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/13/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-5 6-12"

ACZ Sample ID: ***L59734-14***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 10:08 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:40 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 14:34 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:39 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 11:22 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 6.5 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:43 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 7.1 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 22:05 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.6 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 22:05 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.108 | H | * | % | 0.002 | 0.01 | 12/04/06 13:38 | jlf |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 14 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:45 | pjb |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-5 12-24"

ACZ Sample ID: ***L59734-15***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/01/06 18:53 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.37 | | * | meq/L | 0.01 | 0.05 | 12/07/06 3:02 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.24 | | * | meq/L | 0.02 | 0.08 | 12/07/06 3:02 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 240 | | * | mg/Kg | 20 | 50 | 12/10/06 4:21 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.256 | | * | meq/L | 0.008 | 0.03 | 12/07/06 3:02 | gme |
| Sodium Absorption Ratio | Calculation | 0.38 | | | | 0.03 | 0.15 | 12/21/06 10:43 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.21 | | * | meq/L | 0.01 | 0.04 | 12/07/06 3:02 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.5 | | * | % | 0.1 | 0.5 | 12/08/06 8:20 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.107 | | * | mmhos/cm | 0.001 | 0.01 | 12/05/06 19:30 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.5 | B | * | % | 0.1 | 0.5 | 12/05/06 14:53 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.0 | | * | units | 0.1 | 0.1 | 12/05/06 19:30 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 39.20 | | * | % | 0.01 | 0.1 | 12/05/06 19:30 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 92.8 | | * | % Passing | 0.1 | 0.5 | 12/14/06 2:58 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 45.0 | | * | % Passing | 0.1 | 0.5 | 11/29/06 8:19 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 91.7 | | * | % | 0.1 | 0.5 | 11/29/06 3:27 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 31.3 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Sand | | 28.8 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Silt | | 40.0 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Texture Classification | | SiCL | | * | | | | 12/13/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-5 12-24"

ACZ Sample ID: ***L59734-15***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 11:17 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:44 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 14:48 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:42 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 11:28 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 4.2 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:43 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.9 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 22:06 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 22:06 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.062 | H | * | % | 0.002 | 0.009 | 12/04/06 13:40 | jlf |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 7 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:46 | pjb |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-5 24-48"

ACZ Sample ID: ***L59734-16***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/01/06 19:21 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.24 | | * | meq/L | 0.01 | 0.05 | 12/07/06 3:06 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.31 | | * | meq/L | 0.02 | 0.08 | 12/07/06 3:06 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 240 | | * | mg/Kg | 20 | 50 | 12/10/06 4:25 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.252 | | * | meq/L | 0.008 | 0.03 | 12/07/06 3:06 | gme |
| Sodium Absorption Ratio | Calculation | 0.42 | | | | 0.03 | 0.15 | 12/21/06 10:43 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.22 | | * | meq/L | 0.01 | 0.04 | 12/07/06 3:06 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.4 | B | * | % | 0.1 | 0.5 | 12/08/06 9:40 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.092 | | * | mmhos/cm | 0.001 | 0.01 | 12/05/06 21:45 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.7 | | * | % | 0.1 | 0.5 | 12/05/06 15:19 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.0 | | * | units | 0.1 | 0.1 | 12/05/06 21:45 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 47.30 | | * | % | 0.01 | 0.1 | 12/05/06 21:45 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 95.2 | | * | % Passing | 0.1 | 0.5 | 12/14/06 4:19 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 39.3 | | * | % Passing | 0.1 | 0.5 | 11/29/06 10:03 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 90.7 | | * | % | 0.1 | 0.5 | 11/29/06 4:25 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 40.0 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Sand | | 22.5 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Silt | | 37.5 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Texture Classification | | SiC/SiCL | | * | | | | 12/13/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-5 24-48"

ACZ Sample ID: ***L59734-16***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 12:25 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:47 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 15:02 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:45 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 11:34 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 7.0 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:43 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 7.7 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 22:07 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 22:07 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.049 | H | * | % | 0.001 | 0.006 | 12/04/06 13:41 | jlf |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 8 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:47 | pjb |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-6 0-6"

ACZ Sample ID: ***L59734-17***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/01/06 20:43 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.14 | | * | meq/L | 0.01 | 0.05 | 12/07/06 3:10 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.43 | | * | meq/L | 0.02 | 0.08 | 12/07/06 3:10 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 410 | | * | mg/Kg | 20 | 50 | 12/10/06 4:29 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.748 | | * | meq/L | 0.008 | 0.03 | 12/07/06 3:10 | gme |
| Sodium Absorption Ratio | Calculation | 0.16 | | | | 0.03 | 0.15 | 12/21/06 10:43 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.15 | | * | meq/L | 0.01 | 0.04 | 12/07/06 3:10 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.2 | | * | % | 0.1 | 0.5 | 12/08/06 11:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.231 | | * | mmhos/cm | 0.001 | 0.01 | 12/06/06 0:00 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.7 | | * | % | 0.1 | 0.5 | 12/05/06 15:44 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.0 | | * | units | 0.1 | 0.1 | 12/06/06 0:00 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 40.90 | | * | % | 0.01 | 0.1 | 12/06/06 0:00 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 80.3 | | * | % Passing | 0.1 | 0.5 | 12/14/06 5:41 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 91.3 | | * | % Passing | 0.1 | 0.5 | 11/29/06 11:47 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 84.3 | | * | % | 0.1 | 0.5 | 11/29/06 5:23 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 15.0 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Sand | | 47.5 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Silt | | 37.5 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/13/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-6 0-6"

ACZ Sample ID: ***L59734-17***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 13:34 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:50 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 15:17 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:48 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 11:41 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 7.2 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:43 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 7.9 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 22:12 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 22:12 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.159 | H | * | % | 0.007 | 0.03 | 12/14/06 15:15 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 24 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:50 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-6 6-12"

ACZ Sample ID: ***L59734-18***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/01/06 21:10 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.84 | | * | meq/L | 0.01 | 0.05 | 12/07/06 3:22 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.31 | | * | meq/L | 0.02 | 0.08 | 12/07/06 3:22 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 410 | | * | mg/Kg | 20 | 50 | 12/10/06 4:33 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.515 | | * | meq/L | 0.008 | 0.03 | 12/07/06 3:22 | gme |
| Sodium Absorption Ratio | Calculation | 0.21 | | | | 0.03 | 0.15 | 12/21/06 10:44 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.16 | | * | meq/L | 0.01 | 0.04 | 12/07/06 3:22 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.3 | | * | % | 0.1 | 0.5 | 12/08/06 12:20 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.189 | | * | mmhos/cm | 0.001 | 0.01 | 12/06/06 2:15 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.7 | | * | % | 0.1 | 0.5 | 12/05/06 16:09 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.0 | | * | units | 0.1 | 0.1 | 12/06/06 2:15 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 38.80 | | * | % | 0.01 | 0.1 | 12/06/06 2:15 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 80.8 | | * | % Passing | 0.1 | 0.5 | 12/14/06 7:02 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 83.6 | | * | % Passing | 0.1 | 0.5 | 11/29/06 13:31 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 90.4 | | * | % | 0.1 | 0.5 | 11/29/06 6:21 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 16.3 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Sand | | 50.0 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Silt | | 33.8 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/13/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-6 6-12"

ACZ Sample ID: ***L59734-18***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 14:42 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:53 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 15:31 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:51 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 11:47 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 5.3 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:44 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 6.0 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 22:13 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 22:13 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.134 | H | * | % | 0.007 | 0.04 | 12/14/06 15:16 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 22 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:52 | pjb |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-6 12-24"

ACZ Sample ID: ***L59734-19***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/01/06 21:37 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.96 | | * | meq/L | 0.01 | 0.05 | 12/07/06 3:26 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.31 | | * | meq/L | 0.02 | 0.08 | 12/07/06 3:26 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 160 | | * | mg/Kg | 20 | 50 | 12/10/06 4:37 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.101 | | * | meq/L | 0.008 | 0.03 | 12/07/06 3:26 | gme |
| Sodium Absorption Ratio | Calculation | 0.43 | | | | 0.03 | 0.15 | 12/21/06 10:44 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.35 | | * | meq/L | 0.01 | 0.04 | 12/07/06 3:26 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.0 | | * | % | 0.1 | 0.5 | 12/08/06 13:40 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.180 | | * | mmhos/cm | 0.001 | 0.01 | 12/06/06 4:30 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.7 | | * | % | 0.1 | 0.5 | 12/05/06 16:34 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.2 | | * | units | 0.1 | 0.1 | 12/06/06 4:30 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 39.20 | | * | % | 0.01 | 0.1 | 12/06/06 4:30 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 82.0 | | * | % Passing | 0.1 | 0.5 | 12/14/06 8:23 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 86.8 | | * | % Passing | 0.1 | 0.5 | 11/29/06 15:15 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 96.0 | | * | % | 0.1 | 0.5 | 11/29/06 7:19 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 16.3 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Sand | | 45.0 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Silt | | 38.8 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/13/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-6 12-24"

ACZ Sample ID: ***L59734-19***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 15:51 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:56 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 15:45 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:54 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 11:53 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 3.5 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:44 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.1 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 22:14 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.6 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 22:14 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.10 | H | * | % | 0.02 | 0.09 | 12/14/06 15:17 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 19 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:53 | pjb |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-6 24-40"

ACZ Sample ID: ***L59734-20***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/01/06 22:05 | jlf/pjb |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.27 | | * | meq/L | 0.01 | 0.05 | 12/07/06 3:30 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.44 | | * | meq/L | 0.02 | 0.08 | 12/07/06 3:30 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 230 | | * | mg/Kg | 20 | 50 | 12/10/06 4:41 | gme |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.235 | | * | meq/L | 0.008 | 0.03 | 12/07/06 3:30 | gme |
| Sodium Absorption Ratio | Calculation | 0.42 | | | | 0.03 | 0.15 | 12/21/06 10:44 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.39 | | * | meq/L | 0.01 | 0.04 | 12/07/06 3:30 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.0 | | * | % | 0.1 | 0.5 | 12/08/06 15:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.216 | | * | mmhos/cm | 0.001 | 0.01 | 12/06/06 6:45 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.7 | | * | % | 0.1 | 0.5 | 12/05/06 17:00 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.0 | | * | units | 0.1 | 0.1 | 12/06/06 6:45 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 42.80 | | * | % | 0.01 | 0.1 | 12/06/06 6:45 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 84.4 | | * | % Passing | 0.1 | 0.5 | 12/14/06 9:45 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 79.3 | | * | % Passing | 0.1 | 0.5 | 11/29/06 17:00 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 93.6 | | * | % | 0.1 | 0.5 | 11/29/06 8:17 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 16.3 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Sand | | 45.0 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Silt | | 38.8 | | * | % | 0.1 | 0.5 | 12/13/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/13/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |



** Please refer to Qualifier Reports for detail.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 2A-6 24-40"

ACZ Sample ID: ***L59734-20***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 16:59 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:59 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/07/06 15:59 | rje/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/04/06 12:57 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 11/30/06 12:00 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 6.1 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:44 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 6.8 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 22:16 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 22:16 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.111 | H | * | % | 0.006 | 0.03 | 12/14/06 15:18 | jag |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 23 | H | * | mg/Kg | 1 | 5 | 12/09/06 17:54 | pjb |



** Please refer to Qualifier Reports for detail.*

## Report Header Explanations

| | |
|---|---|
| *Batch* | A distinct set of samples analyzed at a specific time |
| *Found* | Value of the QC Type of interest |
| *Limit* | Upper limit for RPD, in %. |
| *Lower* | Lower Recovery Limit, in % (except for LCSS, mg/Kg) |
| *MDL* | Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations. |
| *PCN/SCN* | A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis |
| *PQL* | Practical Quantitation Limit, typically 5 times the MDL. |
| *QC* | True Value of the Control Sample or the amount added to the Spike |
| *Rec* | Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg) |
| *RPD* | Relative Percent Difference, calculation used for Duplicate QC Types |
| *Upper* | Upper Recovery Limit, in % (except for LCSS, mg/Kg) |
| *Sample* | Value of the Sample of interest |

## QC Sample Types

| | | | |
|---|---|---|---|
| *AS* | Analytical Spike (Post Digestion) | *LCSWD* | Laboratory Control Sample - Water Duplicate |
| *ASD* | Analytical Spike (Post Digestion) Duplicate | *LFB* | Laboratory Fortified Blank |
| *CCB* | Continuing Calibration Blank | *LFM* | Laboratory Fortified Matrix |
| *CCV* | Continuing Calivation Verification standard | *LFMD* | Laboratory Fortified Matrix Duplicate |
| *DUP* | Sample Duplicate | *LRB* | Laboratory Reagent Blank |
| *ICB* | Initial Calibration Blank | *MS* | Matrix Spike |
| *ICV* | Initial Calibration Verification standard | *MSD* | Matrix Spike Duplicate |
| *ICSAB* | Inter-element Correction Standard - A plus B solutions | *PBS* | Prep Blank - Soil |
| *LCSS* | Laboratory Control Sample - Soil | *PBW* | Prep Blank - Water |
| *LCSSD* | Laboratory Control Sample - Soil Duplicate | *PQV* | Practical Quantitation Verification standard |
| *LCSW* | Laboratory Control Sample - Water | *SDL* | Serial Dilution |

## QC Sample Type Explanations

| | |
|---|---|
| Blanks | Verifies that there is no or minimal contamination in the prep method or calibration procedure. |
| Control Samples | Verifies the accuracy of the method, including the prep procedure. |
| Duplicates | Verifies the precision of the instrument and/or method. |
| Spikes/Fortified Matrix | Determines sample matrix interferences, if any. |
| Standard | Verifies the validity of the calibration. |

## ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| R | Poor spike recovery accepted because the other spike in the set fell within the given limits. |
| T | High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL. |
| U | Analyte was analyzed for but not detected at the indicated MDL |
| V | High blank data accepted because sample concentration is 10 times higher than blank concentration |
| W | Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride. |
| X | Quality control sample is out of control. |
| Z | Poor spike recovery is accepted because sample concentration is four times greater than spike concentration. |

## Method References


| | |
|---|---|
| (1) | EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983. |
| (2) | EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993. |
| (3) | EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994. |
| (5) | EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996. |
| (6) | Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995. |


## Comments

| | |
|---|---|
| (1) | QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations. |
| (2) | Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis. |
| (3) | Animal matrices for Inorganic analyses are reported on an "as received" basis. |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59734***

**Calcium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217640** | | | | | | | | | | | | | |
| WG217640ICV | ICV | 12/07/06 1:37 | II061128-2 | 100 | | 98.25 | mg/L | 98.3 | 90 | 110 | | | |
| WG217640ICB | ICB | 12/07/06 1:41 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| L59734-20DUP | DUP | 12/07/06 3:34 | | | 1.27 | 1.796 | meq/L | | | | 34.3 | 20 | RC |

**Carbon, total organic (TOC)** ASA No.9 29-2.2.4 Combustion/IR

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217769** | | | | | | | | | | | | | |
| WG217769PBS | PBS | 12/07/06 11:00 | | | | U | % | | -0.3 | 0.3 | | | |
| L59734-01DUP | DUP | 12/07/06 13:40 | | | .4 | .4 | % | | | | 0 | 20 | RA |

**Conductivity @25C** M120.1 - Meter, w/ Saturated Paste Prep

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217538** | | | | | | | | | | | | | |
| L59734-20DUP | DUP | 12/06/06 9:00 | | | .216 | .3 | mmhos/cm | | | | 32.6 | 20 | RC |

**Magnesium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217640** | | | | | | | | | | | | | |
| WG217640ICV | ICV | 12/07/06 1:37 | II061128-2 | 100 | | 94.93 | mg/L | 94.9 | 90 | 110 | | | |
| WG217640ICB | ICB | 12/07/06 1:41 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| L59734-20DUP | DUP | 12/07/06 3:34 | | | .44 | .574 | meq/L | | | | 26.4 | 20 | RC |

**Neutralization Potential as CaCO3** M600/2-78-054 3.2.3

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217580** | | | | | | | | | | | | | |
| WG217580LCSS | LCSS | 12/05/06 9:25 | PCN20880 | 100 | | 100.16 | % | | | | | | |
| L59734-01DUP | DUP | 12/05/06 10:15 | | | .5 | .55 | % | | | | 9.5 | 20 | RA |
| **WG217923** | | | | | | | | | | | | | |
| L59734-02DUP | DUP | 12/11/06 17:40 | | | 8.1 | 7.98 | % | | | | 1.5 | 20 | |
| WG217923LCSS | LCSS | 12/13/06 4:20 | PCN20880 | 100 | | 111.72 | % | | | | | | |
| WG217923PBS | PBS | 12/13/06 13:00 | | | | U | % | | -0.1 | 0.1 | | | |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59734***

**Nitrate/Nitrite as N, extractable (KCL)** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217892** | | | | | | | | | | | | | |
| WG217892ICV | ICV | 12/08/06 19:33 | WI061207-1 | 2.416 | | 2.249 | mg/L | 93.1 | 90 | 110 | | | |
| WG217892ICB | ICB | 12/08/06 19:34 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| **WG217895** | | | | | | | | | | | | | |
| WG217895ICV | ICV | 12/08/06 21:37 | WI061207-1 | 2.416 | | 2.3 | mg/L | 95.2 | 90 | 110 | | | |
| WG217895ICB | ICB | 12/08/06 21:39 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| WG217895LFB1 | LFB | 12/08/06 21:40 | WI060906-4 | 2 | | 2.028 | mg/Kg | 101.4 | 85 | 115 | | | |
| WG217693PBS | PBS | 12/08/06 21:41 | | | | 1.73 | mg/Kg | | -0.6 | 0.6 | | | N1 |
| L59734-01DUP | DUP | 12/08/06 21:44 | | | 8 | 8 | mg/Kg | | | | 0 | 20 | |
| WG217895LFB2 | LFB | 12/08/06 22:18 | WI060906-4 | 2 | | 2.067 | mg/Kg | 103.4 | 85 | 115 | | | |
| L59736-01DUP | DUP | 12/08/06 22:21 | | | 4.8 | 4.89 | mg/Kg | | | | 1.9 | 20 | |
| L59736-02AS | AS | 12/08/06 22:23 | WI060906-4 | 20 | 4.9 | 24.57 | mg/Kg | 98.4 | 75 | 125 | | | |
| L59734-02AS | AS | 12/08/06 22:30 | WI060906-4 | 100 | 35 | 138.7 | mg/Kg | 103.7 | 75 | 125 | | | |

**Nitrite as N, extractable (KCL)** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217892** | | | | | | | | | | | | | |
| WG217892ICV | ICV | 12/08/06 19:33 | WI061207-1 | .609 | | .618 | mg/L | 101.5 | 90 | 110 | | | |
| WG217892ICB | ICB | 12/08/06 19:34 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| **WG217895** | | | | | | | | | | | | | |
| WG217895ICV | ICV | 12/08/06 21:37 | WI061207-1 | .609 | | .622 | mg/L | 102.1 | 90 | 110 | | | |
| WG217895ICB | ICB | 12/08/06 21:39 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG217895LFB1 | LFB | 12/08/06 21:40 | WI060906-4 | 1 | | .996 | mg/Kg | 99.6 | 85 | 115 | | | |
| L59734-01DUP | DUP | 12/08/06 21:44 | | | .6 | .66 | mg/Kg | | | | 9.5 | 20 | RA |
| L59734-02AS | AS | 12/08/06 21:46 | WI060906-4 | 10 | .7 | 10.46 | mg/Kg | 97.6 | 75 | 125 | | | |
| WG217895LFB2 | LFB | 12/08/06 22:18 | WI060906-4 | 1 | | 1.017 | mg/Kg | 101.7 | 85 | 115 | | | |
| L59736-01DUP | DUP | 12/08/06 22:21 | | | .7 | .7 | mg/Kg | | | | 0 | 20 | RA |
| L59736-02AS | AS | 12/08/06 22:23 | WI060906-4 | 10 | .5 | 9.53 | mg/Kg | 90.3 | 75 | 125 | | | |
| **WG218122** | | | | | | | | | | | | | |
| WG218122ICV | ICV | 12/13/06 19:17 | WI061207-1 | .609 | | .595 | mg/L | 97.7 | 90 | 110 | | | |
| WG218122ICB | ICB | 12/13/06 19:19 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG218122LFB | LFB | 12/13/06 19:20 | WI060906-4 | 1 | | .986 | mg/Kg | 98.6 | 85 | 115 | | | |
| WG217693PBS | PBS | 12/13/06 19:21 | | | | .52 | mg/Kg | | -0.3 | 0.3 | | | N1 |
| L59734-01DUP | DUP | 12/13/06 19:24 | | | .7 | .62 | mg/Kg | | | | 12.1 | 20 | RA |
| L59734-09AS | AS | 12/13/06 19:26 | WI060906-4 | 10 | U | 9.44 | mg/Kg | 94.4 | 75 | 125 | | | |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59734***

**Nitrogen, total Kjeldahl** M351.2 - TKN by Block Digester

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG216825** | | | | | | | | | | | | | |
| WG216639ICV | ICV | 11/18/06 20:36 | WI061027-1 | 4 | | 3.88 | mg/L | 97 | 90 | 110 | | | |
| WG216639ICB | ICB | 11/18/06 20:37 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG216639LFB1 | LFB | 11/18/06 20:40 | WI061027-5 | 2.5 | | 2.48 | % | 99.2 | 85 | 115 | | | |
| WG216639PBS1 | PBS | 11/18/06 20:52 | | | | .0021 | % | | -0.006 | 0.006 | | | |
| WG216639PBS2 | PBS | 11/18/06 21:11 | | | | .003 | % | | -0.006 | 0.006 | | | |
| WG216639LFB2 | LFB | 11/18/06 21:12 | WI061027-5 | 2.5 | | 2.4 | % | 96 | 85 | 115 | | | |
| L59734-02DUP | DUP | 11/18/06 22:28 | | | .048 | .048 | % | | | | 0 | 20 | |
| L59734-01MS | MS | 11/18/06 22:51 | 5XPTSTKN | .035 | .066 | .1579 | % | 262.6 | 75 | 125 | | | M1 |
| **WG217529** | | | | | | | | | | | | | |
| WG217529ICV1 | ICV | 12/04/06 12:17 | WI061129-2 | 4 | | 3.79 | mg/L | 94.8 | 90 | 110 | | | |
| WG217469ICB | ICB | 12/04/06 12:18 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG217529ICV2 | ICV | 12/04/06 13:11 | WI061129-2 | 4 | | 3.75 | mg/L | 93.8 | 90 | 110 | | | |
| WG217529ICB1 | ICB | 12/04/06 13:12 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| **WG217539** | | | | | | | | | | | | | |
| WG217470ICB | ICB | 12/04/06 13:29 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG217470PBS | PBS | 12/04/06 13:31 | | | | .0031 | % | | -0.006 | 0.006 | | | |
| WG217470LFB | LFB | 12/04/06 13:32 | WI061129-6 | 2.5 | | 2.2 | % | 88 | 85 | 115 | | | |
| L59734-11MS | MS | 12/04/06 13:34 | WI061129-6 | .0375 | .01 | .03 | % | 53.3 | 75 | 125 | | | M2 |
| L59734-12DUP | DUP | 12/04/06 13:36 | | | .042 | .0527 | % | | | | 22.6 | 20 | RD |
| **WG218152** | | | | | | | | | | | | | |
| WG218152ICV1 | ICV | 12/14/06 15:10 | WI061129-2 | 4 | | 3.93 | mg/L | 98.3 | 90 | 110 | | | |
| WG218073ICB | ICB | 12/14/06 15:12 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG218073LFB | LFB | 12/14/06 15:20 | WI061129-6 | 2.5 | | 2.66 | % | 106.4 | 85 | 115 | | | |
| L60098-01DUP | DUP | 12/14/06 15:29 | | | 6.7 | 6.97 | % | | | | 4 | 20 | |

**Percent Clay** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217996** | | | | | | | | | | | | | |
| L59734-01DUP | DUP | 12/12/06 11:02 | | | 20 | 20 | % | | | | 0 | 20 | |

**Percent Sand** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217996** | | | | | | | | | | | | | |
| L59734-01DUP | DUP | 12/12/06 11:02 | | | 50 | 51.3 | % | | | | 2.6 | 20 | |

**Percent Silt** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217996** | | | | | | | | | | | | | |
| L59734-01DUP | DUP | 12/12/06 11:02 | | | 30 | 28.8 | % | | | | 4.1 | 20 | |

**pH, Saturated Paste** USDA No. 60 (21A)

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217538** | | | | | | | | | | | | | |
| L59734-20DUP | DUP | 12/06/06 9:00 | | | 7 | 7.04 | units | | | | 0.6 | 20 | |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59734***

**Phosphorus, extractable (AB-DTPA)** M365.1 - Automated Ascorbic Acid

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217910** | | | | | | | | | | | | | |
| WG217910ICV | ICV | 12/09/06 17:21 | SCN000224 | .65228 | | .605 | mg/L | 92.8 | 90 | 110 | | | |
| WG217910ICB | ICB | 12/09/06 17:23 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG217910LFB | LFB | 12/09/06 17:24 | WI061125-2 | .5 | | .495 | mg/Kg | 99 | 85 | 115 | | | |
| WG217564PBS | PBS | 12/09/06 17:25 | | | | 3.5 | mg/Kg | | -3 | 3 | | | N1 |
| L59734-01AS | AS | 12/09/06 17:27 | WI061125-2 | 50 | 39 | 63.2 | mg/Kg | 48.4 | 75 | 125 | | | M2 |
| L59734-01DUP | DUP | 12/09/06 17:28 | | | 39 | 37.8 | mg/Kg | | | | 3.1 | 20 | |

**Potassium, extractable (AB-DTPA)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217909** | | | | | | | | | | | | | |
| WG217909ICV | ICV | 12/10/06 2:30 | II061128-2 | 20 | | 20.37 | mg/L | 101.9 | 90 | 110 | | | |
| WG217909ICB | ICB | 12/10/06 2:34 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG217564PBS | PBS | 12/10/06 2:50 | | | | U | mg/L | | -60 | 60 | | | |
| L59734-01DUP | DUP | 12/10/06 2:58 | | | 220 | 210 | mg/L | | | | 4.7 | 20 | |
| L59734-02AS | AS | 12/10/06 3:06 | II061207-3 | 4975.507 | 120 | 4953 | mg/L | 97.1 | 75 | 125 | | | |
| L59734-02ASD | ASD | 12/10/06 3:10 | II061207-3 | 4975.507 | 120 | 5270 | mg/L | 103.5 | 75 | 125 | 6.2 | 20 | |

**Potassium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217640** | | | | | | | | | | | | | |
| WG217640ICV | ICV | 12/07/06 1:37 | II061128-2 | 20 | | 20.15 | mg/L | 100.8 | 90 | 110 | | | |
| WG217640ICB | ICB | 12/07/06 1:41 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| L59734-20DUP | DUP | 12/07/06 3:34 | | | .235 | .2939 | meq/L | | | | 22.3 | 20 | RC |

**Saturation Percent** USDA No. 60 (2)

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217538** | | | | | | | | | | | | | |
| L59734-20DUP | DUP | 12/06/06 9:00 | | | 42.8 | 41.17 | % | | | | 3.9 | 20 | |

**Sodium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217640** | | | | | | | | | | | | | |
| WG217640ICV | ICV | 12/07/06 1:37 | II061128-2 | 100 | | 99.19 | mg/L | 99.2 | 90 | 110 | | | |
| WG217640ICB | ICB | 12/07/06 1:41 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| L59734-20DUP | DUP | 12/07/06 3:34 | | | .39 | .52 | meq/L | | | | 28.5 | 20 | RC |

**Solids, Percent** CLPSOW390, PART F, D-98

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217225** | | | | | | | | | | | | | |
| WG217225PBS | PBS | 11/28/06 13:00 | | | | U | % | | 99.9 | 100.1 | | | |
| L59734-20DUP | DUP | 11/29/06 9:14 | | | 93.6 | 92.95 | % | | | | 0.7 | 20 | |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59734-01** | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59734-02** | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59734-03** | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59734-04** | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59734-05** | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59734-06** | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218152 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59734-07** | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59734-08** | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59734-09** | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG218122 | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59734-10** | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG216825 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M1 | Matrix spike recovery was high, the method control sample recovery was acceptable. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59734-11** | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217539 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59734-12 | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217539 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59734-13** | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG218122 | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218152 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59734-14** | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217539 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59734-15** | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217539 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59734-16 | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217539 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | | | M351.2 - TKN by Block Digester | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M351.2 - TKN by Block Digester | RD | For a solid matrix, the spike duplicate RPD exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59734-17 | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218152 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59734-18 | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218152 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59734-19 | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218152 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59734***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59734-20** | WG217640 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217909 | Potassium, extractable (AB-DTPA) | M6010B ICP | ZG | The ICP Serial Dilution was not used for data validation because the sample concentration was less than 50 times the MDL. |
| | WG217640 | Potassium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217769 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217538 | Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217580 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG218152 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217910 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | M2 | Matrix spike recovery was low, the method control sample recovery was acceptable. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Certification Qualifiers

**Carbon Resources**

ACZ Project ID: ***L59734***

Soil Analysis

**The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.**

| | |
|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 |
| pH, Saturated Paste | USDA No. 60 (21A) |
| Saturation Percent | USDA No. 60 (2) |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 |
| Solids, Percent | CLPSOW390, PART F, D-98 |
| Texture by Hydrometer | ASTM D 422 Hydrometer |

Wet Chemistry

**The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.**

| | |
|---|---|
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid |

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# Sample Receipt

**Carbon Resources**

ACZ Project ID: L59734
Date Received: 10/31/2006
Received By:
Date Printed: 10/31/2006

## Receipt Verification

| | YES | NO | NA |
|---|---|---|---|
| 1) Does this project require special handling procedures such as CLP protocol? | | | X |
| 2) Are the custody seals on the cooler intact? | | | X |
| 3) Are the custody seals on the sample containers intact? | | | X |
| 4) Is there a Chain of Custody or other directive shipping papers present? | X | | |
| 5) Is the Chain of Custody complete? | X | | |
| 6) Is the Chain of Custody in agreement with the samples received? | X | | |
| 7) Is there enough sample for all requested analyses? | X | | |
| 8) Are all samples within holding times for requested analyses? | X | | |
| 9) Were all sample containers received intact? | X | | |
| 10) Are the temperature blanks present? | | | X |
| 11) Are the trip blanks (VOA and/or Cyanide) present? | | | X |
| 12) Are samples requiring no headspace, headspace free? | | | X |
| 13) Do the samples that require a Foreign Soils Permit have one? | | | X |

## Exceptions: If you answered no to any of the above questions, please describe

N/A

## Contact (For any discrepancies, the client must be contacted)

N/A

## Shipping Containers

| Cooler Id | | Temp (°C) | Rad (µR/hr) |
|---|---|---|---|
| BUCKET X 8 | | 22.5 | 16 |
| | | | |
| | | | |
| | | | |

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

## Notes

ACZ Laboratories, Inc.
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# Sample Receipt

**Carbon Resources**

ACZ Project ID: L59734
Date Received: 10/31/2006
Received By:

## Sample Container Preservation

| SAMPLE | CLIENT ID | R < 2 | G < 2 | BK < 2 | Y< 2 | YG< 2 | B< 2 | O < 2 | T >12 | N/A | RAD | ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L59734-01 | 2A-1 10-24" | | | | | | | | | X | | |
| L59734-02 | 2A-1 24-44" | | | | | | | | | X | | |
| L59734-03 | 2A-1 44-65" | | | | | | | | | X | | |
| L59734-04 | 2A-1 65-80" | | | | | | | | | X | | |
| L59734-05 | 2A-2 0-5" | | | | | | | | | X | | |
| L59734-06 | 2A-2 5-14" | | | | | | | | | X | | |
| L59734-07 | 2A-2 14-25" | | | | | | | | | X | | |
| L59734-08 | 2A-2 25-38" | | | | | | | | | X | | |
| L59734-09 | 2A-3 0-9" | | | | | | | | | X | | |
| L59734-10 | 2A-3 9-19" | | | | | | | | | X | | |
| L59734-11 | 2A-3 19-36" | | | | | | | | | X | | |
| L59734-12 | 2A-3 36-52" | | | | | | | | | X | | |
| L59734-13 | 2A-5 0-6" | | | | | | | | | X | | |
| L59734-14 | 2A-5 6-12" | | | | | | | | | X | | |
| L59734-15 | 2A-5 12-24" | | | | | | | | | X | | |
| L59734-16 | 2A-5 24-48" | | | | | | | | | X | | |
| L59734-17 | 2A-6 0-6" | | | | | | | | | X | | |
| L59734-18 | 2A-6 6-12" | | | | | | | | | X | | |
| L59734-19 | 2A-6 12-24" | | | | | | | | | X | | |
| L59734-20 | 2A-6 24-40" | | | | | | | | | X | | |

## Sample Container Preservation Legend

| Abbreviation | Description | Container Type | Preservative/Limits |
|---|---|---|---|
| R | Raw/Nitric | RED | pH must be < 2 |
| B | Filtered/Sulfuric | BLUE | pH must be < 2 |
| BK | Filtered/Nitric | BLACK | pH must be < 2 |
| G | Filtered/Nitric | GREEN | pH must be < 2 |
| O | Raw/Sulfuric | ORANGE | pH must be < 2 |
| P | Raw/NaOH | PURPLE | pH must be > 12 * |
| T | Raw/NaOH Zinc Acetate | TAN | pH must be > 12 |
| Y | Raw/Sulfuric | YELLOW | pH must be < 2 |
| YG | Raw/Sulfuric | YELLOW GLASS | pH must be < 2 |
| N/A | No preservative needed | Not applicable | |
| RAD | Gamma/Beta dose rate | Not applicable | must be < 250 µR/hr |

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L59734

Carbon Resources Soil Sample Increments
Kinney Mine, Scofield Utah
Sampled October 14-18, 2006
By Bruce Chesler and Greg Hunt
Telephone 435-826-4961
Billed to Carbon Resources

Mailed UPS on October 24, 2006 to:
ACZ Laboratory
2773 Downhill Drive
Steamboat Springs, Colorado, 80487
Attn. Sue Webber telephone 1-800-334-5493 Ext.110

Soil Samples sent in 5-gallon white plastic buckets from Escalante, Utah, and coal samples sent separately in a bucket from Cedaredege, Colorado. The coal sample increments are required to have the following additional analyses, along with the soil horizons found above and below them in their respective soil positions. These will include soil horizons and coal materials sampled at 3 locations, (D3, D9A, D9B) including a total of 19 samples.

Total Organic Carbon (Combustion Method, Western States Lab Testing Program, 1998, volume 4.10, page 88)
Soluble Selenium reported in mg/kg (Hydric Generation AA-Spectrometry and Flourimetry of water extracted Selenium)
Available Boron reported in mg/kg (saturation extract)
Acid Potential reported % pyric S
Neutralization Potential Tons CaCo3 equivalent/1000 tons

The remaining samples are as follows:

D1 0-6, 6-16, 16-25, 25-40, 40-65, 65-90 (6 samples)

D2 0-6, 6-24 (2 samples)

D3 Coal and Soil sent in separate shipments 0-10, 10-20, 20-40, 40-60, 60-75, 1 coal (7)

D4 0-8, 8-16, (2 samples)

D5 0-6, 6-20, 20-40, 40-60 (4 samples)

D6 0-7, coal not sampled, 24-48, 48-72 (3 samples)

D7 0-6, 6-20, 20-42, 42-58, 58-70 (5 samples)

D8 0-6, 6-13, 13-26, 26-48 (4 samples)

D9A coal and soil sent in two shipments 0-6, 6-12, 12-30, 30-68, 68-95, 95-115, 115-140 (7 samples)

D9B coal and soil sent separately 0-6, 6-12, 12-30, 30-52, 52-80, 80-102 (6 samples)

D10 0-5, 5-11, 11-23, 23-35 (4 samples)

D11 0-12, did not sample coal, 62-82 (2samples)

D12 0-6, 6-14, 14-28, 28-48, 48-66 (5 samples)

2A-1 0-10, 10-24, 24-44, 44-65, 65-80 (5 samples)

2A-2 0-5, 5-14, 14-25, 25-38 (4 samples)

2A-3 0-9, 9-19, 19-36, 36-52 (4 samples)

2A-5 0-6, 6-12, 12-24, 24-48 (4 samples)

2A-6 0-6, 6-12, 12-24, 24-40, 40-66, 66-80 (6 samples)

2A-7 0-7, 7-20, 20-38 (3 samples)

2B-1 0-9, 9-19, 19-33, 33-51 (4 samples)

1A-1 0-6, 6-17, 17-28, 28-60, 60-100 (5 samples)

1A-2 15-25, 25-40, 40-60, 60-75, 75-90 (5 samples)

1B1 0-7, 7-15, 15-28, 28-60 (4 samples)

Please give me a call if you have any questions on methodology at my office. Phone # 435-826-4961

Thanks,
Bruce Chesler
Representing, Carbon Resources
Escalante, Utah

10.26.06

**Sue Webber**

---

**From:** GHuntBBC@aol.com
**Sent:** Friday, October 27, 2006 12:52 PM
**To:** bches@scinternet.net; Sue Webber
**Subject:** Sue Weber Carbon Resources Soil Samples

**FROM:** **Geo-Hunt Consulting**
**16577 Columbine Lane**
**Cedaredge, CO 81413**
**970-856-9477**

**TO:** **Sue Webber, Project Manager**
**ACZ Laboratories, Inc.**
**2773 Downhill Drive,**
**Steamboat Springs, Co 80487**

**RE:** **TRANSMITTAL OF SOIL SAMPLES**

**Dear Sue:**
You have already received a rather large number of samples from BRUCE CHESLER, soil scientist from Escalante Utah, from the Carbon Resources "Kinney" Property, Scofield Utah. Enclosed please find the following seven soil samples taken from the same property and are a part of the same project. These samples should be processed with those received directly from Bruce and all of the results should be returned to Bruce.

D3
D4 19"-72"
D9-A 12"- 30"
D9-A 30"- 68"
D9-B 12"- 30"
D9-B 30"- 50"
D11 11"-48"

Note that some of the bag samples received from Bruce and or I may be labeled either Carbon Resources or Kinney. Both names indicate the same project.

Thank you for your prompt attention to this project.

Greg Hunt

Cc: Bruce Chesler

10/31/2006

# Very Fine Sand

analyst: as
date: 12-19-06

| ACZ L# | Total sample wt. gms | % <2000um sieve | Wt. of sxs used for Texture gms | Wt. of sxs between 105um & 53um gm. | % VFS |
|---|---|---|---|---|---|
| L59734-01 | 579.28 | 72.0 | 40.0 | 8.6 | **15.5** |
| L59734-02 | 520.45 | 83.9 | 40.0 | 6.7 | **14.1** |
| L59734-03 | 542.08 | 90.6 | 40.0 | 5.4 | **12.2** |
| L59734-04 | 454.40 | 90.1 | 40.0 | 6.0 | **13.5** |
| L59734-05 | 453.77 | 88.9 | 40.0 | 8.8 | **19.6** |
| L59734-06 | 416.31 | 88.5 | 40.0 | 9.9 | **21.9** |
| L59734-07 | 540.48 | 64.5 | 40.0 | 8.1 | **13.1** |
| L59734-08 | 587.54 | 70.7 | 40.0 | 8.8 | **15.6** |
| L59734-09 | 529.95 | 86.8 | 40.0 | 12.5 | **27.1** |
| L59734-10 | 554.14 | 80.7 | 40.0 | 8.9 | **18.0** |
| L59734-11 | 556.67 | 75.3 | 40.0 | 10.3 | **19.4** |
| L59734-12 | 536.72 | 61.3 | 40.0 | 5.9 | **9.0** |
| L59734-13 | 382.20 | 80.4 | 40.0 | 9.6 | **19.3** |
| L59734-14 | 527.81 | 60.5 | 40.0 | 8.3 | **12.6** |
| L59734-15 | 545.67 | 45.0 | 40.0 | 6.4 | **7.2** |
| L59734-16 | 467.60 | 39.3 | 40.0 | 4.9 | **4.8** |
| L59734-17 | 327.47 | 91.3 | 40.0 | 8.6 | **19.6** |
| L59734-18 | 470.16 | 83.6 | 40.0 | 9.2 | **19.2** |
| L59734-19 | 555.68 | 86.8 | 40.0 | 8.3 | **18.0** |
| L59734-20 | 586.68 | 79.3 | 40.0 | 7.8 | **15.5** |
| dup L59734-01 | 579.28 | 72.0 | 40.0 | 8.8 | **15.8** |

**(wt of sxs between 105um & 53um) / (wt. of sxs used for texture) = VFS of texture**

**(VFS of Texture) x (% <2000um) = % VFS**

**additional data from:**

**-sieve2000 WG217375**

**-sieve53 WG217376**

**-texture WG217996**

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Analytical Report

December 21, 2006

Report to:
Clay Wisdom
Carbon Resources
PO Box 1789
Albuquerque, NM 87192

Bill to:
Clay Wisdom
Carbon Resources
PO Box 11789
Albuquerque, NM 87192

cc: Greg Hunt, Bruce Chesler

Project ID:
ACZ Project ID: L59735

Clay Wisdom:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 31, 2006. This project has been assigned to ACZ's project number, L59735. Please reference this number in all future inquiries.

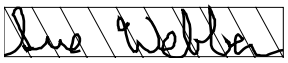
All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L59735. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 21, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.



21/Dec/06

Sue Webber, Project Manager, has reviewed and approved this report in its entirety.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Case Narrative

Carbon Resources

December 21, 2006

Project ID:
ACZ Project ID: L59735

## Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 20 soil samples from Carbon Resources on October 31, 2006. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L59735. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

## Holding Times

All analyses were not performed within EPA recommended holding times. The EPA holding times apply to water samples, not soil so the "H" flags are not applicable.

## Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The following anomalies required further explanation not provided by the Extended Qualifier Report:

1. For Nitrate/Nitrite, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

2. For Phosphorus, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-6 40-60"

ACZ Sample ID: ***L59735-01***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 0:06 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.54 | | | meq/L | 0.01 | 0.05 | 12/07/06 23:10 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.73 | | | meq/L | 0.02 | 0.08 | 12/07/06 23:10 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 190 | | * | mg/Kg | 20 | 50 | 12/12/06 6:55 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.391 | | | meq/L | 0.008 | 0.03 | 12/07/06 23:10 | gme |
| Sodium Absorption Ratio | Calculation | 1.39 | | | | 0.03 | 0.15 | 12/21/06 10:59 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 1.48 | | * | meq/L | 0.01 | 0.04 | 12/07/06 23:10 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.5 | | * | % | 0.1 | 0.5 | 12/07/06 12:20 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.512 | | * | mmhos/cm | 0.001 | 0.01 | 12/06/06 17:00 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.4 | | * | % | 0.1 | 0.5 | 12/08/06 10:28 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.9 | | * | units | 0.1 | 0.1 | 12/06/06 17:00 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 31.60 | | * | % | 0.01 | 0.1 | 12/06/06 17:00 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 85.2 | | * | % Passing | 0.1 | 0.5 | 12/14/06 10:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 85.2 | | * | % Passing | 0.1 | 0.5 | 11/30/06 8:00 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 94.9 | | * | % | 0.1 | 0.5 | 12/06/06 17:51 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 25.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 50.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 25.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-6 40-60"

ACZ Sample ID: ***L59735-01***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 14:08 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:00 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 9:17 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:00 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 9:00 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 3.9 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:59 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.9 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 20:46 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 1.0 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 20:46 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.043 | H | * | % | 0.001 | 0.006 | 12/08/06 17:19 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 31 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:05 | pjb |

**Carbon Resources**
Project ID:
Sample ID: 2A-6 60-80"

ACZ Sample ID: ***L59735-02***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 0:36 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.99 | | | meq/L | 0.01 | 0.05 | 12/07/06 23:14 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.64 | | | meq/L | 0.02 | 0.08 | 12/07/06 23:14 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 180 | | * | mg/Kg | 20 | 50 | 12/12/06 7:03 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.291 | | | meq/L | 0.008 | 0.03 | 12/07/06 23:14 | gme |
| Sodium Absorption Ratio | Calculation | 1.09 | | | | 0.03 | 0.15 | 12/21/06 10:59 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.98 | | * | meq/L | 0.01 | 0.04 | 12/07/06 23:14 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.4 | B | * | % | 0.1 | 0.5 | 12/07/06 15:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.352 | | * | mmhos/cm | 0.001 | 0.01 | 12/06/06 17:54 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.0 | | * | % | 0.1 | 0.5 | 12/08/06 10:42 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.9 | | * | units | 0.1 | 0.1 | 12/06/06 17:54 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 32.90 | | * | % | 0.01 | 0.1 | 12/06/06 17:54 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 86.5 | | * | % Passing | 0.1 | 0.5 | 12/14/06 15:06 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 76.5 | | * | % Passing | 0.1 | 0.5 | 11/30/06 9:44 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 93.4 | | * | % | 0.1 | 0.5 | 12/06/06 19:34 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 25.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 47.5 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 27.5 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-6 60-80"

ACZ Sample ID: ***L59735-02***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 14:25 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:03 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 9:51 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:03 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 9:09 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 3.6 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:59 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.4 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 20:49 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 20:49 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.031 | H | * | % | 0.002 | 0.008 | 12/08/06 17:20 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 28 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:07 | pjb |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-7 0-7"

ACZ Sample ID: ***L59735-03***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 1:06 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.24 | | | meq/L | 0.01 | 0.05 | 12/07/06 23:18 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.45 | | | meq/L | 0.02 | 0.08 | 12/07/06 23:18 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 320 | | * | mg/Kg | 20 | 50 | 12/12/06 7:25 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.744 | | | meq/L | 0.008 | 0.03 | 12/07/06 23:18 | gme |
| Sodium Absorption Ratio | Calculation | 0.55 | | | | 0.03 | 0.15 | 12/21/06 10:59 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.51 | | * | meq/L | 0.01 | 0.04 | 12/07/06 23:18 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.2 | | * | % | 0.1 | 0.5 | 12/07/06 16:20 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.350 | | * | mmhos/cm | 0.001 | 0.01 | 12/06/06 18:48 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.6 | | * | % | 0.1 | 0.5 | 12/08/06 10:57 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.7 | | * | units | 0.1 | 0.1 | 12/06/06 18:48 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 47.80 | | * | % | 0.01 | 0.1 | 12/06/06 18:48 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 75.8 | | * | % Passing | 0.1 | 0.5 | 12/14/06 20:12 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 87.6 | | * | % Passing | 0.1 | 0.5 | 11/30/06 11:28 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 86.4 | | * | % | 0.1 | 0.5 | 12/06/06 20:25 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 20.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 55.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 25.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-7 0-7"

ACZ Sample ID: ***L59735-03***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 14:34 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:06 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 10:08 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:06 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 9:18 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 4.6 | | | mg/Kg | 0.2 | 1 | 12/21/06 10:59 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 5.1 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 20:50 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.5 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 20:50 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.146 | H | * | % | 0.009 | 0.05 | 12/08/06 18:07 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 17 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:09 | pjb |

**Carbon Resources**
Project ID:
Sample ID: 2A-7 7-20"

ACZ Sample ID: ***L59735-04***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 1:36 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.45 | | | meq/L | 0.01 | 0.05 | 12/07/06 23:22 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.49 | | | meq/L | 0.02 | 0.08 | 12/07/06 23:22 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 260 | | * | mg/Kg | 20 | 50 | 12/12/06 7:28 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.596 | | | meq/L | 0.008 | 0.03 | 12/07/06 23:22 | gme |
| Sodium Absorption Ratio | Calculation | 0.43 | | | | 0.03 | 0.15 | 12/21/06 11:00 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.43 | | * | meq/L | 0.01 | 0.04 | 12/07/06 23:22 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.6 | | * | % | 0.1 | 0.5 | 12/07/06 17:40 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.400 | | * | mmhos/cm | 0.001 | 0.01 | 12/06/06 19:42 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.5 | B | * | % | 0.1 | 0.5 | 12/08/06 11:11 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.8 | | * | units | 0.1 | 0.1 | 12/06/06 19:42 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 37.40 | | * | % | 0.01 | 0.1 | 12/06/06 19:42 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 77.4 | | * | % Passing | 0.1 | 0.5 | 12/15/06 1:18 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 86.9 | | * | % Passing | 0.1 | 0.5 | 11/30/06 13:12 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 91.8 | | * | % | 0.1 | 0.5 | 12/06/06 21:17 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 22.5 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 51.3 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 26.3 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-7 7-20"

ACZ Sample ID: ***L59735-04***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 14:42 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:09 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 10:25 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:09 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 9:28 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 3.8 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:00 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.5 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 20:52 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 20:52 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.056 | H | * | % | 0.001 | 0.006 | 12/08/06 17:22 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 17 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:10 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-7 20-38"

ACZ Sample ID: ***L59735-05***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 2:05 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.06 | | | meq/L | 0.01 | 0.05 | 12/07/06 23:26 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.41 | | | meq/L | 0.02 | 0.08 | 12/07/06 23:26 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 170 | | * | mg/Kg | 20 | 50 | 12/12/06 7:32 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.298 | | | meq/L | 0.008 | 0.03 | 12/07/06 23:26 | gme |
| Sodium Absorption Ratio | Calculation | 0.43 | | | | 0.03 | 0.15 | 12/21/06 11:00 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.37 | | * | meq/L | 0.01 | 0.04 | 12/07/06 23:26 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.3 | B | * | % | 0.1 | 0.5 | 12/07/06 19:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.281 | | * | mmhos/cm | 0.001 | 0.01 | 12/06/06 20:36 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.5 | B | * | % | 0.1 | 0.5 | 12/08/06 11:25 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.8 | | * | units | 0.1 | 0.1 | 12/06/06 20:36 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 34.20 | | * | % | 0.01 | 0.1 | 12/06/06 20:36 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 79.5 | | * | % Passing | 0.1 | 0.5 | 12/15/06 6:25 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 79.4 | | * | % Passing | 0.1 | 0.5 | 11/30/06 14:56 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 93.1 | | * | % | 0.1 | 0.5 | 12/06/06 22:08 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 23.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 50.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 26.3 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2A-7 20-38"

ACZ Sample ID: ***L59735-05***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 14:51 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:12 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 10:42 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:12 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 9:37 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 1.9 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:00 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 2.7 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 20:53 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 20:53 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.043 | H | * | % | 0.001 | 0.006 | 12/08/06 17:23 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 14 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:12 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2B-1 0-9"

ACZ Sample ID: ***L59735-06***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 2:35 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.11 | | | meq/L | 0.01 | 0.05 | 12/07/06 23:30 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.42 | | | meq/L | 0.02 | 0.08 | 12/07/06 23:30 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 310 | | * | mg/Kg | 20 | 50 | 12/12/06 7:36 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.752 | | | meq/L | 0.008 | 0.03 | 12/07/06 23:30 | gme |
| Sodium Absorption Ratio | Calculation | 0.18 | | | | 0.03 | 0.15 | 12/21/06 11:00 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.16 | | * | meq/L | 0.01 | 0.04 | 12/07/06 23:30 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.3 | | * | % | 0.1 | 0.5 | 12/07/06 20:20 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.298 | | * | mmhos/cm | 0.001 | 0.01 | 12/06/06 21:30 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.6 | | * | % | 0.1 | 0.5 | 12/08/06 11:39 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.7 | | * | units | 0.1 | 0.1 | 12/06/06 21:30 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 49.70 | | * | % | 0.01 | 0.1 | 12/06/06 21:30 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 78.8 | | * | % Passing | 0.1 | 0.5 | 12/15/06 11:31 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 84.9 | | * | % Passing | 0.1 | 0.5 | 11/30/06 16:41 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 82.1 | | * | % | 0.1 | 0.5 | 12/06/06 23:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 20.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 58.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 21.3 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2B-1 0-9"

ACZ Sample ID: ***L59735-06***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 14:59 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:15 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 11:00 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:15 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 9:47 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 7.9 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:00 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 8.5 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 20:54 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.6 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 20:54 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.173 | H | * | % | 0.006 | 0.03 | 12/08/06 18:11 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 17 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:13 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2B-1 9-19"

ACZ Sample ID: ***L59735-07***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 3:05 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.67 | | | meq/L | 0.01 | 0.05 | 12/07/06 23:34 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.22 | | | meq/L | 0.02 | 0.08 | 12/07/06 23:34 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 150 | | * | mg/Kg | 20 | 50 | 12/12/06 7:39 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.107 | | | meq/L | 0.008 | 0.03 | 12/07/06 23:34 | gme |
| Sodium Absorption Ratio | Calculation | 0.37 | | | | 0.03 | 0.15 | 12/21/06 11:00 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.25 | | * | meq/L | 0.01 | 0.04 | 12/07/06 23:34 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.5 | | * | % | 0.1 | 0.5 | 12/07/06 21:40 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.151 | | * | mmhos/cm | 0.001 | 0.01 | 12/06/06 22:24 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.9 | | * | % | 0.1 | 0.5 | 12/08/06 11:54 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.7 | | * | units | 0.1 | 0.1 | 12/06/06 22:24 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 41.00 | | * | % | 0.01 | 0.1 | 12/06/06 22:24 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 91.3 | | * | % Passing | 0.1 | 0.5 | 12/15/06 16:37 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 39.9 | | * | % Passing | 0.1 | 0.5 | 11/30/06 18:25 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 94.1 | | * | % | 0.1 | 0.5 | 12/06/06 23:51 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 33.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 31.3 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 35.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | SiCL | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2B-1 9-19"

ACZ Sample ID: ***L59735-07***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 15:08 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:18 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 11:17 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:18 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 9:56 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 3.2 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:00 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.1 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 20:59 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.9 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 20:59 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.064 | H | * | % | 0.001 | 0.007 | 12/08/06 17:26 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 5 | BH | * | mg/Kg | 1 | 5 | 12/09/06 18:16 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2B-1 19-33"

ACZ Sample ID: ***L59735-08***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 3:35 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.42 | | | meq/L | 0.01 | 0.05 | 12/07/06 23:46 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.35 | | | meq/L | 0.02 | 0.08 | 12/07/06 23:46 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 120 | | * | mg/Kg | 20 | 50 | 12/12/06 7:43 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.081 | | | meq/L | 0.008 | 0.03 | 12/07/06 23:46 | gme |
| Sodium Absorption Ratio | Calculation | 0.44 | | | | 0.03 | 0.15 | 12/21/06 11:00 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.42 | | * | meq/L | 0.01 | 0.04 | 12/07/06 23:46 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.5 | | * | % | 0.1 | 0.5 | 12/07/06 23:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.293 | | * | mmhos/cm | 0.001 | 0.01 | 12/06/06 23:18 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.0 | | * | % | 0.1 | 0.5 | 12/08/06 12:08 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.1 | | * | units | 0.1 | 0.1 | 12/06/06 23:18 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 51.60 | | * | % | 0.01 | 0.1 | 12/06/06 23:18 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 90.5 | | * | % Passing | 0.1 | 0.5 | 12/15/06 21:44 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 79.6 | | * | % Passing | 0.1 | 0.5 | 11/30/06 20:09 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 93.1 | | * | % | 0.1 | 0.5 | 12/07/06 0:42 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 43.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 16.3 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 40.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | SiCL | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2B-1 19-33"

ACZ Sample ID: ***L59735-08***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 15:17 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:22 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 11:34 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:21 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 10:06 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 4.2 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:00 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 5.1 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:00 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.9 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:00 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.071 | H | * | % | 0.002 | 0.008 | 12/08/06 17:27 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 6 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:17 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2B-1 33-51"

ACZ Sample ID: ***L59735-09***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 4:05 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 2.52 | | | meq/L | 0.01 | 0.05 | 12/07/06 23:50 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.58 | | | meq/L | 0.02 | 0.08 | 12/07/06 23:50 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 70 | | * | mg/Kg | 20 | 50 | 12/12/06 7:46 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.061 | | | meq/L | 0.008 | 0.03 | 12/07/06 23:50 | gme |
| Sodium Absorption Ratio | Calculation | 0.24 | | | | 0.03 | 0.15 | 12/21/06 11:01 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.31 | | * | meq/L | 0.01 | 0.04 | 12/07/06 23:50 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.3 | B | * | % | 0.1 | 0.5 | 12/08/06 0:20 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.416 | | * | mmhos/cm | 0.001 | 0.01 | 12/07/06 0:12 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 6.1 | | * | % | 0.1 | 0.5 | 12/12/06 19:40 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.6 | | * | units | 0.1 | 0.1 | 12/07/06 0:12 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 43.40 | | * | % | 0.01 | 0.1 | 12/07/06 0:12 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 84.3 | | * | % Passing | 0.1 | 0.5 | 12/16/06 2:50 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 88.3 | | * | % Passing | 0.1 | 0.5 | 11/30/06 21:53 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 95.9 | | * | % | 0.1 | 0.5 | 12/07/06 1:34 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 33.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 30.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 36.3 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | SiCL | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 2B-1 33-51"

ACZ Sample ID: ***L59735-09***
Date Sampled: *10/18/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 15:25 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:25 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 11:51 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:24 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 10:15 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 4.4 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:01 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 5.3 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:01 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.9 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:01 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.037 | H | * | % | 0.001 | 0.006 | 12/08/06 17:28 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 3 | BH | * | mg/Kg | 1 | 5 | 12/09/06 18:18 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-1 0-6"

ACZ Sample ID: ***L59735-10***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 5:34 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 3.15 | | | meq/L | 0.01 | 0.05 | 12/07/06 23:54 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.78 | | | meq/L | 0.02 | 0.08 | 12/07/06 23:54 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 430 | | * | mg/Kg | 20 | 50 | 12/12/06 7:50 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 1.190 | | | meq/L | 0.008 | 0.03 | 12/07/06 23:54 | gme |
| Sodium Absorption Ratio | Calculation | 0.07 | B | | | 0.03 | 0.15 | 12/21/06 11:01 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.11 | | * | meq/L | 0.01 | 0.04 | 12/07/06 23:54 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 2.6 | | * | % | 0.1 | 0.5 | 12/08/06 1:40 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.544 | | * | mmhos/cm | 0.001 | 0.01 | 12/07/06 1:06 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.8 | | * | % | 0.1 | 0.5 | 12/08/06 12:22 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.8 | | * | units | 0.1 | 0.1 | 12/07/06 1:06 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 59.20 | | * | % | 0.01 | 0.1 | 12/07/06 1:06 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 79.4 | | * | % Passing | 0.1 | 0.5 | 12/16/06 7:56 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 92.5 | | * | % Passing | 0.1 | 0.5 | 11/30/06 23:37 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 76.9 | | * | % | 0.1 | 0.5 | 12/07/06 2:25 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 20.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 36.3 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 43.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | SiL | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-1 0-6"

ACZ Sample ID: ***L59735-10***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 15:34 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:28 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 12:08 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:27 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 10:25 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 5.4 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:01 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 6.1 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:03 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:03 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.269 | H | * | % | 0.008 | 0.04 | 12/08/06 18:12 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 32 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:19 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-1 6-17"

ACZ Sample ID: ***L59735-11***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 6:04 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.11 | | | meq/L | 0.01 | 0.05 | 12/07/06 23:58 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.36 | | | meq/L | 0.02 | 0.08 | 12/07/06 23:58 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 210 | | * | mg/Kg | 20 | 50 | 12/12/06 7:54 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.362 | | | meq/L | 0.008 | 0.03 | 12/07/06 23:58 | gme |
| Sodium Absorption Ratio | Calculation | 0.11 | B | | | 0.03 | 0.15 | 12/21/06 11:01 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.10 | | * | meq/L | 0.01 | 0.04 | 12/07/06 23:58 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.6 | | * | % | 0.1 | 0.5 | 12/08/06 3:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.251 | | * | mmhos/cm | 0.001 | 0.01 | 12/07/06 2:00 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.3 | B | * | % | 0.1 | 0.5 | 12/08/06 12:37 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.5 | | * | units | 0.1 | 0.1 | 12/07/06 2:00 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 45.80 | | * | % | 0.01 | 0.1 | 12/07/06 2:00 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 77.0 | | * | % Passing | 0.1 | 0.5 | 12/16/06 13:03 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 92.6 | | * | % Passing | 0.1 | 0.5 | 12/01/06 1:22 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 97.0 | | * | % | 0.1 | 0.5 | 12/07/06 3:17 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 18.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 36.3 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 45.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | SiL | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-1 6-17"

ACZ Sample ID: ***L59735-11***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 15:42 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:31 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 12:25 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:30 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 10:34 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 4.2 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:01 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.9 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:04 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:04 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.053 | H | * | % | 0.001 | 0.007 | 12/08/06 17:32 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 27 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:20 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-1 17-28"

ACZ Sample ID: ***L59735-12***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 6:33 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.55 | | | meq/L | 0.01 | 0.05 | 12/08/06 0:02 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.27 | | | meq/L | 0.02 | 0.08 | 12/08/06 0:02 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 190 | | * | mg/Kg | 20 | 50 | 12/12/06 7:57 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.249 | | | meq/L | 0.008 | 0.03 | 12/08/06 0:02 | gme |
| Sodium Absorption Ratio | Calculation | 0.15 | | | | 0.03 | 0.15 | 12/21/06 11:01 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.10 | | * | meq/L | 0.01 | 0.04 | 12/08/06 0:02 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.4 | B | * | % | 0.1 | 0.5 | 12/08/06 4:20 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.161 | | * | mmhos/cm | 0.001 | 0.01 | 12/07/06 2:54 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.3 | B | * | % | 0.1 | 0.5 | 12/08/06 12:51 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.4 | | * | units | 0.1 | 0.1 | 12/07/06 2:54 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 39.50 | | * | % | 0.01 | 0.1 | 12/07/06 2:54 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 79.4 | | * | % Passing | 0.1 | 0.5 | 12/16/06 18:09 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 86.2 | | * | % Passing | 0.1 | 0.5 | 12/01/06 3:06 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 96.1 | | * | % | 0.1 | 0.5 | 12/07/06 4:08 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 22.5 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 40.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 37.5 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-1 17-28"

ACZ Sample ID: ***L59735-12***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 15:51 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:34 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 12:42 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:33 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 10:44 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 3.9 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:01 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.5 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:05 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.6 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:05 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.036 | H | * | % | 0.001 | 0.006 | 12/08/06 17:33 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 19 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:22 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-1 28-60"

ACZ Sample ID: ***L59735-13***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 7:03 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.89 | | | meq/L | 0.01 | 0.05 | 12/08/06 0:06 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.24 | | | meq/L | 0.02 | 0.08 | 12/08/06 0:06 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 130 | | | mg/Kg | 20 | 50 | 12/12/06 13:47 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.069 | | | meq/L | 0.008 | 0.03 | 12/08/06 0:06 | gme |
| Sodium Absorption Ratio | Calculation | 0.51 | | | | 0.03 | 0.15 | 12/21/06 11:01 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.39 | | * | meq/L | 0.01 | 0.04 | 12/08/06 0:06 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.2 | B | * | % | 0.1 | 0.5 | 12/08/06 5:40 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.217 | | * | mmhos/cm | 0.001 | 0.01 | 12/07/06 3:48 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.5 | B | * | % | 0.1 | 0.5 | 12/08/06 13:05 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.7 | | * | units | 0.1 | 0.1 | 12/07/06 3:48 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 40.90 | | * | % | 0.01 | 0.1 | 12/07/06 3:48 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 80.9 | | * | % Passing | 0.1 | 0.5 | 12/16/06 23:15 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 82.0 | | * | % Passing | 0.1 | 0.5 | 12/01/06 4:50 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 92.4 | | * | % | 0.1 | 0.5 | 12/07/06 5:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 28.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 36.3 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 35.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | CL | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-1 28-60"

ACZ Sample ID: ***L59735-13***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 15:59 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:37 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 13:00 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:36 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 10:53 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 4.5 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:01 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 5.2 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:06 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:06 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.0272 | H | * | % | 0.0007 | 0.004 | 12/08/06 17:34 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 25 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:23 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-1 60-100"

ACZ Sample ID: ***L59735-14***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 8:33 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.96 | | | meq/L | 0.01 | 0.05 | 12/08/06 0:11 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.23 | | | meq/L | 0.02 | 0.08 | 12/08/06 0:11 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 90 | | | mg/Kg | 20 | 50 | 12/12/06 13:57 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.068 | | | meq/L | 0.008 | 0.03 | 12/08/06 0:11 | gme |
| Sodium Absorption Ratio | Calculation | 0.76 | | | | 0.03 | 0.15 | 12/21/06 11:01 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.59 | | * | meq/L | 0.01 | 0.04 | 12/08/06 0:11 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.2 | B | * | % | 0.1 | 0.5 | 12/08/06 7:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.265 | | * | mmhos/cm | 0.001 | 0.01 | 12/07/06 4:42 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.6 | | * | % | 0.1 | 0.5 | 12/08/06 13:19 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.0 | | * | units | 0.1 | 0.1 | 12/07/06 4:42 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 42.20 | | * | % | 0.01 | 0.1 | 12/07/06 4:42 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 81.6 | | * | % Passing | 0.1 | 0.5 | 12/17/06 4:22 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 76.9 | | * | % Passing | 0.1 | 0.5 | 12/01/06 6:34 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 88.6 | | * | % | 0.1 | 0.5 | 12/07/06 5:51 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 26.3 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 43.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 30.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-1 60-100"

ACZ Sample ID: ***L59735-14***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 16:08 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:40 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 13:17 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:39 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 11:03 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 3.1 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:01 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 3.9 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:07 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.8 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:07 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.019 | H | * | % | 0.001 | 0.006 | 12/08/06 17:38 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 22 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:24 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-2 15-25"

ACZ Sample ID: ***L59735-15***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 9:32 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 3.73 | | | meq/L | 0.01 | 0.05 | 12/08/06 0:15 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.25 | | | meq/L | 0.02 | 0.08 | 12/08/06 0:15 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 150 | | | mg/Kg | 20 | 50 | 12/12/06 14:01 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.189 | | | meq/L | 0.008 | 0.03 | 12/08/06 0:15 | gme |
| Sodium Absorption Ratio | Calculation | 0.17 | | | | 0.03 | 0.15 | 12/21/06 11:01 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.24 | | * | meq/L | 0.01 | 0.04 | 12/08/06 0:15 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 2.0 | | * | % | 0.1 | 0.5 | 12/08/06 8:20 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.476 | | * | mmhos/cm | 0.001 | 0.01 | 12/07/06 5:36 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 1.0 | | * | % | 0.1 | 0.5 | 12/08/06 13:34 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.2 | | * | units | 0.1 | 0.1 | 12/07/06 5:36 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 47.30 | | * | % | 0.01 | 0.1 | 12/07/06 5:36 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 81.7 | | * | % Passing | 0.1 | 0.5 | 12/17/06 9:28 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 82.8 | | * | % Passing | 0.1 | 0.5 | 12/01/06 8:19 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 88.0 | | * | % | 0.1 | 0.5 | 12/07/06 6:42 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 18.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 48.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 32.5 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-2 15-25"

ACZ Sample ID: ***L59735-15***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 16:17 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:44 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 13:34 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:42 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 11:12 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 4.1 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:01 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 5.0 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:09 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.9 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:09 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.19 | H | * | % | 0.01 | 0.05 | 12/08/06 18:13 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 10 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:44 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-2 25-40"

ACZ Sample ID: ***L59735-16***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 11:31 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 4.30 | | | meq/L | 0.01 | 0.05 | 12/08/06 0:19 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.38 | | | meq/L | 0.02 | 0.08 | 12/08/06 0:19 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 130 | | | mg/Kg | 20 | 50 | 12/12/06 14:04 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.135 | | | meq/L | 0.008 | 0.03 | 12/08/06 0:19 | gme |
| Sodium Absorption Ratio | Calculation | 0.14 | B | | | 0.03 | 0.15 | 12/21/06 11:02 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.22 | | * | meq/L | 0.01 | 0.04 | 12/08/06 0:19 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.3 | | * | % | 0.1 | 0.5 | 12/08/06 9:40 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.524 | | * | mmhos/cm | 0.001 | 0.01 | 12/07/06 6:30 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.8 | | * | % | 0.1 | 0.5 | 12/08/06 13:48 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.3 | | * | units | 0.1 | 0.1 | 12/07/06 6:30 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 47.70 | | * | % | 0.01 | 0.1 | 12/07/06 6:30 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 81.8 | | * | % Passing | 0.1 | 0.5 | 12/17/06 14:34 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 79.6 | | * | % Passing | 0.1 | 0.5 | 12/01/06 10:03 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 95.6 | | * | % | 0.1 | 0.5 | 12/07/06 7:34 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 16.3 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 45.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 38.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-2 25-40"

ACZ Sample ID: ***L59735-16***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 16:25 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:47 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 13:51 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:45 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 11:22 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 4.6 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:02 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 5.3 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:10 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:10 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.138 | H | * | % | 0.006 | 0.03 | 12/08/06 18:15 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 23 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:45 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-2 40-60"

ACZ Sample ID: ***L59735-17***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 12:01 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 5.92 | | | meq/L | 0.01 | 0.05 | 12/08/06 0:23 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.79 | | | meq/L | 0.02 | 0.08 | 12/08/06 0:23 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 200 | | | mg/Kg | 20 | 50 | 12/12/06 14:08 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.323 | | | meq/L | 0.008 | 0.03 | 12/08/06 0:23 | gme |
| Sodium Absorption Ratio | Calculation | 0.15 | | | | 0.03 | 0.15 | 12/21/06 11:02 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.29 | | * | meq/L | 0.01 | 0.04 | 12/08/06 0:23 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.9 | | * | % | 0.1 | 0.5 | 12/08/06 11:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.764 | | * | mmhos/cm | 0.001 | 0.01 | 12/07/06 7:24 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.6 | | * | % | 0.1 | 0.5 | 12/08/06 14:02 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.5 | | * | units | 0.1 | 0.1 | 12/07/06 7:24 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 44.30 | | * | % | 0.01 | 0.1 | 12/07/06 7:24 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 81.0 | | * | % Passing | 0.1 | 0.5 | 12/17/06 19:41 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 84.7 | | * | % Passing | 0.1 | 0.5 | 12/01/06 11:47 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 96.1 | | * | % | 0.1 | 0.5 | 12/07/06 8:25 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 18.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 42.5 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 38.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-2 40-60"

ACZ Sample ID: ***L59735-17***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 16:34 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:50 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 14:08 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:48 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 11:31 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 4.0 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:02 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.9 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:15 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.9 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:15 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.093 | H | * | % | 0.007 | 0.03 | 12/08/06 18:16 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 33 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:30 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-2 60-75"

ACZ Sample ID: ***L59735-18***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 12:31 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 3.26 | | | meq/L | 0.01 | 0.05 | 12/08/06 0:39 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.35 | | | meq/L | 0.02 | 0.08 | 12/08/06 0:39 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 160 | | | mg/Kg | 20 | 50 | 12/12/06 14:11 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.153 | | | meq/L | 0.008 | 0.03 | 12/08/06 0:39 | gme |
| Sodium Absorption Ratio | Calculation | 0.16 | | | | 0.03 | 0.15 | 12/21/06 11:02 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.22 | | * | meq/L | 0.01 | 0.04 | 12/08/06 0:39 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 1.0 | | * | % | 0.1 | 0.5 | 12/08/06 12:20 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.450 | | * | mmhos/cm | 0.001 | 0.01 | 12/07/06 9:12 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.8 | | * | % | 0.1 | 0.5 | 12/08/06 14:17 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.5 | | * | units | 0.1 | 0.1 | 12/07/06 9:12 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 40.90 | | * | % | 0.01 | 0.1 | 12/07/06 9:12 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 83.9 | | * | % Passing | 0.1 | 0.5 | 12/18/06 0:47 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 74.0 | | * | % Passing | 0.1 | 0.5 | 12/01/06 13:31 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 96.0 | | * | % | 0.1 | 0.5 | 12/07/06 9:17 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 18.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 46.3 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 35.0 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-2 60-75"

ACZ Sample ID: ***L59735-18***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 16:42 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:53 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 14:25 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:54 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 11:40 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 3.5 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:02 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.4 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:16 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.9 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:16 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.091 | H | * | % | 0.006 | 0.03 | 12/08/06 18:17 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 34 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:31 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-2 75-90"

ACZ Sample ID: ***L59735-19***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 13:01 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 11.40 | | | meq/L | 0.01 | 0.05 | 12/08/06 0:43 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 1.19 | | | meq/L | 0.02 | 0.08 | 12/08/06 0:43 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 250 | | | mg/Kg | 20 | 50 | 12/12/06 14:15 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.620 | | | meq/L | 0.008 | 0.03 | 12/08/06 0:43 | gme |
| Sodium Absorption Ratio | Calculation | 0.13 | B | | | 0.03 | 0.15 | 12/21/06 11:02 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.33 | | * | meq/L | 0.01 | 0.04 | 12/08/06 0:43 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.9 | | * | % | 0.1 | 0.5 | 12/08/06 13:40 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 1.250 | | * | mmhos/cm | 0.001 | 0.01 | 12/07/06 10:06 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.8 | | * | % | 0.1 | 0.5 | 12/08/06 14:31 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 7.4 | | * | units | 0.1 | 0.1 | 12/07/06 10:06 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 55.80 | | * | % | 0.01 | 0.1 | 12/07/06 10:06 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 83.6 | | * | % Passing | 0.1 | 0.5 | 12/18/06 5:53 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 76.0 | | * | % Passing | 0.1 | 0.5 | 12/01/06 15:15 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 94.7 | | * | % | 0.1 | 0.5 | 12/07/06 10:08 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 17.5 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 43.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 38.8 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | L | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1A-2 75-90"

ACZ Sample ID: ***L59735-19***
Date Sampled: *10/15/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 16:51 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:56 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 14:43 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:57 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 11:50 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 2.9 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:02 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 3.5 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:17 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.6 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:17 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.077 | H | * | % | 0.002 | 0.01 | 12/08/06 18:19 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 56 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:32 | pjb |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1B1 0-7"

ACZ Sample ID: ***L59735-20***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 13:30 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 3.71 | | | meq/L | 0.01 | 0.05 | 12/08/06 0:47 | gme |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 1.06 | | | meq/L | 0.02 | 0.08 | 12/08/06 0:47 | gme |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 520 | | | mg/Kg | 20 | 50 | 12/12/06 14:18 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 1.690 | | | meq/L | 0.008 | 0.03 | 12/08/06 0:47 | gme |
| Sodium Absorption Ratio | Calculation | 0.11 | B | | | 0.03 | 0.15 | 12/21/06 11:02 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.17 | | * | meq/L | 0.01 | 0.04 | 12/08/06 0:47 | gme |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 3.1 | | * | % | 0.1 | 0.5 | 12/08/06 15:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.675 | | * | mmhos/cm | 0.001 | 0.01 | 12/07/06 11:00 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.9 | | * | % | 0.1 | 0.5 | 12/08/06 14:45 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.9 | | * | units | 0.1 | 0.1 | 12/07/06 11:00 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 64.40 | | * | % | 0.01 | 0.1 | 12/07/06 11:00 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 83.7 | | * | % Passing | 0.1 | 0.5 | 12/18/06 11:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 79.8 | | * | % Passing | 0.1 | 0.5 | 12/01/06 17:00 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 75.8 | | * | % | 0.1 | 0.5 | 12/07/06 11:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 16.3 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Sand | | 41.3 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Silt | | 42.5 | | * | % | 0.1 | 0.5 | 12/14/06 0:00 | lwt/srs |
| Texture Classification | | L/SiL | | * | | | | 12/14/06 0:00 | lwt/srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1B1 0-7"

ACZ Sample ID: ***L59735-20***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 16:59 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/09/06 9:59 | erf |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 15:00 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 18:00 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/01/06 11:59 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 5.0 | | | mg/Kg | 0.2 | 1 | 12/21/06 11:02 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 5.7 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 21:18 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 21:18 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.219 | H | * | % | 0.007 | 0.03 | 12/08/06 18:20 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 47 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:33 | pjb |

## Report Header Explanations

| | |
|---|---|
| *Batch* | A distinct set of samples analyzed at a specific time |
| *Found* | Value of the QC Type of interest |
| *Limit* | Upper limit for RPD, in %. |
| *Lower* | Lower Recovery Limit, in % (except for LCSS, mg/Kg) |
| *MDL* | Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations. |
| *PCN/SCN* | A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis |
| *PQL* | Practical Quantitation Limit, typically 5 times the MDL. |
| *QC* | True Value of the Control Sample or the amount added to the Spike |
| *Rec* | Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg) |
| *RPD* | Relative Percent Difference, calculation used for Duplicate QC Types |
| *Upper* | Upper Recovery Limit, in % (except for LCSS, mg/Kg) |
| *Sample* | Value of the Sample of interest |

## QC Sample Types

| | | | |
|---|---|---|---|
| *AS* | Analytical Spike (Post Digestion) | *LCSWD* | Laboratory Control Sample - Water Duplicate |
| *ASD* | Analytical Spike (Post Digestion) Duplicate | *LFB* | Laboratory Fortified Blank |
| *CCB* | Continuing Calibration Blank | *LFM* | Laboratory Fortified Matrix |
| *CCV* | Continuing Calivation Verification standard | *LFMD* | Laboratory Fortified Matrix Duplicate |
| *DUP* | Sample Duplicate | *LRB* | Laboratory Reagent Blank |
| *ICB* | Initial Calibration Blank | *MS* | Matrix Spike |
| *ICV* | Initial Calibration Verification standard | *MSD* | Matrix Spike Duplicate |
| *ICSAB* | Inter-element Correction Standard - A plus B solutions | *PBS* | Prep Blank - Soil |
| *LCSS* | Laboratory Control Sample - Soil | *PBW* | Prep Blank - Water |
| *LCSSD* | Laboratory Control Sample - Soil Duplicate | *PQV* | Practical Quantitation Verification standard |
| *LCSW* | Laboratory Control Sample - Water | *SDL* | Serial Dilution |

## QC Sample Type Explanations

| | |
|---|---|
| Blanks | Verifies that there is no or minimal contamination in the prep method or calibration procedure. |
| Control Samples | Verifies the accuracy of the method, including the prep procedure. |
| Duplicates | Verifies the precision of the instrument and/or method. |
| Spikes/Fortified Matrix | Determines sample matrix interferences, if any. |
| Standard | Verifies the validity of the calibration. |

## ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| R | Poor spike recovery accepted because the other spike in the set fell within the given limits. |
| T | High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL. |
| U | Analyte was analyzed for but not detected at the indicated MDL |
| V | High blank data accepted because sample concentration is 10 times higher than blank concentration |
| W | Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride. |
| X | Quality control sample is out of control. |
| Z | Poor spike recovery is accepted because sample concentration is four times greater than spike concentration. |

## Method References


| | |
|---|---|
| (1) | EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983. |
| (2) | EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993. |
| (3) | EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994. |
| (5) | EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996. |
| (6) | Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995. |


## Comments

| | |
|---|---|
| (1) | QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations. |
| (2) | Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis. |
| (3) | Animal matrices for Inorganic analyses are reported on an "as received" basis. |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59735***

**Calcium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217820** | | | | | | | | | | | | | |
| WG217820ICV | ICV | 12/07/06 22:50 | II061128-2 | 100 | | 97.91 | mg/L | 97.9 | 90 | 110 | | | |
| WG217820ICB | ICB | 12/07/06 22:54 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| L59735-17DUP | DUP | 12/08/06 0:35 | | | 5.92 | 5.914 | meq/L | | | | 0.1 | 20 | |

**Carbon, total organic (TOC)** ASA No.9 29-2.2.4 Combustion/IR

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217771** | | | | | | | | | | | | | |
| WG217771PBS | PBS | 12/07/06 11:00 | | | | U | % | | -0.3 | 0.3 | | | |
| L59735-01DUP | DUP | 12/07/06 13:40 | | | .5 | .5 | % | | | | 0 | 20 | RA |

**Conductivity @25C** M120.1 - Meter, w/ Saturated Paste Prep

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217643** | | | | | | | | | | | | | |
| L59735-17DUP | DUP | 12/07/06 8:18 | | | .764 | .785 | mhos/cm | | | | 2.7 | 20 | |

**Magnesium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217820** | | | | | | | | | | | | | |
| WG217820ICV | ICV | 12/07/06 22:50 | II061128-2 | 100 | | 94.23 | mg/L | 94.2 | 90 | 110 | | | |
| WG217820ICB | ICB | 12/07/06 22:54 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| L59735-17DUP | DUP | 12/08/06 0:35 | | | .79 | .794 | meq/L | | | | 0.6 | 20 | |

**Neutralization Potential as CaCO3** M600/2-78-054 3.2.3

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217874** | | | | | | | | | | | | | |
| WG217874LCSS | LCSS | 12/08/06 10:14 | PCN20880 | 100 | | 111.48 | % | | | | | | |
| L59735-20DUP | DUP | 12/08/06 14:59 | | | .9 | .89 | % | | | | 1.1 | 20 | RA |
| **WG217923** | | | | | | | | | | | | | |
| L59734-02DUP | DUP | 12/11/06 17:40 | | | 8.1 | 7.98 | % | | | | 1.5 | 20 | |
| WG217923LCSS | LCSS | 12/13/06 4:20 | PCN20880 | 100 | | 111.72 | % | | | | | | |
| WG217923PBS | PBS | 12/13/06 13:00 | | | | U | % | | -0.1 | 0.1 | | | |

**Nitrate/Nitrite as N, extractable (KCL)** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217892** | | | | | | | | | | | | | |
| WG217892ICV | ICV | 12/08/06 19:33 | WI061207-1 | 2.416 | | 2.249 | mg/L | 93.1 | 90 | 110 | | | |
| WG217892ICB | ICB | 12/08/06 19:34 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| **WG217893** | | | | | | | | | | | | | |
| WG217893ICV | ICV | 12/08/06 20:41 | WI061207-1 | 2.416 | | 2.308 | mg/L | 95.5 | 90 | 110 | | | |
| WG217893ICB | ICB | 12/08/06 20:42 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| WG217893LFB | LFB | 12/08/06 20:43 | WI060906-4 | 2 | | 2.015 | mg/Kg | 100.8 | 85 | 115 | | | |
| WG217795PBS | PBS | 12/08/06 20:44 | | | | 1.21 | mg/Kg | | -0.6 | 0.6 | | | N1 |
| L59735-01AS | AS | 12/08/06 20:47 | WI060906-4 | 20 | 4.9 | 23.96 | mg/Kg | 95.3 | 75 | 125 | | | |
| L59735-01DUP | DUP | 12/08/06 20:48 | | | 4.9 | 4.78 | mg/Kg | | | | 2.5 | 20 | |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59735***

**Nitrite as N, extractable (KCL)** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217892** | | | | | | | | | | | | | |
| WG217892ICV | ICV | 12/08/06 19:33 | WI061207-1 | .609 | | .618 | mg/L | 101.5 | 90 | 110 | | | |
| WG217892ICB | ICB | 12/08/06 19:34 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| **WG217893** | | | | | | | | | | | | | |
| WG217893ICV | ICV | 12/08/06 20:41 | WI061207-1 | .609 | | .625 | mg/L | 102.6 | 90 | 110 | | | |
| WG217893ICB | ICB | 12/08/06 20:42 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG217893LFB | LFB | 12/08/06 20:43 | WI060906-4 | 1 | | .99 | mg/Kg | 99 | 85 | 115 | | | |
| WG217795PBS | PBS | 12/08/06 20:44 | | | | .42 | mg/Kg | | -0.3 | 0.3 | | | N1 |
| L59735-01AS | AS | 12/08/06 20:47 | WI060906-4 | 10 | 1 | 9.71 | mg/Kg | 87.1 | 75 | 125 | | | |
| L59735-01DUP | DUP | 12/08/06 20:48 | | | 1 | 1.02 | mg/Kg | | | | 2 | 20 | |

**Nitrogen, total Kjeldahl** M351.2 - TKN by Block Digester

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217861** | | | | | | | | | | | | | |
| WG217691ICV | ICV | 12/08/06 17:01 | WI061129-2 | 4 | | 3.92 | mg/L | 98 | 90 | 110 | | | |
| WG217691ICB | ICB | 12/08/06 17:02 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG217691PBS2 | PBS | 12/08/06 17:36 | | | | U | % | | -0.003 | 0.003 | | | |
| WG217691LFB2 | LFB | 12/08/06 17:37 | WI061129-6 | 2.5 | | 2.47 | % | 98.8 | 85 | 115 | | | |
| L59735-14MS | MS | 12/08/06 17:39 | WI061129-6 | .0325 | .019 | .0476 | % | 88 | 75 | 125 | | | |
| WG217691PBS1 | PBS | 12/08/06 17:53 | | | | U | % | | -0.003 | 0.003 | | | |
| WG217691LFB1 | LFB | 12/08/06 17:54 | WI061129-6 | 2.5 | | 2.54 | % | 101.6 | 85 | 115 | | | |
| L59735-15DUP | DUP | 12/08/06 18:14 | | | .19 | .232 | % | | | | 19.9 | 20 | |
| L59732-11DUP | DUP | 12/08/06 18:24 | | | .153 | .1393 | % | | | | 9.4 | 20 | |
| L59732-12MS | MS | 12/08/06 18:26 | 5XPTSTKN | .0345 | .054 | .095 | % | 118.8 | 75 | 125 | | | |

**Percent Clay** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG218128** | | | | | | | | | | | | | |
| L59735-01DUP | DUP | 12/14/06 9:45 | | | 25 | 25 | % | | | | 0 | 20 | |

**Percent Sand** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG218128** | | | | | | | | | | | | | |
| L59735-01DUP | DUP | 12/14/06 9:45 | | | 50 | 47.5 | % | | | | 5.1 | 20 | |

**Percent Silt** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG218128** | | | | | | | | | | | | | |
| L59735-01DUP | DUP | 12/14/06 9:45 | | | 25 | 27.5 | % | | | | 9.5 | 20 | |

**pH, Saturated Paste** USDA No. 60 (21A)

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217643** | | | | | | | | | | | | | |
| L59735-17DUP | DUP | 12/07/06 8:18 | | | 7.5 | 7.43 | units | | | | 0.9 | 20 | |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59735***

**Phosphorus, extractable (AB-DTPA)** M365.1 - Automated Ascorbic Acid

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217910** | | | | | | | | | | | | | |
| WG217910ICV | ICV | 12/09/06 17:21 | SCN000224 | .65228 | | .605 | mg/L | 92.8 | 90 | 110 | | | |
| WG217910ICB | ICB | 12/09/06 17:23 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| **WG217911** | | | | | | | | | | | | | |
| WG217911ICV | ICV | 12/09/06 17:59 | SCN000224 | .65228 | | .607 | mg/L | 93.1 | 90 | 110 | | | |
| WG217911ICB | ICB | 12/09/06 18:01 | | | | .013 | mg/L | | -0.03 | 0.03 | | | |
| WG217911LFB1 | LFB | 12/09/06 18:03 | WI061125-2 | .5 | | .535 | mg/Kg | 107 | 85 | 115 | | | |
| WG217618PBS | PBS | 12/09/06 18:04 | | | | 4.1 | mg/Kg | | -3 | 3 | | | N1 |
| L59735-01DUP | DUP | 12/09/06 18:06 | | | 31 | 31 | mg/Kg | | | | 0 | 20 | |
| L59735-02AS | AS | 12/09/06 18:08 | WI061125-2 | 50 | 28 | 80.3 | mg/Kg | 104.6 | 75 | 125 | | | |
| WG217911LFB2 | LFB | 12/09/06 18:35 | WI061125-2 | .5 | | .538 | mg/Kg | 107.6 | 85 | 115 | | | |
| L59736-01DUP | DUP | 12/09/06 18:37 | | | 34 | 33.7 | mg/Kg | | | | 0.9 | 20 | |
| L59736-02AS | AS | 12/09/06 18:40 | WI061125-2 | 50 | 25 | 70.5 | mg/Kg | 91 | 75 | 125 | | | |

**Potassium, extractable (AB-DTPA)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217957** | | | | | | | | | | | | | |
| WG217957ICV | ICV | 12/12/06 6:34 | II061209-1 | 20 | | 20.73 | mg/L | 103.7 | 90 | 110 | | | |
| WG217957ICB | ICB | 12/12/06 6:37 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG217618PBS | PBS | 12/12/06 6:52 | | | | U | mg/L | | -60 | 60 | | | |
| L59735-01DUP | DUP | 12/12/06 6:59 | | | 190 | 210 | mg/L | | | | 10 | 20 | RA |
| L59735-02AS | AS | 12/12/06 7:10 | II061207-3 | 4975.507 | 180 | 4954 | mg/L | 96 | 75 | 125 | | | |
| L59735-02ASD | ASD | 12/12/06 7:14 | II061207-3 | 4975.507 | 180 | 4927 | mg/L | 95.4 | 75 | 125 | 0.55 | 20 | |
| **WG218015** | | | | | | | | | | | | | |
| WG218015ICV | ICV | 12/12/06 13:09 | II061209-1 | 20 | | 19.26 | mg/L | 96.3 | 90 | 110 | | | |
| WG218015ICB | ICB | 12/12/06 13:12 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG217618PBS | PBS | 12/12/06 13:26 | | | | U | mg/L | | -60 | 60 | | | |
| L59735-01AS | AS | 12/12/06 13:37 | II061207-3 | 4975.507 | 200 | 4548 | mg/L | 87.4 | 75 | 125 | | | |
| L59735-01ASD | ASD | 12/12/06 13:40 | II061207-3 | 4975.507 | 200 | 4518 | mg/L | 86.8 | 75 | 125 | 0.66 | 20 | |
| L59735-01DUP | DUP | 12/12/06 13:44 | | | 200 | 210 | mg/L | | | | 4.9 | 20 | |

**Potassium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217820** | | | | | | | | | | | | | |
| WG217820ICV | ICV | 12/07/06 22:50 | II061128-2 | 20 | | 20.01 | mg/L | 100.1 | 90 | 110 | | | |
| WG217820ICB | ICB | 12/07/06 22:54 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| L59735-17DUP | DUP | 12/08/06 0:35 | | | .323 | .3425 | meq/L | | | | 5.9 | 20 | |

**Saturation Percent** USDA No. 60 (2)

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217643** | | | | | | | | | | | | | |
| L59735-17DUP | DUP | 12/07/06 8:18 | | | 44.3 | 60.91 | % | | | | 31.6 | 20 | RC |

**Carbon Resources**

Project ID:

ACZ Project ID: ***L59735***

**Sodium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217820** | | | | | | | | | | | | | |
| WG217820ICV | ICV | 12/07/06 22:50 | II061128-2 | 100 | | 99.47 | mg/L | 99.5 | 90 | 110 | | | |
| WG217820ICB | ICB | 12/07/06 22:54 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| L59735-17DUP | DUP | 12/08/06 0:35 | | | .29 | .384 | meq/L | | | | 27.9 | 20 | RC |

**Solids, Percent** CLPSOW390, PART F, D-98

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217731** | | | | | | | | | | | | | |
| WG217731PBS | PBS | 12/06/06 17:00 | | | | U | % | | 99.9 | 100.1 | | | |
| L59735-01DUP | DUP | 12/06/06 18:42 | | | 94.9 | 95.1 | % | | | | 0.2 | 20 | |

**Carbon Resources**

ACZ Project ID: ***L59735***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59735-01** | WG217957 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| **L59735-02** | WG217957 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

**Carbon Resources**

ACZ Project ID: ***L59735***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59735-03** | WG217957 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| **L59735-04** | WG217957 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

**Carbon Resources**

ACZ Project ID: ***L59735***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59735-05** | WG217957 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| **L59735-06** | WG217957 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

**Carbon Resources**

ACZ Project ID: ***L59735***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59735-07** | WG217957 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| **L59735-08** | WG217957 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

**Carbon Resources**

ACZ Project ID: ***L59735***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59735-09** | WG217957 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| **L59735-10** | WG217957 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

**Carbon Resources**

ACZ Project ID: ***L59735***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59735-11** | WG217957 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| **L59735-12** | WG217957 | Potassium, extractable (AB-DTPA) | M6010B ICP | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

**Carbon Resources**

ACZ Project ID: ***L59735***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59735-13** | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| **L59735-14** | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

**Carbon Resources**

ACZ Project ID: ***L59735***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59735-15** | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| **L59735-16** | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

**Carbon Resources**

ACZ Project ID: ***L59735***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59735-17** | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| **L59735-18** | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

**Carbon Resources**

ACZ Project ID: ***L59735***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| **L59735-19** | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| **L59735-20** | WG217820 | Sodium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217771 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217874 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217643 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217893 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

Soil Analysis

**The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.**

| | |
|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 |
| pH, Saturated Paste | USDA No. 60 (21A) |
| Saturation Percent | USDA No. 60 (2) |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 |
| Solids, Percent | CLPSOW390, PART F, D-98 |
| Texture by Hydrometer | ASTM D 422 Hydrometer |

Wet Chemistry

**The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.**

| | |
|---|---|
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Sample Receipt

**Carbon Resources**

ACZ Project ID: L59735
Date Received: 10/31/2006
Received By:
Date Printed: 10/31/2006

## Receipt Verification

| | YES | NO | NA |
|---|---|---|---|
| 1) Does this project require special handling procedures such as CLP protocol? | | | X |
| 2) Are the custody seals on the cooler intact? | | | X |
| 3) Are the custody seals on the sample containers intact? | | | X |
| 4) Is there a Chain of Custody or other directive shipping papers present? | X | | |
| 5) Is the Chain of Custody complete? | X | | |
| 6) Is the Chain of Custody in agreement with the samples received? | X | | |
| 7) Is there enough sample for all requested analyses? | X | | |
| 8) Are all samples within holding times for requested analyses? | X | | |
| 9) Were all sample containers received intact? | X | | |
| 10) Are the temperature blanks present? | | | X |
| 11) Are the trip blanks (VOA and/or Cyanide) present? | | | X |
| 12) Are samples requiring no headspace, headspace free? | | | X |
| 13) Do the samples that require a Foreign Soils Permit have one? | | | X |

## Exceptions: If you answered no to any of the above questions, please describe

N/A

## Contact (For any discrepancies, the client must be contacted)

N/A

## Shipping Containers

| Cooler Id | | Temp (°C) | Rad (µR/hr) |
|---|---|---|---|
| BUCKET X 8 | | 22.5 | 16 |
| | | | |
| | | | |
| | | | |

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

## Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Sample Receipt

**Carbon Resources**

ACZ Project ID: L59735
Date Received: 10/31/2006
Received By:

## Sample Container Preservation

| SAMPLE | CLIENT ID | R < 2 | G < 2 | BK < 2 | Y< 2 | YG< 2 | B< 2 | O < 2 | T >12 | N/A | RAD | ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L59735-01 | 2A-6 40-60" | | | | | | | | | X | | |
| L59735-02 | 2A-6 60-80" | | | | | | | | | X | | |
| L59735-03 | 2A-7 0-7" | | | | | | | | | X | | |
| L59735-04 | 2A-7 7-20" | | | | | | | | | X | | |
| L59735-05 | 2A-7 20-38" | | | | | | | | | X | | |
| L59735-06 | 2B-1 0-9" | | | | | | | | | X | | |
| L59735-07 | 2B-1 9-19" | | | | | | | | | X | | |
| L59735-08 | 2B-1 19-33" | | | | | | | | | X | | |
| L59735-09 | 2B-1 33-51" | | | | | | | | | X | | |
| L59735-10 | 1A-1 0-6" | | | | | | | | | X | | |
| L59735-11 | 1A-1 6-17" | | | | | | | | | X | | |
| L59735-12 | 1A-1 17-28" | | | | | | | | | X | | |
| L59735-13 | 1A-1 28-60" | | | | | | | | | X | | |
| L59735-14 | 1A-1 60-100" | | | | | | | | | X | | |
| L59735-15 | 1A-2 15-25" | | | | | | | | | X | | |
| L59735-16 | 1A-2 25-40" | | | | | | | | | X | | |
| L59735-17 | 1A-2 40-60" | | | | | | | | | X | | |
| L59735-18 | 1A-2 60-75" | | | | | | | | | X | | |
| L59735-19 | 1A-2 75-90" | | | | | | | | | X | | |
| L59735-20 | 1B1 0-7" | | | | | | | | | X | | |

## Sample Container Preservation Legend

| Abbreviation | Description | Container Type | Preservative/Limits |
|---|---|---|---|
| R | Raw/Nitric | RED | pH must be < 2 |
| B | Filtered/Sulfuric | BLUE | pH must be < 2 |
| BK | Filtered/Nitric | BLACK | pH must be < 2 |
| G | Filtered/Nitric | GREEN | pH must be < 2 |
| O | Raw/Sulfuric | ORANGE | pH must be < 2 |
| P | Raw/NaOH | PURPLE | pH must be > 12 * |
| T | Raw/NaOH Zinc Acetate | TAN | pH must be > 12 |
| Y | Raw/Sulfuric | YELLOW | pH must be < 2 |
| YG | Raw/Sulfuric | YELLOW GLASS | pH must be < 2 |
| N/A | No preservative needed | Not applicable | |
| RAD | Gamma/Beta dose rate | Not applicable | must be < 250 µR/hr |

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L59735

Carbon Resources Soil Sample Increments
Kinney Mine, Scofield Utah
Sampled October 14-18, 2006
By Bruce Chesler and Greg Hunt
Telephone 435-826-4961
Billed to Carbon Resources

Mailed UPS on October 24, 2006 to:
ACZ Laboratory
2773 Downhill Drive
Steamboat Springs, Colorado, 80487
Attn. Sue Webber telephone 1-800-334-5493 Ext.110

Soil Samples sent in 5-gallon white plastic buckets from Escalante, Utah, and coal samples sent separately in a bucket from Cedaredege, Colorado. The coal sample increments are required to have the following additional analyses, along with the soil horizons found above and below them in their respective soil positions. These will include soil horizons and coal materials sampled at 3 locations, (D3, D9A, D9B) including a total of 19 samples.

Total Organic Carbon (Combustion Method, Western States Lab Testing Program, 1998, volume 4.10, page 88)
Soluble Selenium reported in mg/kg (Hydric Generation AA-Spectrometry and Flourimetry of water extracted Selenium)
Available Boron reported in mg/kg (saturation extract)
Acid Potential reported % pyric S
Neutralization Potential Tons CaCo3 equivalent/1000 tons

The remaining samples are as follows:

D1 0-6, 6-16, 16-25, 25-40, 40-65, 65-90 (6 samples)

D2 0-6, 6-24 (2 samples)

D3 Coal and Soil sent in separate shipments 0-10, 10-20, 20-40, 40-60, 60-75, 1 coal (7)

D4 0-8, 8-16, (2 samples)

D5 0-6, 6-20, 20-40, 40-60 (4 samples)

D6 0-7, coal not sampled, 24-48, 48-72 (3 samples)

D7 0-6, 6-20, 20-42, 42-58, 58-70 (5 samples)

D8 0-6, 6-13, 13-26, 26-48 (4 samples)

D9A coal and soil sent in two shipments 0-6, 6-12, 12-30, 30-68, 68-95, 95-115, 115-140 (7 samples)

D9B coal and soil sent separately 0-6, 6-12, 12-30, 30-52, 52-80, 80-102 (6 samples)

D10 0-5, 5-11, 11-23, 23-35 (4 samples)

D11 0-12, did not sample coal, 62-82 (2samples)

D12 0-6, 6-14, 14-28, 28-48, 48-66 (5 samples)

2A-1 0-10, 10-24, 24-44, 44-65, 65-80 (5 samples)

2A-2 0-5, 5-14, 14-25, 25-38 (4 samples)

2A-3 0-9, 9-19, 19-36, 36-52 (4 samples)

2A-5 0-6, 6-12, 12-24, 24-48 (4 samples)

2A-6 0-6, 6-12, 12-24, 24-40, 40-66, 66-80 (6 samples)

2A-7 0-7, 7-20, 20-38 (3 samples)

2B-1 0-9, 9-19, 19-33, 33-51 (4 samples)

1A-1 0-6, 6-17, 17-28, 28-60, 60-100 (5 samples)

1A-2 15-25, 25-40, 40-60, 60-75, 75-90 (5 samples)

1B1 0-7, 7-15, 15-28, 28-60 (4 samples)

Please give me a call if you have any questions on methodology at my office. Phone # 435-826-4961

Thanks,
Bruce Chesler
Representing, Carbon Resources
Escalante, Utah

LZG 10.26.06

**Sue Webber**

---

**From:** GHuntBBC@aol.com
**Sent:** Friday, October 27, 2006 12:52 PM
**To:** bches@scinternet.net; Sue Webber
**Subject:** Sue Weber Carbon Resources Soil Samples

**FROM:** **Geo-Hunt Consulting**
**16577 Columbine Lane**
**Cedaredge, CO 81413**
**970-856-9477**

**TO:** **Sue Webber, Project Manager**
**ACZ Laboratories, Inc.**
**2773 Downhill Drive,**
**Steamboat Springs, Co 80487**

**RE:** **TRANSMITTAL OF SOIL SAMPLES**

**Dear Sue:**
You have already received a rather large number of samples from BRUCE CHESLER, soil scientist from Escalante Utah, from the Carbon Resources "Kinney" Property, Scofield Utah. Enclosed please find the following seven soil samples taken from the same property and are a part of the same project. These samples should be processed with those received directly from Bruce and all of the results should be returned to Bruce.

D3
D4 19"-72"
D9-A 12"- 30"
D9-A 30"- 68"
D9-B 12"- 30"
D9-B 30"- 50"
D11 11"-48"

Note that some of the bag samples received from Bruce and or I may be labeled either Carbon Resources or Kinney. Both names indicate the same project.

Thank you for your prompt attention to this project.

Greg Hunt

Cc: Bruce Chesler

10/31/2006

# Very Fine Sand

analyst: as
date: 12-19-06

| ACZ L# | Total sample wt. gms | % <2000um sieve | Wt. of sxs used for Texture gms | Wt. of sxs between 105um & 53um gm. | % VFS |
|---|---|---|---|---|---|
| L59735-01 | 475.81 | 85.2 | 40.0 | 7.0 | **14.9** |
| L59735-02 | 510.97 | 76.5 | 40.0 | 7.1 | **13.6** |
| L59735-03 | 295.07 | 87.6 | 40.0 | 11.1 | **24.3** |
| L59735-04 | 309.41 | 86.9 | 40.0 | 10.4 | **22.6** |
| L59735-05 | 335.77 | 79.4 | 40.0 | 10.3 | **20.4** |
| L59735-06 | 242.34 | 84.9 | 40.0 | 10.0 | **21.2** |
| L59735-07 | 367.57 | 39.9 | 40.0 | 8.7 | **8.7** |
| L59735-08 | 373.47 | 79.6 | 40.0 | 4.8 | **9.6** |
| L59735-09 | 310.37 | 88.3 | 40.0 | 7.1 | **15.7** |
| L59735-10 | 245.80 | 92.5 | 40.0 | 8.9 | **20.6** |
| L59735-11 | 321.50 | 92.6 | 40.0 | 9.9 | **22.9** |
| L59735-12 | 393.30 | 86.2 | 40.0 | 9.6 | **20.7** |
| L59735-13 | 517.90 | 82.0 | 40.0 | 9.3 | **19.1** |
| L59735-14 | 489.14 | 76.9 | 40.0 | 9.6 | **18.5** |
| L59735-15 | 330.12 | 82.8 | 40.0 | 8.8 | **18.2** |
| L59735-16 | 331.02 | 79.6 | 40.0 | 9.1 | **18.1** |
| L59735-17 | 515.54 | 84.7 | 40.0 | 9.0 | **19.1** |
| L59735-18 | 389.72 | 74.0 | 40.0 | 8.7 | **16.1** |
| L59735-19 | 324.28 | 76.0 | 40.0 | 8.6 | **16.3** |
| L5973-20 | 275.01 | 79.8 | 40.0 | 8.2 | **16.4** |
| dup L59735-01 | 475.81 | 85.2 | 40.0 | 6.8 | **14.5** |

**(wt of sxs between 105um & 53um) / (wt. of sxs used for texture) = VFS of texture**

**(VFS of Texture) x (% <2000um) = % VFS**

**additional data from:**

**-sieve2000 WG217377**

**-sieve53 WG217379**

**-texture WG218128**

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Analytical Report**

December 21, 2006

Report to:
Clay Wisdom
Carbon Resources
PO Box 1789
Albuquerque, NM 87192

Bill to:
Clay Wisdom
Carbon Resources
PO Box 11789
Albuquerque, NM 87192

cc: Greg Hunt, Bruce Chesler

Project ID:
ACZ Project ID: L59736

Clay Wisdom:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 31, 2006. This project has been assigned to ACZ's project number, L59736. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L59736. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after January 21, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

Sue Webber 21/Dec/06

Sue Webber, Project Manager, has reviewed and approved this report in its entirety.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

**Case Narrative**

Carbon Resources

December 21, 2006

Project ID:
ACZ Project ID: L59736

## Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 3 soil samples from Carbon Resources on October 31, 2006. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L59736. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

## Holding Times

All analyses were not performed within EPA recommended holding times. The EPA holding times apply to water samples, not soil so the "H" flags are not applicable.

## Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The following anomalies required further explanation not provided by the Extended Qualifier Report:

1. For Nitrate/Nitrite, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

2. For Phosphorus, extractable values flagged with an "N1", the Prep Blank (PBS) was detected above the MDL. The data was flagged and accepted since this is considered typical procedural contamination.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1B1 7-15"

ACZ Sample ID: ***L59736-01***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 14:00 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 1.81 | | * | meq/L | 0.01 | 0.05 | 12/11/06 15:22 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.46 | | * | meq/L | 0.02 | 0.08 | 12/11/06 15:22 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 310 | | | mg/Kg | 30 | 100 | 12/14/06 12:56 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.819 | | | meq/L | 0.008 | 0.03 | 12/11/06 15:22 | msh |
| Sodium Absorption Ratio | Calculation | 0.57 | | | | 0.03 | 0.15 | 12/21/06 0:00 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.61 | | | meq/L | 0.01 | 0.04 | 12/11/06 15:22 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.8 | | * | % | 0.1 | 0.5 | 12/07/06 18:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.481 | | * | mmhos/cm | 0.001 | 0.01 | 12/06/06 17:00 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.6 | | * | % | 0.1 | 0.5 | 12/08/06 11:24 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.6 | | * | units | 0.1 | 0.1 | 12/06/06 17:00 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 130 | | * | % | 0.01 | 0.1 | 12/06/06 17:00 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 83.3 | | * | % Passing | 0.1 | 0.5 | 12/18/06 11:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 79.9 | | * | % Passing | 0.1 | 0.5 | 12/04/06 8:00 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 91.7 | | * | % | 0.1 | 0.5 | 12/06/06 21:30 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 17.5 | | * | % | 0.1 | 0.5 | 12/15/06 0:00 | srs |
| Sand | | 42.5 | | * | % | 0.1 | 0.5 | 12/15/06 0:00 | srs |
| Silt | | 40.0 | | * | % | 0.1 | 0.5 | 12/15/06 0:00 | srs |
| Texture Classification | | L | | * | | | | 12/15/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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# Inorganic Analytical Results

**Carbon Resources**
Project ID:
Sample ID: 1B1 7-15"

ACZ Sample ID: ***L59736-01***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 14:45 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/10/06 17:00 | erf/srs |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 10:30 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:00 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/04/06 9:00 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 4.1 | | | mg/Kg | 0.2 | 1 | 12/21/06 0:00 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.8 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 22:19 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 22:19 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.067 | H | * | % | 0.002 | 0.008 | 12/08/06 17:50 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 34 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:36 | pjb |



** Please refer to Qualifier Reports for detail.*

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 1B1 15-28"

ACZ Sample ID: ***L59736-02***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 14:30 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.71 | | * | meq/L | 0.01 | 0.05 | 12/11/06 15:25 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.21 | | * | meq/L | 0.02 | 0.08 | 12/11/06 15:25 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 180 | | | mg/Kg | 30 | 100 | 12/14/06 13:13 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.380 | | | meq/L | 0.008 | 0.03 | 12/11/06 15:25 | msh |
| Sodium Absorption Ratio | Calculation | 1.25 | | | | 0.03 | 0.15 | 12/21/06 0:00 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.85 | | | meq/L | 0.01 | 0.04 | 12/11/06 15:25 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.4 | B | * | % | 0.1 | 0.5 | 12/08/06 8:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.329 | | * | mmhos/cm | 0.001 | 0.01 | 12/06/06 23:00 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.4 | B | * | % | 0.1 | 0.5 | 12/08/06 12:36 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.3 | | * | units | 0.1 | 0.1 | 12/06/06 23:00 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 86.70 | | * | % | 0.01 | 0.1 | 12/06/06 23:00 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 82.3 | | * | % Passing | 0.1 | 0.5 | 12/18/06 11:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 79.3 | | * | % Passing | 0.1 | 0.5 | 12/04/06 10:00 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 96.8 | | * | % | 0.1 | 0.5 | 12/07/06 6:30 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 12.5 | | * | % | 0.1 | 0.5 | 12/15/06 0:00 | srs |
| Sand | | 42.5 | | * | % | 0.1 | 0.5 | 12/15/06 0:00 | srs |
| Silt | | 45.0 | | * | % | 0.1 | 0.5 | 12/15/06 0:00 | srs |
| Texture Classification | | SiL | | * | | | | 12/15/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 1B1 15-28"

ACZ Sample ID: ***L59736-02***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 16:15 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/10/06 17:15 | erf/srs |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 13:30 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:20 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/04/06 9:30 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 4.4 | | | mg/Kg | 0.2 | 1 | 12/21/06 0:00 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.9 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 22:22 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.5 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 22:22 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.074 | H | * | % | 0.002 | 0.009 | 12/08/06 17:51 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 25 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:39 | pjb |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 1B1 28-60"

ACZ Sample ID: ***L59736-03***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Inorganic Prep

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrogen, total Kjeldahl | M351.2 - Block Digestor | | | | | | | 12/07/06 15:00 | nps |

Metals Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Calcium, soluble (Sat. Paste) | M6010B ICP | 0.68 | | * | meq/L | 0.01 | 0.05 | 12/11/06 15:29 | msh |
| Magnesium, soluble (Sat. Paste) | M6010B ICP | 0.21 | | * | meq/L | 0.02 | 0.08 | 12/11/06 15:29 | msh |
| Potassium, extractable (AB-DTPA) | M6010B ICP | 90 | B | | mg/Kg | 30 | 100 | 12/14/06 13:23 | msh |
| Potassium, soluble (Sat. Paste) | M6010B ICP | 0.232 | | | meq/L | 0.008 | 0.03 | 12/11/06 15:29 | msh |
| Sodium Absorption Ratio | Calculation | 0.89 | | | | 0.03 | 0.15 | 12/21/06 0:00 | calc |
| Sodium, soluble (Sat. Paste) | M6010B ICP | 0.60 | | | meq/L | 0.01 | 0.04 | 12/11/06 15:29 | msh |

Soil Analysis

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | 0.1 | B | * | % | 0.1 | 0.5 | 12/08/06 15:00 | brg |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep | 0.287 | | * | mmhos/cm | 0.001 | 0.01 | 12/07/06 5:00 | lwt/srs |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | 0.3 | B | * | % | 0.1 | 0.5 | 12/08/06 13:48 | lwt/srs |
| pH, Saturated Paste | USDA No. 60 (21A) | 6.3 | | * | units | 0.1 | 0.1 | 12/07/06 5:00 | lwt/srs |
| Saturation Percent | USDA No. 60 (2) | 29.90 | | * | % | 0.01 | 0.1 | 12/07/06 5:00 | lwt/srs |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 | 81.7 | | * | % Passing | 0.1 | 0.5 | 12/18/06 11:00 | rje/srs |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 | 82.4 | | * | % Passing | 0.1 | 0.5 | 12/04/06 12:00 | as/rje |
| Solids, Percent | CLPSOW390, PART F, D-98 | 97.3 | | * | % | 0.1 | 0.5 | 12/07/06 11:00 | lwt/srs |
| Texture by Hydrometer | ASTM D 422 Hydrometer | | | | | | | | |
| Clay | | 12.5 | | * | % | 0.1 | 0.5 | 12/15/06 0:00 | srs |
| Sand | | 57.5 | | * | % | 0.1 | 0.5 | 12/15/06 0:00 | srs |
| Silt | | 30.0 | | * | % | 0.1 | 0.5 | 12/15/06 0:00 | srs |
| Texture Classification | | L | | * | | | | 12/15/06 0:00 | srs |
| Very Fine Sand | ASA No.9, 15-4.2.2 | see attachments | | | | | | | N/A |

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**Inorganic Analytical Results**

**Carbon Resources**
Project ID:
Sample ID: 1B1 28-60"

ACZ Sample ID: ***L59736-03***
Date Sampled: *10/16/06 00:00*
Date Received: *10/31/06*
Sample Matrix: *Soil*

Soil Preparation

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| AB-DPTA Extraction | ASA No.9, 3-5.2.3 | | | | | | | 12/05/06 17:00 | brg |
| Air Dry at 34 Degrees C | USDA No. 1, 1972 | | | | | | | 11/10/06 17:30 | erf/srs |
| Potassium Chloride Extraction | ASA No. 9 33-3.2.2 | | | | | | | 12/08/06 15:00 | lwt/srs |
| Saturated Paste Extraction | USDA No. 60 (2) | | | | | | | 12/05/06 17:40 | lwt/srs |
| Sieve-250 um (60 mesh) | ASA No.9, 15-4.2.2 | | | | | | | 12/04/06 10:00 | srs |

Wet Chemistry

| Parameter | EPA Method | Result | Qual | XQ | Units | MDL | PQL | Date | Analyst |
|---|---|---|---|---|---|---|---|---|---|
| Nitrate as N, extractable (KCL) | Calculation: NO3NO2 minus NO2 | 4.1 | | | mg/Kg | 0.2 | 1 | 12/21/06 0:00 | calc |
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 4.8 | H | * | mg/Kg | 0.2 | 1 | 12/08/06 22:28 | pjb |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | 0.7 | H | * | mg/Kg | 0.1 | 0.5 | 12/08/06 22:28 | pjb |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | 0.015 | H | * | % | 0.001 | 0.007 | 12/08/06 17:52 | nps |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | 18 | H | * | mg/Kg | 1 | 5 | 12/09/06 18:43 | pjb |



** Please refer to Qualifier Reports for detail.*

## Report Header Explanations

| | |
|---|---|
| *Batch* | A distinct set of samples analyzed at a specific time |
| *Found* | Value of the QC Type of interest |
| *Limit* | Upper limit for RPD, in %. |
| *Lower* | Lower Recovery Limit, in % (except for LCSS, mg/Kg) |
| *MDL* | Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations. |
| *PCN/SCN* | A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis |
| *PQL* | Practical Quantitation Limit, typically 5 times the MDL. |
| *QC* | True Value of the Control Sample or the amount added to the Spike |
| *Rec* | Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg) |
| *RPD* | Relative Percent Difference, calculation used for Duplicate QC Types |
| *Upper* | Upper Recovery Limit, in % (except for LCSS, mg/Kg) |
| *Sample* | Value of the Sample of interest |

## QC Sample Types

| | | | |
|---|---|---|---|
| *AS* | Analytical Spike (Post Digestion) | *LCSWD* | Laboratory Control Sample - Water Duplicate |
| *ASD* | Analytical Spike (Post Digestion) Duplicate | *LFB* | Laboratory Fortified Blank |
| *CCB* | Continuing Calibration Blank | *LFM* | Laboratory Fortified Matrix |
| *CCV* | Continuing Calivation Verification standard | *LFMD* | Laboratory Fortified Matrix Duplicate |
| *DUP* | Sample Duplicate | *LRB* | Laboratory Reagent Blank |
| *ICB* | Initial Calibration Blank | *MS* | Matrix Spike |
| *ICV* | Initial Calibration Verification standard | *MSD* | Matrix Spike Duplicate |
| *ICSAB* | Inter-element Correction Standard - A plus B solutions | *PBS* | Prep Blank - Soil |
| *LCSS* | Laboratory Control Sample - Soil | *PBW* | Prep Blank - Water |
| *LCSSD* | Laboratory Control Sample - Soil Duplicate | *PQV* | Practical Quantitation Verification standard |
| *LCSW* | Laboratory Control Sample - Water | *SDL* | Serial Dilution |

## QC Sample Type Explanations

| | |
|---|---|
| Blanks | Verifies that there is no or minimal contamination in the prep method or calibration procedure. |
| Control Samples | Verifies the accuracy of the method, including the prep procedure. |
| Duplicates | Verifies the precision of the instrument and/or method. |
| Spikes/Fortified Matrix | Determines sample matrix interferences, if any. |
| Standard | Verifies the validity of the calibration. |

## ACZ Qualifiers (Qual)

| | |
|---|---|
| B | Analyte concentration detected at a value between MDL and PQL. |
| H | Analysis exceeded method hold time. pH is a field test with an immediate hold time. |
| R | Poor spike recovery accepted because the other spike in the set fell within the given limits. |
| T | High Relative Percent Difference (RPD) accepted because sample concentrations are less than 10x the MDL. |
| U | Analyte was analyzed for but not detected at the indicated MDL |
| V | High blank data accepted because sample concentration is 10 times higher than blank concentration |
| W | Poor recovery for Silver quality control is accepted because Silver often precipitates with Chloride. |
| X | Quality control sample is out of control. |
| Z | Poor spike recovery is accepted because sample concentration is four times greater than spike concentration. |

## Method References

(1) EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2) EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3) EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5) EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6) Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

## Comments

(1) QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2) Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3) Animal matrices for Inorganic analyses are reported on an "as received" basis.

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# Inorganic QC Summary

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59736***

**Calcium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217956** | | | | | | | | | | | | | |
| WG217956ICV | ICV | 12/11/06 15:04 | II061209-1 | 100 | | 98.81 | mg/L | 98.8 | 90 | 110 | | | |
| WG217956ICB | ICB | 12/11/06 15:08 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| L59736-03DUP | DUP | 12/11/06 15:33 | | | .68 | .833 | meq/L | | | | 20.2 | 20 | RC |

**Carbon, total organic (TOC)** ASA No.9 29-2.2.4 Combustion/IR

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217772** | | | | | | | | | | | | | |
| WG217772PBS | PBS | 12/07/06 11:00 | | | | U | % | | -0.3 | 0.3 | | | |
| L59736-01DUP | DUP | 12/08/06 1:00 | | | .8 | .8 | % | | | | 0 | 20 | RA |

**Conductivity @25C** M120.1 - Meter, w/ Saturated Paste Prep

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217647** | | | | | | | | | | | | | |
| L59736-03DUP | DUP | 12/07/06 11:00 | | | .287 | .306 | mmhos/cm | | | | 6.4 | 20 | |

**Magnesium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217956** | | | | | | | | | | | | | |
| WG217956ICV | ICV | 12/11/06 15:04 | II061209-1 | 100 | | 96.18 | mg/L | 96.2 | 90 | 110 | | | |
| WG217956ICB | ICB | 12/11/06 15:08 | | | | U | mg/L | | -0.6 | 0.6 | | | |
| L59736-03DUP | DUP | 12/11/06 15:33 | | | .21 | .263 | meq/L | | | | 22.3 | 20 | RC |

**Neutralization Potential as CaCO3** M600/2-78-054 3.2.3

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217866** | | | | | | | | | | | | | |
| WG217866LCSS | LCSS | 12/08/06 10:12 | PCN20880 | 100 | | 119.6 | % | | | | | | |
| L59736-03DUP | DUP | 12/08/06 15:00 | | | .3 | .29 | % | | | | 3.4 | 20 | RA |

**Nitrate/Nitrite as N, extractable (KCL)** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217892** | | | | | | | | | | | | | |
| WG217892ICV | ICV | 12/08/06 19:33 | WI061207-1 | 2.416 | | 2.249 | mg/L | 93.1 | 90 | 110 | | | |
| WG217892ICB | ICB | 12/08/06 19:34 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| **WG217895** | | | | | | | | | | | | | |
| WG217895ICV | ICV | 12/08/06 21:37 | WI061207-1 | 2.416 | | 2.3 | mg/L | 95.2 | 90 | 110 | | | |
| WG217895ICB | ICB | 12/08/06 21:39 | | | | U | mg/L | | -0.06 | 0.06 | | | |
| WG217895LFB1 | LFB | 12/08/06 21:40 | WI060906-4 | 2 | | 2.028 | mg/Kg | 101.4 | 85 | 115 | | | |
| WG217830PBS | PBS | 12/08/06 22:17 | | | | 2.34 | mg/Kg | | -0.6 | 0.6 | | | N1 |
| WG217895LFB2 | LFB | 12/08/06 22:18 | WI060906-4 | 2 | | 2.067 | mg/Kg | 103.4 | 85 | 115 | | | |
| L59736-01DUP | DUP | 12/08/06 22:21 | | | 4.8 | 4.89 | mg/Kg | | | | 1.9 | 20 | |
| L59736-02AS | AS | 12/08/06 22:23 | WI060906-4 | 20 | 4.9 | 24.57 | mg/Kg | 98.4 | 75 | 125 | | | |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59736***

**Nitrite as N, extractable (KCL)** M353.2 - Automated Cadmium Reduction

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217892** | | | | | | | | | | | | | |
| WG217892ICV | ICV | 12/08/06 19:33 | WI061207-1 | .609 | | .618 | mg/L | 101.5 | 90 | 110 | | | |
| WG217892ICB | ICB | 12/08/06 19:34 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| **WG217895** | | | | | | | | | | | | | |
| WG217895ICV | ICV | 12/08/06 21:37 | WI061207-1 | .609 | | .622 | mg/L | 102.1 | 90 | 110 | | | |
| WG217895ICB | ICB | 12/08/06 21:39 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| WG217895LFB1 | LFB | 12/08/06 21:40 | WI060906-4 | 1 | | .996 | mg/Kg | 99.6 | 85 | 115 | | | |
| WG217895LFB2 | LFB | 12/08/06 22:18 | WI060906-4 | 1 | | 1.017 | mg/Kg | 101.7 | 85 | 115 | | | |
| L59736-01DUP | DUP | 12/08/06 22:21 | | | .7 | .7 | mg/Kg | | | | 0 | 20 | RA |
| L59736-02AS | AS | 12/08/06 22:23 | WI060906-4 | 10 | .5 | 9.53 | mg/Kg | 90.3 | 75 | 125 | | | |

**Nitrogen, total Kjeldahl** M351.2 - TKN by Block Digester

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217861** | | | | | | | | | | | | | |
| WG217691ICV | ICV | 12/08/06 17:01 | WI061129-2 | 4 | | 3.92 | mg/L | 98 | 90 | 110 | | | |
| WG217691ICB | ICB | 12/08/06 17:02 | | | | U | mg/L | | -0.3 | 0.3 | | | |
| WG217691PBS2 | PBS | 12/08/06 17:36 | | | | U | % | | -0.003 | 0.003 | | | |
| WG217691LFB2 | LFB | 12/08/06 17:37 | WI061129-6 | 2.5 | | 2.47 | % | 98.8 | 85 | 115 | | | |
| L59735-14MS | MS | 12/08/06 17:39 | WI061129-6 | .0325 | .019 | .0476 | % | 88 | 75 | 125 | | | |
| WG217691PBS1 | PBS | 12/08/06 17:53 | | | | U | % | | -0.003 | 0.003 | | | |
| WG217691LFB1 | LFB | 12/08/06 17:54 | WI061129-6 | 2.5 | | 2.54 | % | 101.6 | 85 | 115 | | | |
| L59735-15DUP | DUP | 12/08/06 18:14 | | | .19 | .232 | % | | | | 19.9 | 20 | |
| L59732-12MS | MS | 12/08/06 18:26 | 5XPTSTKN | .0345 | .054 | .095 | % | 118.8 | 75 | 125 | | | |

**Percent Clay** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG218198** | | | | | | | | | | | | | |
| L59736-01DUP | DUP | 12/15/06 13:10 | | | 17.5 | 16.3 | % | | | | 7.1 | 20 | |

**Percent Sand** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG218198** | | | | | | | | | | | | | |
| L59736-01DUP | DUP | 12/15/06 13:10 | | | 42.5 | 42.5 | % | | | | 0 | 20 | |

**Percent Silt** ASTM D 422 Hydrometer

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG218198** | | | | | | | | | | | | | |
| L59736-01DUP | DUP | 12/15/06 13:10 | | | 40 | 41.3 | % | | | | 3.2 | 20 | |

**pH, Saturated Paste** USDA No. 60 (21A)

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217647** | | | | | | | | | | | | | |
| L59736-03DUP | DUP | 12/07/06 11:00 | | | 6.3 | 6.5 | units | | | | 3.1 | 20 | |

**Carbon Resources**
Project ID:

ACZ Project ID: ***L59736***

**Phosphorus, extractable (AB-DTPA)** M365.1 - Automated Ascorbic Acid

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217910** | | | | | | | | | | | | | |
| WG217910ICV | ICV | 12/09/06 17:21 | SCN000224 | .65228 | | .605 | mg/L | 92.8 | 90 | 110 | | | |
| WG217910ICB | ICB | 12/09/06 17:23 | | | | U | mg/L | | -0.03 | 0.03 | | | |
| **WG217911** | | | | | | | | | | | | | |
| WG217911ICV | ICV | 12/09/06 17:59 | SCN000224 | .65228 | | .607 | mg/L | 93.1 | 90 | 110 | | | |
| WG217911ICB | ICB | 12/09/06 18:01 | | | | .013 | mg/L | | -0.03 | 0.03 | | | |
| WG217911LFB1 | LFB | 12/09/06 18:03 | WI061125-2 | .5 | | .535 | mg/Kg | 107 | 85 | 115 | | | |
| WG217619PBS | PBS | 12/09/06 18:34 | | | | 3.8 | mg/Kg | | -3 | 3 | | | N1 |
| WG217911LFB2 | LFB | 12/09/06 18:35 | WI061125-2 | .5 | | .538 | mg/Kg | 107.6 | 85 | 115 | | | |
| L59736-01DUP | DUP | 12/09/06 18:37 | | | 34 | 33.7 | mg/Kg | | | | 0.9 | 20 | |
| L59736-02AS | AS | 12/09/06 18:40 | WI061125-2 | 50 | 25 | 70.5 | mg/Kg | 91 | 75 | 125 | | | |

**Potassium, extractable (AB-DTPA)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG218071** | | | | | | | | | | | | | |
| WG218071ICV | ICV | 12/14/06 12:35 | II061209-1 | 20 | | 20.09 | mg/L | 100.5 | 90 | 110 | | | |
| WG218071ICB | ICB | 12/14/06 12:38 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| WG217619PBS | PBS | 12/14/06 12:52 | | | | U | mg/L | | -90 | 90 | | | |
| L59736-01AS | AS | 12/14/06 13:03 | II061207-3 | 9951.014 | 310 | 10756 | mg/L | 105 | 75 | 125 | | | |
| L59736-01ASD | ASD | 12/14/06 13:06 | II061207-3 | 9951.014 | 310 | 10328 | mg/L | 100.7 | 75 | 125 | 4.06 | 20 | |
| L59736-01DUP | DUP | 12/14/06 13:09 | | | 310 | 330 | mg/L | | | | 6.3 | 20 | |

**Potassium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217956** | | | | | | | | | | | | | |
| WG217956ICV | ICV | 12/11/06 15:04 | II061209-1 | 20 | | 20.2 | mg/L | 101 | 90 | 110 | | | |
| WG217956ICB | ICB | 12/11/06 15:08 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| L59736-03DUP | DUP | 12/11/06 15:33 | | | .232 | .2186 | meq/L | | | | 6 | 20 | |

**Saturation Percent** USDA No. 60 (2)

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217647** | | | | | | | | | | | | | |
| L59736-03DUP | DUP | 12/07/06 11:00 | | | 29.9 | 41.47 | % | | | | 32.4 | 20 | RC |

**Sodium, soluble (Sat. Paste)** M6010B ICP

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217956** | | | | | | | | | | | | | |
| WG217956ICV | ICV | 12/11/06 15:04 | II061209-1 | 100 | | 100.3 | mg/L | 100.3 | 90 | 110 | | | |
| WG217956ICB | ICB | 12/11/06 15:08 | | | | U | mg/L | | -0.9 | 0.9 | | | |
| L59736-03DUP | DUP | 12/11/06 15:33 | | | .6 | .535 | meq/L | | | | 11.5 | 20 | |

**Solids, Percent** CLPSOW390, PART F, D-98

| ACZ ID | Type | Analyzed | PCN/SCN | QC | Sample | Found | Units | Rec | Lower | Upper | RPD | Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **WG217732** | | | | | | | | | | | | | |
| WG217732PBS | PBS | 12/06/06 17:00 | | | | U | % | | 99.9 | 100.1 | | | |
| L59736-01DUP | DUP | 12/07/06 2:00 | | | 91.7 | 92.26 | % | | | | 0.6 | 20 | |

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Inorganic Extended Qualifier Report

## Carbon Resources

ACZ Project ID: ***L59736***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59736-01 | WG217956 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217772 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217866 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217647 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |
| L59736-02 | WG217956 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217772 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217866 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217647 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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# Inorganic Extended Qualifier Report

**Carbon Resources**

ACZ Project ID: ***L59736***

| ACZ ID | WORKNUM | PARAMETER | METHOD | QUAL | DESCRIPTION |
|---|---|---|---|---|---|
| L59736-03 | WG217956 | Calcium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | | Magnesium, soluble (Sat. Paste) | M6010B ICP | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217772 | Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217866 | Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217647 | Saturation Percent | USDA No. 60 (2) | RC | For a solid matrix, the matrix duplicate precision assessment (RPD or RER) exceeded the control limit, which is attributable to the non-homogeneity of the sample. |
| | WG217895 | Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M353.2 - Automated Cadmium Reduction | N1 | See Case Narrative. |
| | | | M353.2 - Automated Cadmium Reduction | RA | Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL). |
| | WG217861 | Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester | H1 | Sample analysis performed past holding time. |
| | WG217911 | Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid | HD | No pre-extraction hold time is specified in the method. Post-extraction hold time was met. |
| | | | M365.1 - Automated Ascorbic Acid | N1 | See Case Narrative. |

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**Certification Qualifiers**

**Carbon Resources**

ACZ Project ID: ***L59736***

Soil Analysis

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

| | |
|---|---|
| Carbon, total organic (TOC) | ASA No.9 29-2.2.4 Combustion/IR |
| Conductivity @25C | M120.1 - Meter, w/ Saturated Paste Prep |
| Neutralization Potential as CaCO3 | M600/2-78-054 3.2.3 |
| pH, Saturated Paste | USDA No. 60 (21A) |
| Saturation Percent | USDA No. 60 (2) |
| Sieve- 53 um (270 mesh) | ASA No.9, 15-4.2.2 |
| Sieve- 2000 um (2.0 mm) | ASA No.9, 15-4.2.2 |
| Solids, Percent | CLPSOW390, PART F, D-98 |
| Texture by Hydrometer | ASTM D 422 Hydrometer |

Wet Chemistry

The following parameters are not offered for certification or are not covered by NELAC certificate #ACZ.

| | |
|---|---|
| Nitrate/Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction |
| Nitrite as N, extractable (KCL) | M353.2 - Automated Cadmium Reduction |
| Nitrogen, total Kjeldahl | M351.2 - TKN by Block Digester |
| Phosphorus, extractable (AB-DTPA) | M365.1 - Automated Ascorbic Acid |

ACZ Laboratories, Inc.
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# Sample Receipt

**Carbon Resources**

ACZ Project ID: L59736
Date Received: 10/31/2006
Received By:
Date Printed: 10/31/2006

## Receipt Verification

| | YES | NO | NA |
|---|---|---|---|
| 1) Does this project require special handling procedures such as CLP protocol? | | | X |
| 2) Are the custody seals on the cooler intact? | | | X |
| 3) Are the custody seals on the sample containers intact? | | | X |
| 4) Is there a Chain of Custody or other directive shipping papers present? | X | | |
| 5) Is the Chain of Custody complete? | X | | |
| 6) Is the Chain of Custody in agreement with the samples received? | X | | |
| 7) Is there enough sample for all requested analyses? | X | | |
| 8) Are all samples within holding times for requested analyses? | X | | |
| 9) Were all sample containers received intact? | X | | |
| 10) Are the temperature blanks present? | | | X |
| 11) Are the trip blanks (VOA and/or Cyanide) present? | | | X |
| 12) Are samples requiring no headspace, headspace free? | | | X |
| 13) Do the samples that require a Foreign Soils Permit have one? | | | X |

## Exceptions: If you answered no to any of the above questions, please describe

N/A

## Contact (For any discrepancies, the client must be contacted)

N/A

## Shipping Containers

| Cooler Id | | Temp (°C) | Rad (µR/hr) |
|---|---|---|---|
| BUCKET X 8 | | 22.5 | 16 |
| | | | |
| | | | |
| | | | |

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

## Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

# Sample Receipt

**Carbon Resources**

ACZ Project ID: L59736
Date Received: 10/31/2006
Received By:

## Sample Container Preservation

| SAMPLE | CLIENT ID | R < 2 | G < 2 | BK < 2 | Y< 2 | YG< 2 | B< 2 | O < 2 | T >12 | N/A | RAD | ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L59736-01 | 1B1 7-15" | | | | | | | | | X | | ☐ |
| L59736-02 | 1B1 15-28" | | | | | | | | | X | | ☐ |
| L59736-03 | 1B1 28-60" | | | | | | | | | X | | ☐ |

## Sample Container Preservation Legend

| Abbreviation | Description | Container Type | Preservative/Limits |
|---|---|---|---|
| R | Raw/Nitric | RED | pH must be < 2 |
| B | Filtered/Sulfuric | BLUE | pH must be < 2 |
| BK | Filtered/Nitric | BLACK | pH must be < 2 |
| G | Filtered/Nitric | GREEN | pH must be < 2 |
| O | Raw/Sulfuric | ORANGE | pH must be < 2 |
| P | Raw/NaOH | PURPLE | pH must be > 12 * |
| T | Raw/NaOH Zinc Acetate | TAN | pH must be > 12 |
| Y | Raw/Sulfuric | YELLOW | pH must be < 2 |
| YG | Raw/Sulfuric | YELLOW GLASS | pH must be < 2 |
| N/A | No preservative needed | Not applicable | |
| RAD | Gamma/Beta dose rate | Not applicable | must be < 250 µR/hr |

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L59736

Carbon Resources Soil Sample Increments
Kinney Mine, Scofield Utah
Sampled October 14-18, 2006
By Bruce Chesler and Greg Hunt
Telephone 435-826-4961
Billed to Carbon Resources

Mailed UPS on October 24, 2006 to:
ACZ Laboratory
2773 Downhill Drive
Steamboat Springs, Colorado, 80487
Attn. Sue Webber telephone 1-800-334-5493 Ext.110

Soil Samples sent in 5-gallon white plastic buckets from Escalante, Utah, and coal samples sent separately in a bucket from Cedaredege, Colorado. The coal sample increments are required to have the following additional analyses, along with the soil horizons found above and below them in their respective soil positions. These will include soil horizons and coal materials sampled at 3 locations, (D3, D9A, D9B) including a total of 19 samples.

Total Organic Carbon (Combustion Method, Western States Lab Testing Program, 1998, volume 4.10, page 88)
Soluble Selenium reported in mg/kg (Hydric Generation AA-Spectrometry and Flourimetry of water extracted Selenium)
Available Boron reported in mg/kg (saturation extract)
Acid Potential reported % pyric S
Neutralization Potential Tons CaCo3 equivalent/1000 tons

The remaining samples are as follows:

D1 0-6, 6-16, 16-25, 25-40, 40-65, 65-90 (6 samples)

D2 0-6, 6-24 (2 samples)

D3 Coal and Soil sent in separate shipments 0-10, 10-20, 20-40, 40-60, 60-75, 1 coal (7)

D4 0-8, 8-16, (2 samples)

D5 0-6, 6-20, 20-40, 40-60 (4 samples)

D6 0-7, coal not sampled, 24-48, 48-72 (3 samples)

D7 0-6, 6-20, 20-42, 42-58, 58-70 (5 samples)

D8 0-6, 6-13, 13-26, 26-48 (4 samples)

D9A coal and soil sent in two shipments 0-6, 6-12, 12-30, 30-68, 68-95, 95-115, 115-140 (7 samples)

D9B coal and soil sent separately 0-6, 6-12, 12-30, 30-52, 52-80, 80-102 (6 samples)

D10 0-5, 5-11, 11-23, 23-35 (4 samples)

D11 0-12, did not sample coal, 62-82 (2samples)

D12 0-6, 6-14, 14-28, 28-48, 48-66 (5 samples)

2A-1 0-10, 10-24, 24-44, 44-65, 65-80 (5 samples)

2A-2 0-5, 5-14, 14-25, 25-38 (4 samples)

2A-3 0-9, 9-19, 19-36, 36-52 (4 samples)

2A-5 0-6, 6-12, 12-24, 24-48 (4 samples)

2A-6 0-6, 6-12, 12-24, 24-40, 40-66, 66-80 (6 samples)

2A-7 0-7, 7-20, 20-38 (3 samples)

2B-1 0-9, 9-19, 19-33, 33-51 (4 samples)

1A-1 0-6, 6-17, 17-28, 28-60, 60-100 (5 samples)

1A-2 15-25, 25-40, 40-60, 60-75, 75-90 (5 samples)

1B1 0-7, 7-15, 15-28, 28-60 (4 samples)

Please give me a call if you have any questions on methodology at my office. Phone # 435-826-4961

Thanks,
Bruce Chesler
Representing, Carbon Resources
Escalante, Utah

UBC 10.26.06

**Sue Webber**

**From:** GHuntBBC@aol.com
**Sent:** Friday, October 27, 2006 12:52 PM
**To:** bches@scinternet.net; Sue Webber
**Subject:** Sue Weber Carbon Resources Soil Samples

**FROM:** **Geo-Hunt Consulting**
**16577 Columbine Lane**
**Cedaredge, CO 81413**
**970-856-9477**

**TO:** **Sue Webber, Project Manager**
**ACZ Laboratories, Inc.**
**2773 Downhill Drive,**
**Steamboat Springs, Co 80487**

**RE:** **TRANSMITTAL OF SOIL SAMPLES**

**Dear Sue:**
You have already received a rather large number of samples from BRUCE CHESLER, soil scientist from Escalante Utah, from the Carbon Resources "Kinney" Property, Scofield Utah. Enclosed please find the following seven soil samples taken from the same property and are a part of the same project. These samples should be processed with those received directly from Bruce and all of the results should be returned to Bruce.

D3
D4 19"-72"
D9-A 12"- 30"
D9-A 30"- 68"
D9-B 12"- 30"
D9-B 30"- 50"
D11 11"-48"

Note that some of the bag samples received from Bruce and or I may be labeled either Carbon Resources or Kinney. Both names indicate the same project.

Thank you for your prompt attention to this project.

Greg Hunt

Cc: Bruce Chesler

10/31/2006

# Very Fine Sand

analyst: as
date: 12-19-06

| ACZ L# | Total sample wt. gms | % <2000um sieve | Wt. of sxs used for Texture gms | Wt. of sxs between 105um & 53um gm. | % VFS |
|---|---|---|---|---|---|
| L59736-01 | 363.84 | 79.9 | 40.0 | 8.3 | **16.6** |
| L59736-02 | 362.18 | 79.3 | 40.0 | 8.9 | **17.6** |
| L59736-03 | 386.22 | 82.4 | 40.0 | 8.9 | **18.3** |
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**(wt of sxs between 105um & 53um) / (wt. of sxs used for texture) = VFS of texture**

**(VFS of Texture) x (% <2000um) = % VFS**

**additional data from:**

**-sieve2000 WG217378**

**-sieve53 WG217380**

**-texture WG218198**

# Exhibit 7

# Vegetation Information

# VEGETATION OF THE KINNEY NO. 2 MINE SITE

*Prepared by*

***MT. NEBO SCIENTIFIC, INC.***
330 East 400 South, Suite 6
Springville, Utah 84663
(801) 489-6937

Patrick D. Collins, Ph.D.

*for*

***CARBON RESOURCES***
16577 Columbine Lane
Cedaredge, CO 81413

September 2007

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# INTRODUCTION

The old Kinney No. 2 mine area, an historical coal mining site, has been proposed to be the location for new mining activities. The site is located in Carbon County, Utah just northeast of the town of Scofield. Elevation of the permit area ranges from approximately 7,700 to 8,600 ft above sea level, with most of the surface facilities proposed in the lower elevations of that range.

Most of the vegetation proposed to be disturbed by the new mining activities have already been disturbed by the previous mining operations mentioned above. However, a sagebrush/grass community that has not been disturbed previously could also be impacted by the new mine.

The purpose of this document is to report the findings from quantitative sampling the plant communities that could be impacted by the proposed new mining activities. The communities that may be affected are: 1) the previously disturbed (presently rabbitbrush/grass) community, and 2) a native sagebrush/grass community. Additionally, a reference area to be used for future revegetation success standards has also been chosen and sampled for this study. A vegetation map showing the plant communities within and adjacent to the permit area has been prepared and included in the Mining & Reclamation Plan (MRP) for the new Kinney No. 2 Mine site (Map 5, Regional Vegetation). This map also shows the sample areas where the quantitative data were collected to compile this report.

# METHODS

Methodologies used for this study were performed in accordance with the guidelines supplied by the State of Utah, Division of Oil, Gas and Mining (DOGM). Quantitative and qualitative data were taken in the plant communities that have been proposed for disturbance area along with a reference area chosen to represent them at the time of final reclamation and revegetation. These datasets were recorded August 8-9, 2007.

## Sample Areas

GPS coordinates within the sample areas are provided below.

**GPS COORDINATES FOR THE VEGETATION SAMPLE AREAS OF THE KINNEY NO. 2 MINE (August 2007; UTM NAD 27)**

| Community Name | Zone | Easting | Northing | Notes |
|---|---|---|---|---|
| Rabbitbrush/Grass | 12 | 0486865<br>0486783 | 4397843<br>4397713 | a) Area was previously disturbed by mining, b) was a sagebrush/grass community prior to disturbance, c) coordinates represent centers of transect lines. |
| Sagebrush/Grass | 12 | 0486953<br>0486920 | 4397681<br>4397737 | a) Proposed disturbed native undisturbed community, b) coordinates represent centers of transect lines. |
| Reference Area | 12 | 0487053 | 4397766 | a) Native, undisturbed community sagebrush/grass community, b) coordinates represent center of transect line. |

## Sampling Design and Transect/Quadrat Placement

Transect lines for vegetation sampling were placed randomly within the boundaries of the proposed disturbed and reference areas. The transect placement technique was employed with the goal to adequately sample a representative subset of the entire site as a whole. Once the transects were established, quadrat locations for sampling were chosen using random numbers from the transect lines with the objective to record data without preconceived bias.

## Cover and Composition

Cover estimates were made using ocular methods with meter square quadrats. Species composition, cover by species, and relative frequencies were also assessed from the quadrats. Additional information recorded on the raw data sheets were: estimated precipitation, slope, exposure, grazing use, animal disturbance and other appropriate notes. Plant nomenclature follows "A Utah Flora" (Welsh et al., 2003).

## Woody Species Density

Density of woody plant species for the proposed disturbed and reference areas was estimated using the point-quarter method. In this method, random points were placed on the sample sites and measured into four quarters. The distances to the nearest woody plant species were then recorded in each quarter. The average point-to-individual distance was equal to the square root

of the mean area per individual. The number of individuals per acre was the end results of the calculations.

## Sample Size & Adequacy

Sampling adequacy for cover and density was attempted by using the formula given below.

$$nMIN = \frac{t^2 s^2}{(dx)^2}$$

where,

| | |
|---|---|
| *nMIN* | = minimum adequate sample |
| t | = appropriate confidence t-value |
| s | = standard deviation |
| x | = sample mean |
| d | = desired change from mean |

## Statistical Analyses

Student's t-tests were employed to compare the total living cover and total woody species density of the proposed disturbed sites with the reference area.

## Photographs

Color photographs of the sample areas were taken at the time of sampling and have been

included in this report.

Threatened & Endangered Plant Species

Prior to the field work, a list of those plant species that could be in the area and have been identified by agencies as rare, sensitive, threatened or endangered was prepared. Habitats were surveyed for these species at the mine site prior to and during the sample period.

Raw Data

The raw data have been summarized on spreadsheets and are available upon request.

# RESULTS

Previously Disturbed Areas

Most of the plant communities in the permit area that have been proposed for disturbance by the new mining operations were impacted previously by other activities, most of which were a result of the historical mining mentioned above. A very small proportion of these disturbances were within aspen communities, but most were within sagebrush/grass communities.

The “previously disturbed area”, one area that has been proposed for new disturbance by the

proposed mine, was quantitatively sampled by placing sample quadrats over the entire area [see *Map 5, Regional Vegetation (included in the MRP) and Color Photographs of the Sample Areas (included in this report*]. The dominant plant species in the previously disturbed area were those one would expect in a plant community that has been impacted and not reclaimed, including the shrub, rubber rabbitbrush (*Chrysothamnus nauseosus*), and grasses such as Western wheatgrass (*Elymus smithii*) and Kentucky bluegrass (*Poa pratensis*). Prior to disturbance, the community was once primarily a sagebrush/grass community. There were also several forb species present in the sample quadrats, each of which comprised less than 2 percent of the living cover. Examples of these forbs were native species such as hoary aster (*Machaeranthera canescens*), silky lupine (*Lupinus sericeus*), Engelmann's daisy *(Erigeron engelmannii*) and other "weedy", exotic species such as houndstongue (*Cynoglossum officinale*), and dandelion (*Taraxacum officinale*). A list of all plant species present in the sample quadrats placed in the previously disturbed area is shown on Table 1.

The total living cover of the community was estimated at 39.50% (Table 2-A). Composition of the cover was comprised of 44.73% shrubs, 34.09% grasses and 21.18% forbs (Table 2-B). Woody species density measurements were also recorded. The total number per acre was only 210 individuals, most of which were rubber rabbitbrush (Table 3).

<u>Proposed Disturbed Sagebrush/Grass</u>

The major plant community that has *not* been previously disturbed, but may also be impacted by

the proposed new mining activities, is a sagebrush/grass community [see *Map 5, Regional Vegetation (included in the MRP) and Color Photographs of the Sample Areas (included in this report*]. The two dominant plant species in the community by a wide margin were: the shrub, Vasey sagebrush (*Artemisia tridentata* var. *vaseyana*) and the grass, bluestem wheatgrass (*Elymus spicatus*). The next most common shrub was viscid rabbitbrush (*Chrysothamnus viscidiflorus*), and the next most common grass was Kentucky bluegrass. There were also several native forb species present in the sample quadrats, the most common of which was Watson's penstemon (*Penstemon watsonii*). For a complete listing of the plants present in the quadrats including all cover and frequency values, refer to Table 4.

The total living cover of the sagebrush/grass community was estimated 63.83% (Table 5-A). In the living cover, 55.42% of it was comprised of shrubs, 34.98% grasses and 9.60% forbs (Table 5-B). Woody species density was estimated 7,573 plants per acre (Table 6) with the three most common shrubs as Vasey sagebrush, viscid rabbitbrush and snowberry (*Symphoricarpos oreophilus*).

Sagebrush/Grass Reference Area

Another native sagebrush/grass community that will remain undisturbed was chosen in the immediate area to represent future standards for revegetation success [see *Map 5, Regional Vegetation (included in the MRP) and Color Photographs of the Sample Areas (included in this report*]. This community was sampled so that it could be compared statistically at this time with

the sagebrush/grass community proposed for disturbance to make sure it would be an appropriate area to be used for future revegetation success standards.

Very much like the proposed disturbed sagebrush/grass community it was chosen to represent and be compared with, the most common shrubs here were Vasey sagebrush and viscid rabbitbrush; the most common grasses were bluebunch wheatgrass and Kentucky bluegrass. Forbs species were also similar to the community proposed for disturbance (Table 7).

The total living cover for the reference area was 60.83% (Table 8-A). The composition of the cover by lifeform was represented by 61.42% shrubs, 28.15% grasses and 10.43% forbs (Table 8-B). The total woody species density for the community was 7,595 plants per acre with the same species for dominants as the area proposed for disturbance (Table 9).

Threatened & Endangered Plant Species Survey

No rare, threatened, endangered, endemic or otherwise sensitive plant species were found in the areas proposed for new disturbance.

**Table 1: Kinney No. 2 Mine. Living Cover and Frequency by Plant Species (2007).**

| Community: Rabbitbrush/Grass (Previously Disturbed) | Mean Percent | Standard Deviation | Percent Frequency |
|---|---|---|---|
| **OVERSTORY** | | | |
| *Populus tremuloides* | 1.50 | 7.76 | 4.00 |
| | | | |
| **UNDERSTORY** | | | |
| **SHRUBS** | | | |
| *Amelanchier utahensis* | 0.10 | 0.70 | 2.00 |
| *Artemisia tridentata* | 4.30 | 6.40 | 38.00 |
| *Chrysothamnus nauseosus* | 11.46 | 15.95 | 60.00 |
| *Mahonia repens* | 0.10 | 0.70 | 2.00 |
| *Purshia tridentata* | 0.50 | 2.50 | 4.00 |
| *Rosa woodsii* | 0.10 | 0.70 | 2.00 |
| *Symphoricarpos oreophilus* | 2.20 | 6.57 | 14.00 |
| | | | |
| **FORBS** | | | |
| *Cynoglossum officinale* | 0.10 | 0.70 | 2.00 |
| *Erigeron engelmannii* | 1.10 | 3.36 | 10.00 |
| *Geranium richardsonii* | 0.10 | 0.70 | 2.00 |
| *Grindelia squarrosa* | 0.60 | 2.15 | 8.00 |
| *Ipomopsis aggregata* | 0.20 | 1.40 | 2.00 |
| *Lupinus sericeus* | 1.30 | 3.85 | 12.00 |
| *Machaeranthera canescens* | 1.50 | 3.20 | 20.00 |
| *Melilotus officinalis* | 0.40 | 1.36 | 8.00 |
| *Polygonum aviculare* | 0.40 | 2.80 | 2.00 |
| *Taraxacum officinale* | 0.60 | 2.15 | 8.00 |
| | | | |
| **GRASSES** | | | |
| *Agropyron cristatum* | 0.40 | 2.20 | 4.00 |
| *Bromus tectorum* | 0.80 | 3.79 | 6.00 |
| *Elymus smithii* | 7.34 | 10.01 | 50.00 |
| *Elymus spicatus* | 0.20 | 1.40 | 2.00 |
| *Hordeum jubatum* | 0.10 | 0.70 | 2.00 |
| *Poa pratensis* | 4.10 | 8.58 | 24.00 |

**Table 2: Kinney No. 2 Mine. Total Cover and Composition (2007).**

| Community: Rabbitbrush/Grass (Previously Disturbed) | | |
|---|---|---|
| **A. TOTAL COVER** | Mean Percent | Standard Deviation |
| Overstory (O) | 1.50 | 7.76 |
| Understory (U) | 38.00 | 18.17 |
| Litter | 14.20 | 13.01 |
| Bareground | 25.40 | 19.69 |
| Rock | 22.40 | 16.77 |
| O+ U | 39.50 | 20.16 |
| | | |
| **B. % COMPOSITION** | | |
| % COMPOSITION | | |
| Shrubs | 44.73 | 34.28 |
| Forbs | 21.18 | 29.68 |
| Grasses | 34.09 | 28.51 |

**Table 3: Kinney No. 2 Mine. Total Cover and Composition (2007).**

| Community: Rabbitbrush/Grass (Previously Disturbed) | |
|---|---|
| **SPECIES** | **Individuals Per Acre** |
| *Amelanchier utahensis* | |
| *Artemisia tridentata* | 63.92 |
| *Cercocarpus oreophilus* | 1.05 |
| *Chrysothamnus nauseosus* | 116.31 |
| *Chrysothamnus viscidiflorus* | 1.05 |
| *Populus tremuloides* | 4.19 |
| *Purshia tridentata* | 5.24 |
| *Rosa woodsii* | 1.05 |
| *Symphoricarpos oreophilus* | 16.76 |
| **TOTAL** | **209.56** |

**Table 4: Kinney No. 2 Mine. Living Cover and Frequency by Plant Species (2007).**

| Community: Sagebrush/Grass (Proposed Disturbed) | Mean Percent | Standard Deviation | Percent Frequency |
|---|---|---|---|
| **SHRUBS** | | | |
| *Amelanchier utahensis* | 1.33 | 4.07 | 10.00 |
| *Artemisia tridentata var. vaseyana* | 18.50 | 12.59 | 93.33 |
| *Chrysothamnus viscidiflorus* | 7.50 | 8.24 | 56.67 |
| *Mahonia repens* | 0.17 | 0.90 | 3.33 |
| *Purshia tridentata* | 2.33 | 5.28 | 23.33 |
| *Symphoricarpos oreophilus* | 5.83 | 6.59 | 56.67 |
| | | | |
| **FORBS** | | | |
| *Astragalus sp.* | 0.33 | 1.80 | 3.33 |
| *Cirsium sp.* | 0.33 | 1.25 | 6.67 |
| *Eriogonum sp.* | 1.17 | 2.79 | 16.67 |
| *Hedysarum boreale* | 1.17 | 2.48 | 20.00 |
| *Lupinus sericeus* | 0.83 | 4.49 | 3.33 |
| *Machaeranthera canescens* | 0.17 | 0.90 | 3.33 |
| *Penstemon watsonii* | 2.00 | 3.56 | 26.67 |
| | | | |
| **GRASSES** | | | |
| *Elymus spicatus* | 13.17 | 13.63 | 70.00 |
| *Poa pratensis* | 0.50 | 2.69 | 3.33 |
| *Poa secunda* | 8.17 | 8.90 | 60.00 |
| *Stipa comata* | 0.33 | 1.80 | 3.33 |

**Table 5: Kinney No. 2 Mine. Total Cover and Composition (2007).**

| Community: Sagebrush/Grass (Proposed Disturbed) | Mean Percent | Standard Deviation |
|---|---|---|
| **A. TOTAL COVER** | | |
| Total Living Cover | 63.83 | 6.41 |
| Litter | 15.73 | 9.82 |
| Bareground | 10.07 | 7.37 |
| Rock | 10.37 | 10.63 |
| | | |
| **B. % COMPOSITION** | | |
| Shrubs | 55.42 | 18.54 |
| Forbs | 9.60 | 11.07 |
| Grasses | 34.98 | 18.45 |

**Table 6: Kinney No. 2 Mine. Total Cover and Composition (2007).**

| Community: Sagebrush/Grass (Proposed Disturbed) | |
|---|---|
| **SPECIES** | **Individuals Per Acre** |
| *Amelanchier utahensis* | 63.11 |
| *Artemisia tridentata var. vaseyana* | 3912.62 |
| *Chrysothamnus nauseosus* | 63.11 |
| *Chrysothamnus viscidiflorus* | 1640.78 |
| *Purshia tridentata* | 378.64 |
| *Symphoricarpos oreophilus* | 1514.56 |
| | |
| **TOTAL** | **7572.81** |

**Table 7: Kinney No. 2 Mine. Living Cover and Frequency by Plant Species (2007).**

| Community: Sagebrush/Grass (Reference Area) | | | |
|---|---|---|---|
| **TREES & SHRUBS** | Mean Percent | Standard Deviation | Percent Frequency |
| *Artemisia tridentata var. vaseyana* | 26.33 | 10.72 | 100.00 |
| *Chrysothamnus nauseosus* | 1.17 | 4.78 | 6.67 |
| *Chrysothamnus viscidiflorus* | 6.50 | 6.21 | 60.00 |
| *Purshia tridentata* | 0.83 | 3.67 | 6.67 |
| *Symphoricarpos oreophilus* | 3.00 | 6.14 | 26.67 |
| **FORBS** | | | |
| *Castilleja sp.* | 0.17 | 0.90 | 3.33 |
| *Eriogonum sp.* | 1.67 | 3.50 | 23.33 |
| *Hedysarum boreale* | 1.50 | 2.93 | 23.33 |
| *Lupinus sericeus* | 1.00 | 3.27 | 10.00 |
| *Penstemon watsonii* | 2.00 | 2.45 | 40.00 |
| **GRASSES** | | | |
| *Elymus salinus* | 0.33 | 1.25 | 6.67 |
| *Elymus spicatus* | 9.33 | 7.04 | 73.33 |
| *Poa pratensis* | 0.33 | 1.25 | 6.67 |
| *Pos secunda* | 6.67 | 7.89 | 56.67 |

**Table 8: Kinney No. 2 Mine. Total Cover and Composition (2007).**

| Community: Sagebrush/Grass (Reference Area) | | |
|---|---|---|
| **A. TOTAL COVER** | Mean Percent | Standard Deviation |
| Total Living Cover | 60.83 | 7.75 |
| Litter | 11.50 | 6.08 |
| Bareground | 16.80 | 9.11 |
| Rock | 10.87 | 7.82 |
| | | |
| **B. % COMPOSITION** | | |
| Shrubs | 61.42 | 14.19 |
| Forbs | 10.43 | 9.79 |
| Grasses | 28.15 | 12.56 |

**Table 9: Kinney No. 2 Mine. Total Cover and Composition (2007).**

| Community: Sagebrush/Grass (Reference Area) | |
|---|---|
| **SPECIES** | **Individuals Per Acre** |
| *Amelanchier utahensis* | 126.58 |
| *Artemisia tridentata var. vaseyana* | 4999.96 |
| *Chrysothamnus nauseosus* | 126.58 |
| *Chrysothamnus viscidiflorus* | 1455.68 |
| *Juniperus scopulorum* | 63.29 |
| *Purshia tridentata* | 63.29 |
| *Symphoricarpos oreophilus* | 759.49 |
| | |
| **TOTAL** | **7594.88** |

# SUMMARY & DISCUSSION

Statistical comparisons of the total living cover and woody species density values were made between the areas proposed for disturbance by mining activities and the reference area chosen to represent future revegetation success standards. When the total living cover of the previously disturbed rabbitbrush/grass community (also proposed for new disturbance) was compared to the sagebrush/grass reference area, results suggested the reference area had significantly more cover (Figure 1-A). Similarly, when woody species density of these two areas were compared, results again suggested there was a significant difference with a greater density value for the reference area (Figure 2-A).

**FIGURE 1.** A statistical comparison (Student's t-tests) of the **total living cover** between the proposed disturbed (previously disturbed and undisturbed) and reference areas.

| | $\bar{x}$ | s | n | t | df | SL |
|---|---|---|---|---|---|---|
| **A. Rabbitbrush/Grass** | | | | | | |
| *Previously* Disturbed: | 39.50 | 20.16 | 50 | | | |
| Reference Area: | 60.83 | 7.75 | 30 | | | |
| t-test | | | | -5.543 | 78 | p<0.001 |
| **B. Sagebrush/Grass** | | | | | | |
| Proposed Disturbed: | 63.83 | 6.41 | 30 | | | |
| Reference Area: | 60.83 | 7.75 | 30 | | | |
| t-test | | | | 1.634 | 58 | N.S. |

$\bar{x}$ = mean
s = standard deviation
n = sample size
t = Student's t-value
df = degrees of freedom
p = probability
SL= Significance Level

Next, the total living cover value of the proposed disturbed (currently undisturbed) sagebrush/grass community was compared with the reference area – the differences were non-significant (Figure 1-B). The woody species densities of these two communities were also non-significant (Figure 2-B).

As described above, much of the area has been previously disturbed by earlier mining and other activities. Although the quantitative data of the previously disturbed rabbitbrush/grass community was compared to the reference area at this time, future success standards may be different. State regulations (R645-301-356.250) indicates that "*areas previously disturbed by mining that were not reclaimed to the requirements of R645-200 through R645-203 and R645-301 through R645-302 and that are*

**FIGURE 2.** A statistical comparison (Student's t-tests) of the **woody species density** between the proposed disturbed (previously disturbed and undisturbed) reference areas.

| | $\bar{x}$ | s | n | t | df | SL |
|---|---|---|---|---|---|---|
| **A. Rabbitbrush/Grass** | | | | | | |
| *Previously* Disturbed: | 209.56 | 1138.85 | 50 | | | |
| Reference Area: | 7594.88 | 2309.39 | 30 | | | |
| t-test | | | | -19.119 | 78 | p<0.001 |
| **B. Sagebrush/Grass** | | | | | | |
| Proposed Disturbed: | 7572.81 | 2575.81 | 30 | | | |
| Reference Area: | 7594.88 | 2309.39 | 30 | | | |
| t-test | | | | -0.035 | 58 | N.S. |

$\bar{x}$ = mean
s = standard deviation
n = sample size
t = Student's t-value
df = degrees of freedom
SL= Significance Level

*remined or otherwise redisturbed by coal mining and reclamation operations, at a minimum, the vegetative ground cover will be not less than the ground cover existing before redisturbance and will be adequate to control erosion*". To address this issue, a discussion about reclamation and revegetation standards should be provided in the Mining & Reclamation Plan for the Kinney No. 2 Mine.

For those areas that will be disturbed by the proposed new mining activities that have *not* been previously impacted such as the sagebrush/grass community described in this report, the state regulations (R645-301.353) require that the final established plant communities: 1) *be diverse, effective, and permanent,* 2) *be comprised of species native to the area, or of introduced species where desirable and necessary to achieve the approved postmining land use and approved by the Division,* 3) *be at least equal in extent of cover to the natural vegetation of the area,* 4) *be capable of stabilizing the soil surface from erosion,* 5) *be compatible with the approved postmining land use,* 6) *have the same seasonal characteristics of growth as the original vegetation,* 7) *be capable of self-regeneration and plant succession, and* 8) *be compatible with the plant and animal species of the area.*

Small and comparatively inconsequential stands of aspen trees presently exist in the previously disturbed areas. Sample quadrats were also placed in these stands of trees. Because of the relative small area that these stands comprise, and because they too were disturbed previously and will be subject to the rules described above for areas previously impacted and not reclaimed, data for these aspen stands have been included with the other previously disturbed community

dataset. Accordingly, this dataset will represent the previously disturbed area as a whole, rather than attempting to separate or subdivide it.

The reference area chosen and compared statistically to the proposed disturbed (currently undisturbed) sagebrush/grass community should provide a community with adequate standards to achieve the required characteristics described above for the reclaimed areas at time of final reclamation and revegetation of the Kinney No. 2 Mine.

# COLOR PHOTOGRAPHS OF THE SAMPLE AREAS

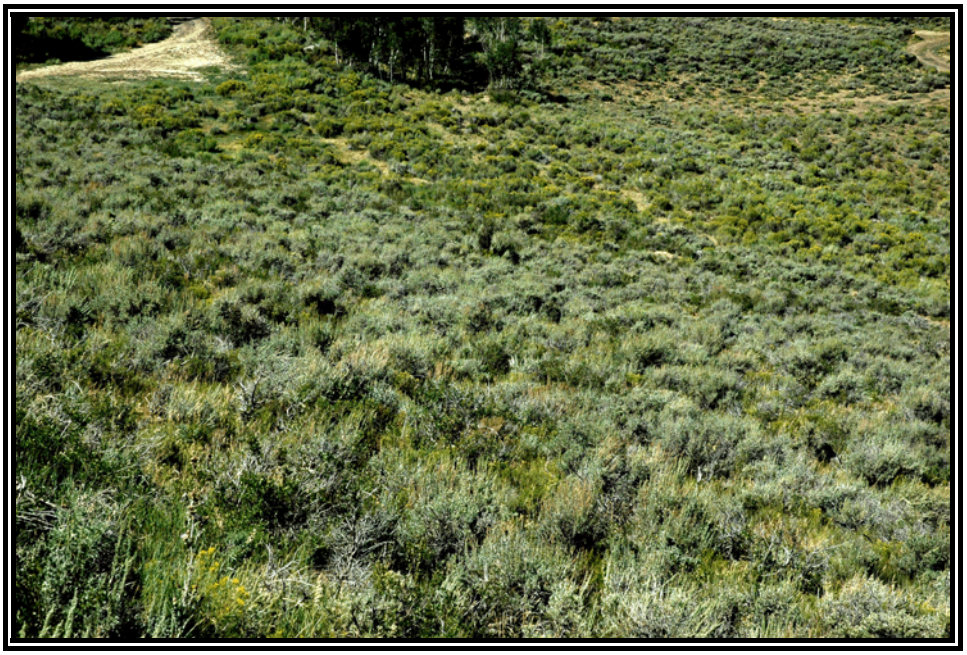


Photo 1: Sagebrush/Grass (Proposed Disturbed)

Photo 2: Sagebrush/Grass (Proposed Disturbed)

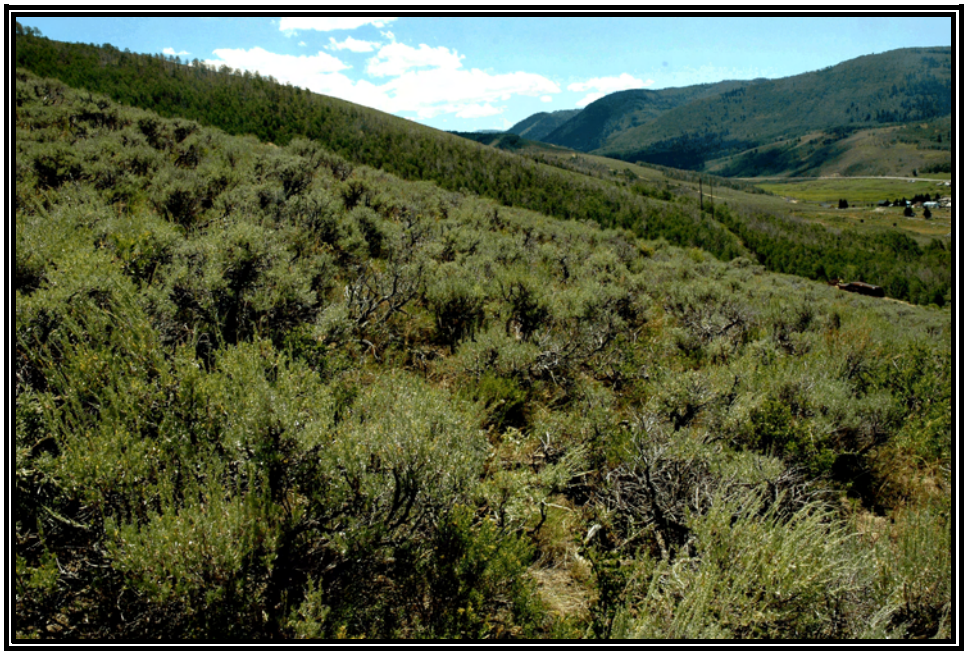


Photo 3: Sagebrush/Grass (Reference Area)

Photo 4: Sagebrush/Grass (Reference Area)

Photo 5: Rabbitbrush/Grass (Previously Disturbed)

Photo 6: Rabbitbrush/Grass (Previously Disturbed)

Photo 7: Rabbitbrush/Grass (Previously Disturbed)

Photo 8: Rabbitbrush/Grass (Previously Disturbed)

PLEASANT VALLEY

U.P. Canyon

Eagles Canyon

Mud Creek

SCOFIELD TOWN

SCOFIELD RESERVOIR

RIPARIAN

PASTURELAND

SAGEBRUSH/GRASS

ASPEN

S/G

A

SAMPLE AREA: PREVIOUSLY DISTURBED RABBITBRUSH/GRASS

SAMPLE AREA: PROPOSED DISTURBED AREA SAGEBRUSH/GRASS

SAMPLE AREA: SAGEBRUSH/GRASS REFERENCE AREA

PERMIT BOUNDARY

Old UP # 1 Portals

Old UP # 2 Portals

Old UP # 3 Portals

Old ? Portal

Old Columbine Portal (Lower Seam) AKA Jones Mine

Old Kinney Portals AKA Columbine # 1

Old Kinney Portal

Old Blue Seal Portal

Columbine Slope Portals (AKA Kinney Mine ?)

32

33

29

28

4

5

96

LEGEND

PRE - MINING DISTURBED AREA

PRE - MINING ROADS

KINNEY NO. 2 MINE DISTURBANCE FOOTPRINT

N

0 500 1000 1500 ft

SCALE
Contour Interval 20 ft

This map is in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 5,000 ft, using a Combined Factor (CF) of 1.004 7927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Carbon Resources LLC

KINNEY NO. 2 MINE
FIGURE 1
REGIONAL & SITE
VEGETATION MAP

| | |
|---|---|
| DRAWN BY: P.C., B.G. | DATE: 11/07 |
| APPROVED BY: G.H. | DATE: |

MC NEERGENIC, INC.
330 East 400 South, Suite 6
Springville, Utah 84663
(801) 489-6837

DWG. NAME:

# Exhibit 8

# Fish and Wildlife Information

JON M. HUNTSMAN, JR.
*Governor*
GARY R. HERBERT
*Lieutenant Governor*

# State of Utah
**DEPARTMENT OF NATURAL RESOURCES**
MICHAEL R. STYLER
*Executive Director*
**Division of Wildlife Resources**
JAMES F. KARPOWITZ
*Division Director*

August 13, 2007

Ben Grimes
Hansen, Allen & Luce Engineers
23 S. Carbon Avenue, Suite 21
Price, Utah 84501

Subject: Species of Concern Near the Proposed Coal Mine in Carbon County

Dear Ben Grimes:

I am writing in response to your email dated August 9, 2007 regarding information on species of special concern proximal to the proposed coal mine in Carbon County, Utah (Sections 26-35 of Township 12 South, Range 7 East, and Sections 2-6 of Township 13 South, Range 7 East, SLB&M).

The Utah Division of Wildlife Resources (UDWR) has records of occurrence for sandhill crane and bald eagle within the project area noted above. In addition, in the vicinity there are records of occurrence for northern flying squirrel and northern river otter.

The information provided in this letter is based on data existing in the Utah Division of Wildlife Resources' central database at the time of the request. It should not be regarded as a final statement on the occurrence of any species on or near the designated site, nor should it be considered a substitute for on-the-ground biological surveys. Moreover, because the Utah Division of Wildlife Resources' central database is continually updated, and because data requests are evaluated for the specific type of proposed action, any given response is only appropriate for its respective request.

In addition to the information you requested, other significant wildlife values might also be present on the designated site. Please contact UDWR's habitat manager for the southeastern region, Chris Wood, at (435) 636-0279 if you have any questions.

Please contact our office at (801) 538-4759 if you require further assistance.

Sincerely,

Sarah Lindsey

Sarah Lindsey
Information Manager
Utah Natural Heritage Program

cc: Chris Wood, SERO

1594 W. North Temple, Suite 2110, PO Box 146301, Salt Lake City, UT 84114-6301
telephone (801) 538-4700 • facsimile (801) 538-4709 • TTY (801) 538-7458 • *www.wildlife.utah.gov*

UTAH DNR WILDLIFE RESOURCES

**Ben Grimes**

**From:** "Ben Grimes" <halengpr@emerytelcom.net>
**To:** "Sarah Lindsey" <sarahlindsey@utah.gov>
**Sent:** Monday, August 13, 2007 12:21 PM
**Subject:** Re: Information Request

Thank you for the letter.

As I indicated in my first email, I need a (complete) list of mammals, birds, amphibians, snakes and fish that occur in the area, not just species of special interest. I have to provide these lists in the permit application to the Utah Division of Oil, Gas and Mining. Chris Wood told me you would be to provide me with this information.

If you have any questions please call me at (435) 650-7075.

Thank You,
Ben Grimes

----- Original Message -----
From: "Sarah Lindsey" <sarahlindsey@utah.gov>
To: "Ben Grimes" <halengpr@emerytelcom.net>
Cc: "Chris Wood" <CHRISWOOD@utah.gov>
Sent: Monday, August 13, 2007 10:29 AM
Subject: Re: Information Request

Mr. Grimes,

Attached is a letter in response to your request. Please contact me if you have any questions.

Sincerely,
Sarah Lindsey

Utah Natural Heritage Program
Division of Wildlife Resources
1594 West North Temple
Salt Lake City, UT 84114-6301
(801) 538-4759

>>> "Ben Grimes" <halengpr@emerytelcom.net> 8/9/2007 4:12 PM >>>
I am working on a permit application for a new coal mine in Carbon County and I need to include the following:

1. Species lists for mammals, birds, amphibians, snakes, and fish
2. Threatened and Endangered species

The attached PDF shows the area I need information for --- the large area

inside the biggest black box.

If you have any questions please call me at (435) 650-7075.

Thank you,
Ben Grimes, Office Manager
HANSEN, ALLEN & LUCE ENGINEERS
PRICE, UAH

---

No virus found in this incoming message.
Checked by AVG Free Edition.
Version: 7.5.476 / Virus Database: 269.11.17/951 - Release Date: 8/13/2007
10:15 AM

**Ben Grimes**

**From:** "Lenora Sullivan" <lenorasullivan@utah.gov>
**To:** <halengpr@emerytelcom.net>
**Cc:** "Chris Colt" <CHRISCOLT@utah.gov>
**Sent:** Monday, March 20, 2006 10:12 AM
**Subject:** Re: T&E Species Request

Dear Mr.Grimes:

I am writing in response to your email dated March 9, 2006 for information regarding species of special concern proximal to a coal mine project located in Carbon County, Utah [T012S 007E S27-29, 32-34; T013S 007E S3-5 SLB&M].

The Utah Division of Wildlife Resources (UDWR) does not have records of occurrence for any threatened, endangered, or sensitive species within the project boundaries. However, in the vicinity of the project, there are recent records of occurrence for winter roosting habitat for bald eagle, a federally-listed threatened bird, which is included on the Utah Sensitive Species List.

The information provided in this letter is based on data existing in the Utah Division of Wildlife Resources' central database at the time of the request. It should not be regarded as a final statement on the occurrence of any species on or near the designated site, nor should it be considered a substitute for on-the-ground biological surveys. Moreover, because the Utah Division of Wildlife Resources' central database is continually updated, and because data requests are evaluated for the specific type of proposed action, any given response is only appropriate for its respective request.

In addition to the information you requested, other significant wildlife values might also be present on the designated site. Please contact UDWR's habitat manager for the southeastern region, Chris Colt, at (435) 636-0279 if you have any questions.

Please contact our office at (801) 538-4759 if you require further assistance.

Sincerely,

Lenora B. Sullivan
Information Manager
Utah Natural Heritage Program

cc: Chris Colt, SERO

>>> <halengpr@emerytelcom.net> 03/09/2006 1:36 PM >>>
We are working on a coal mine permit application with the Utah Div of Oil, Gas and Mining and need consultation on T&E species for the proposed Kinney No 2 Mine area. The area is in Carbon County. The attached PDF map shows the area of interest.

Would you please review your records and indicate if there have been any T&E species identified within the area marked on the map.

Please reply to my email address, and by hard copy.

If you have any questions please call Ben Grimes at (435) 650-7075.

Thank
you.

---

This message was sent using Endymion MailMan.
http://www.endymion.com/products/mailman/

## Ben Grimes

**From:** "Ben Grimes" <halengpr@emerytelcom.net>
**To:** <sarahlindsey@utah.gov>
**Sent:** Thursday, August 09, 2007 4:12 PM
**Attach:** List MapRequest_0001.pdf
**Subject:** Information Request

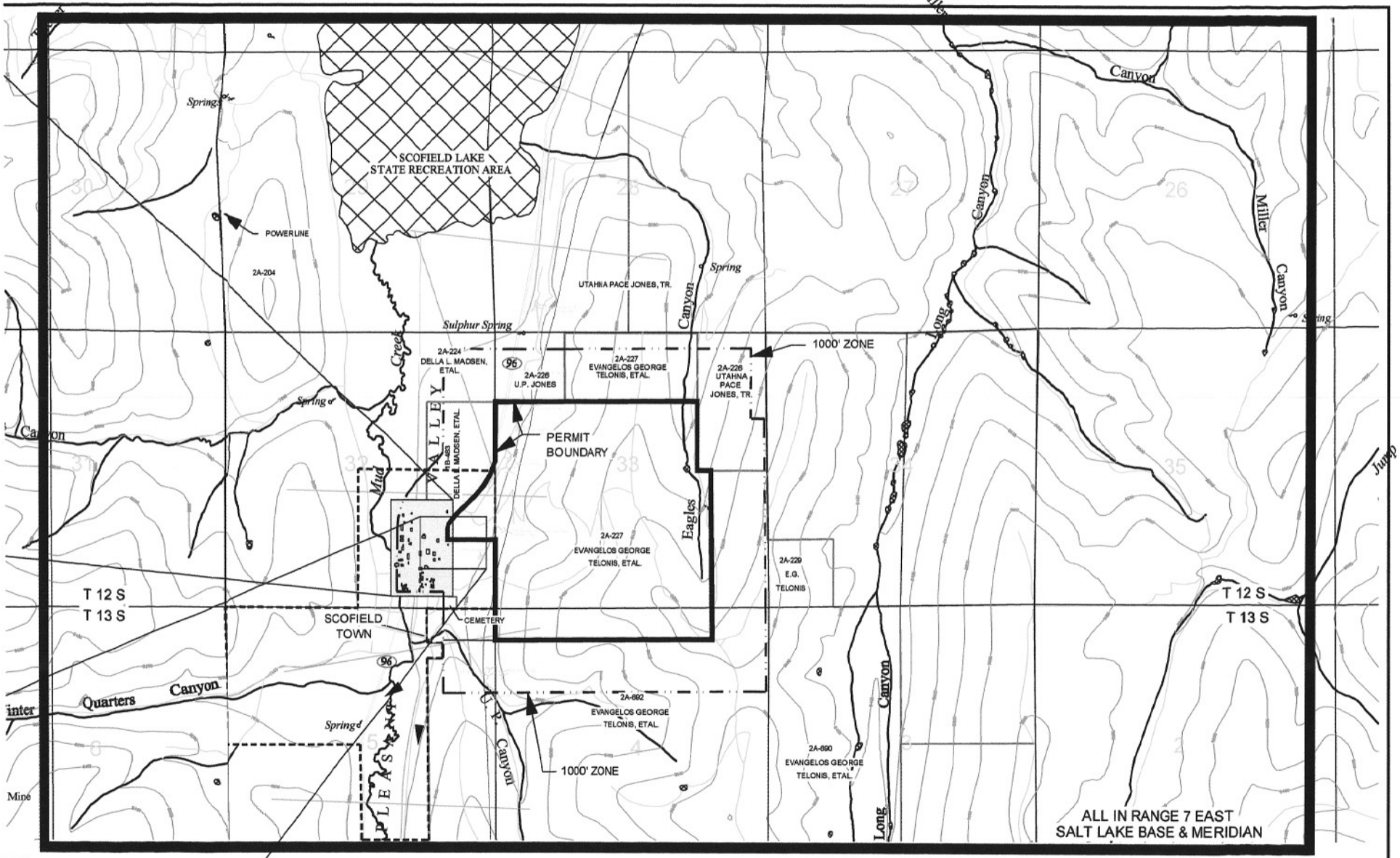
I am working on a permit application for a new coal mine in Carbon County and I need to include the following:

1. Species lists for mammals, birds, amphibians, snakes, and fish
2. Threatened and Endangered species

The attached PDF shows the area I need information for --- the large area inside the biggest black box.

If you have any questions please call me at (435) 650-7075.

Thank you,
Ben Grimes, Office Manager
HANSEN, ALLEN & LUCE ENGINEERS
PRICE, UAH




NEED SPECIES LISTS -MAMMALS, BIRDS, AMPHIBIANS, SNAKES ETC
AND T & E SPECIES FOR THIS AREA

# Exhibit 9

# Seep and Spring Survey

Rock Logic Consulting LLC
Rock Logic Consulting
PO Box 544 • Cedaredge, CO 81413
Phone: (435) 851-9044 • rocklogicconsulting@gmail.com
Brad Lindsay • Consulting Geologist

# Memorandum

**Date:** 20 December 2006
**To:** Greg Hunt – Carbon Resources
**From:** Brad Lindsay
**Subject:** Spring and Seep Survey - June 2006

## Summary

A spring and seep survey was conducted for Carbon Resources June 5th through June 9th 2006. Brad Lindsay conducted an extensive field survey within the area of interest outlined by Greg Hunt. Springs were observed and recorded in the field by traversing the property. Springs were identified in UP Canyon, Eagle Canyon, Long Canyon, Merrill Canyon, and Jump Creek. A 1/8-mile radius was traversed around drill hole locations listed in Carbon Resources Minor Coal Exploration Plan December 22, 2005. CR-06-04 was the only drill hole location with a spring within the 1/8-mile radius.

## Methods

*Area of interest survey* - Greg Hunt outlined a large area of interest. The area was traversed by 4-wheeler and by hiking. Large dry slopes were observed from a distance. Areas that are more likely to have springs (such as down-dip slopes, heavily wooded areas, and canyon bottoms) were covered with a tighter traverse. Indications of existing or previously existing water were watched for. Indications include changes in vegetation, soil erosion, and desiccation cracks. When springs were located they were described, photographed, and coordinates taken. Flows were estimated for each spring.

*Drill hole survey* - A 1/8-mile radius was walked around each drill hole. Areas within the circle that could not be observed while walking the radius were traversed. Distances were measured using a handheld GPS unit. Evidence of springs was recorded as described above. Eagle Seep 3 was the only spring or seep found within a 1/8-mile radius of a drill hole location.

**Observations**

Springs were identified in five main locations: UP Canyon, Eagle Canyon, Long Canyon, Merrill Canyon, and Jump Creek. Findings at each of these locations are discussed below. Please refer to the attached map for exact locations. A track identifying the traverse path is also included on the map. Photographs of the springs are attached.

*UP Canyon and near highway 96*

**Sulfur Spring** – is located just east of highway 96 approximately 1 mile north of Scofield. The spring runs year round at an average rate of approximately 80 gpm. The spring flows through a culvert under the highway and west into a field.

**Miller Spring** – is approximately 1 ¼ mile north of sulfur spring east of highway 96. It is slightly north of the area of interest. A wooden fence surrounds the springhead. The spring only flows in the springtime. Estimated flow at the time of the survey is approximately 1 gpm.

**UP Spring** – is located east of the dirt road up the south fork of UP Canyon. The spring was not flowing, but water was ponded in a low area.

Two dry ponds and one full pond were identified near the end of the road up the south fork of UP Canyon. One dry pond was located near the end of the road up the east fork of UP Canyon.

*Eagle Canyon*

**Angle Spring** – is located at the north end of Eagle Canyon where it bends to the west. The spring is piped out of the ground into several metal stock tanks. The spring flows year round at an average rate of approximately ½ gpm.

**Eagle Seep 1 & Eagle Seep 1A** – these seeps are located near the valley bottom. They appear to flow into a stock pond immediately down hill and north. There is some old piping around the seeps and the stock pond. The flow from the seeps is estimated to be less than ½ gpm.

**Eagle Spring 2** – is located north of Seep 1 and 1A in the valley bottom. A springhead was not located. A large stock pond was observed to be full all summer long. It is assumed that the spring feeds the pond from its bottom somewhere. The flow was not estimated.

**Eagle Seep 3** – is located approximately 400 feet northeast downhill of proposed drill hole CR-06-04. The seep has an estimated flow of less than ½ gpm.

There is a dry trough and some piping directly north of an old corral in the bottom of the valley east of proposed drill hole CR-06-04. It appears that there may have been a spring at that location at one time.

*Long Canyon*

An effluent stream flows down Long Canyon fed by visible springs and seeps. The springs and seeps along with current beaver ponds have been mapped.

**LC Seep 1 & 2** – are located at the north (downstream) end of Long Canyon. These seeps are north of the area of interest.

**LC Seep 3** – is located approximately 1 mile south of LC Seep 1 &2.

**LC Spring 1 –** is near LC Seep 3. It is located on the west side of the stream. The estimated flow is approximately 10 gpm.

**LC Spring** 2 **–** is near LC Spring 1. It is located on the east side of the stream. The estimated flow is approximately 1/2 gpm.

**LC Spring 3** – is south of LC Spring 1 & 2. It is located on the west side of the stream. The estimated flow is approximately 3 gpm.

**LC Spring 4** – is part way up a small drainage along the west side of the canyon. The estimated flow is less than ½ gpm.

**LC Spring 5 & 5A** – are located in the canyon bottom at the east-west fence line that runs along the township 12 and township 13 boundary. Each spring has an estimated flow of approximately 5 gpm.

**LC Spring 6** – is located in the west split of Long Canyon. The estimated flow is approximately 10 gpm.

**LC Spring 7** – is located in a drainage along the west side of the west split of Long Canyon. It feeds a small stock pond. The estimated flow is approximately 7 gpm.

**LC Spring 8** – is located in the east split of Long Canyon. It flows out of a steep cut bank west of the stream. The estimated flow is approximately 20 gpm.

*Merrill Canyon*

Merrill Canyon branches off approximately 1 mile south of the mouth of Long Canyon. It runs southeast toward Jump Creek. A small stream flows from Merrill Canyon into the stream in Long Canyon. At the time of this field survey, the majority of the water flowing from Merrill Canyon appeared to originate from springs in the canyon.

**Merrill Spring 1** – is located at the canyon bottom up near the southeast end of the canyon. The estimated flow is approximately 10 gpm.

**Luis Spring –** is located on the south edge of the stream. The estimated flow is approximately 10-15 gpm.

**Guzman Spring –** is immediately west. The estimated flow is approximately 1/2 gpm.

**Merrill Spring 2** – is north down the canyon. It is also located on the south side of the canyon. The estimated flow is approximately 10 gpm.

**Merrill Spring 4, 5 & 5A, & 6** – are located in a small canyon that extends south from Merrill Canyon. Merrill Spring 4 is at the south (upstream) end of the canyon. It has an estimated flow of approximately 5 gpm. Merrill springs 5 and 5A are near the middle of the offshoot canyon. There is some 1" pvc piping protruding from the ground here. The springs have an estimated combined flow of approximately 10 gpm. Merrill spring 6 is located near the mouth of the offshoot canyon. It feeds a small pond. The estimated flow is less than 1 gpm.

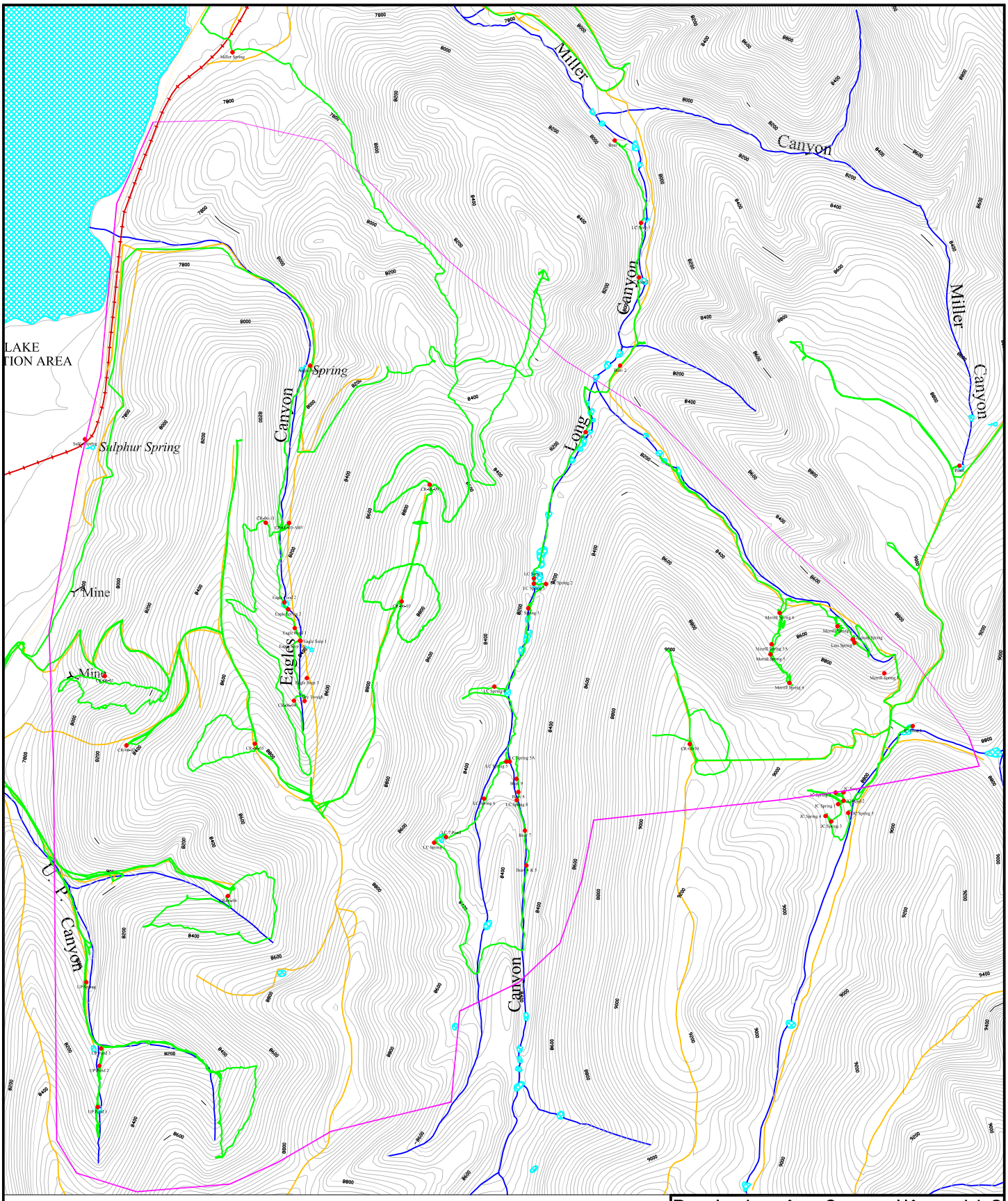
*Jump Creek*

Several springs were identified just south of the area of interest near Jump Creek. There is a spring fed stock pond in the area. There is also a second pond down the canyon that is fed by Jump Creek.

**JC Spring 1** – is south of the pond and flows into Jump Creek. It has an estimated flow of approximately 10 gpm.

**JC Spring 2** – is located northwest and feeds into the stock pond. It has an estimated flow of approximately 5 gpm.

**JC Springs 3, 4, & 5** – are all located south of the stock pond and flow into Jump Creek. They each have estimated flows of less than 1 gpm.




KEY

Angle Spring — Spring, Seep, or Pond Location

Area of Interest Boundary

Survey Traverse Track

Refer to Map 7
(Regional Hydrology)

Scale 1 = 2,200

Drawing Loc: Spring and Seep Survey\GPS Data in KCS.dwg

Rock Logic Consulting LLC

Carbon Resources LLC
Spring and Seep Survey
June 2006

| | |
|---|---|
| DWG | BWL & ER |
| CKD | |
| APD | |

DATE: 6/28/06

Miller Spring

UP Spring

UP Pond 1

Angle Spring

Eagle Seep 1

Eagle Spring 2 and Pond

Eagle Seep 3

LC Spring 1

LC Spring 2

LC Spring 3

LC Spring 4

LC Spring 5A

LC Spring 5A

LC Spring 5

LC Spring 6

LC Spring 7

LC Spring 8

Merrill Spring 1

Luis Spring

Guzman Spring

Merrill Spring 4

Merrill Spring 5

JC Pond 1

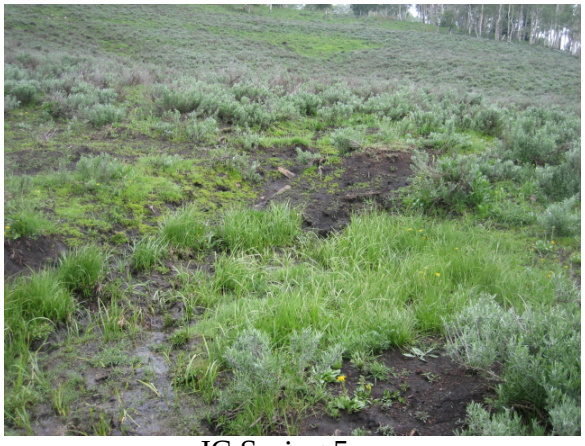
JC Spring 1

JC Spring 2

JC Pond 2

JC Spring 3

JC Spring 4



JC Spring 5

# Exhibit 10

# Surface and Ground Water Field Measurements

# Coal Energy Group, LLC

Kinney II Baseline Water Sampling

Surface Water Field Measurements

## Eagle Spring * (Miller Spring)

Elevation: **~7,700**

| Date | | Estimated Flow (gpm) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| 5/11/2005 | < | 10 | 7.35 | 6 | 98.9 | 18.0 |
| 9/6/2005 | | dried up | | | | |
| 10/31/2005 | | dried up | | | | |
| 11/28/2005 | | dried up | | | | |
| 12/22/2005 | | dried up | | | | |
| 1/22/2006 | | dried up | | | | |
| 2/26/2006 | | dried up | | | | |
| 3/27/2006 | | dried up | | | | |
| 4/26/2006 | < | 10 | 7.2 | 4.7 | 41.8 | 21.0 |
| 5/25/2006 | | | 8.18 | 5.9 | 83.7 | 28.9 |
| 6/29/2006 | | dried up | | | | |
| 7/31/2006 | | dried up | | | | |
| 8/20/2006 | | dried up | | | | |
| 9/7/2006 | | dried up | | | | |
| 10/30/2006 | | dried up | | | | |
| 11/27/2006 | | dried up | | | | |
| 12/26/2006 | | dried up | | | | |
| 1/31/2007 | | dried up | | | | |
| 2/19/2007 | | dried up | | | | |
| 3/29/2007 | | dried up | | | | |
| 4/25/2007 | | dried up | | | | |
| 5/29/2007 | | dried up | | | | |
| 6/25/2006 | | dried up | | | | |
| 7/30/2007 | | dried up | | | | |
| 3/25/2008 | | snow | | | | |
| 6/16/2008 | | 2 | 7.31 | 5 | 44.1 | 23.5 |
| 8/26/2008 | | dried up | | | | |
| 10/29/2008 | | dried up | | | | |
| 6/23/2010 | | dried up | | | | |
| 9/28/2010 | | dried up | | | | |
| 12/1/2010 | | dried up | | | | |
| 2/24/2011 | | dried up | | | | |

*****The sample collected at Eagle Spring in May 2005 was mislabled "Eagle Springs" and analyltic data are labled accordingly. Data labled Eagle Spring & Eagle Springs represent samples collected at the same location. This same spring was later mislabled Miller Spring

# Coal Energy Group, LLC

Kinney II Baseline Water Sampling

Surface Water Field Measurements

## Angle Spring

Elevation: **~7,940**

| Date | Estimated Flow (gpm) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|
| 9/6/2005 | 0.25 | 7.35 | 3.7 | 358 | 22.0 |
| 10/31/2005 | 0.33 | 6.01 | 4.7 | 519 | 10.6 |
| 11/28/2005 | 0.35 | 6.46 | 4.7 | 428 | 22.2 |
| 12/22/2005 | 0.35 | 5.23 | 3.9 | 512 | 11.6 |
| 1/22/2006 | 0.31 | 4.36 | 8.4 | 469 | 8.9 |
| 2/26/2006 | | 8.28 | 4.7 | 385 | 14.7 |
| 3/27/2006 | 0.35 | **7.04** | | **670** | ~10 |
| 4/26/2006 | 0.75 | 7.28 | 5.1 | 361 | 18.0 |
| 5/25/2006 | 1.00 | 5.96 | 3.8 | 492 | 20.5 |
| 6/29/2006 | | 7.5 | 6.3 | 522 | 20.9 |
| 7/31/2006 | 1.25 | 7.24 | 3.7 | 410 | 29.9 |
| 8/20/2006 | 1.03 | 7.26 | 3.5 | 156 | 22.3 |
| 9/7/2006 | 0.86 | lab | 4 | 387 | 18.5 |
| 10/30/2006 | not meas. | | | | |
| 11/27/2006 | not meas. | | | | |
| 12/26/2006 | not meas. | | | | |
| 1/31/2007 | not meas. | | | | |
| 2/19/2007 | not meas. | | | | |
| 3/29/2007 | not meas. | | | | |
| 4/25/2007 | not meas. | | | | |
| 5/29/2007 | not meas. | | | | |
| 6/25/2006 | not meas. | | | | |
| 7/30/2007 | not meas. | | | | |
| 3/25/2008 | not meas. | | | | |
| ACCESS DEINIED | | | | | |
| 10/14/2012 | 0.5 | 7.8 | | 600 | 7.1 |

**NOTE**: Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity.

# Coal Energy Group, LLC

Kinney II Baseline Water Sampling

Surface Water Field Measurements

## Aspen Spring

Elevation:

| Date | Estimated Flow (gpm) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|
| 5/30/2006 | | | | | |
| 6/29/2006 | | | | | |
| 7/31/2006 | | | | | |
| 8/20/2006 | | | | | |
| 9/7/2006 | | | | | |
| 10/30/2006 | | | | | |
| 11/27/2006 | | | | | |
| 12/26/2006 | | | | | |
| 1/31/2007 | | | | | |
| 2/19/2007 | | | | | |
| 3/29/2007 | | | | | |
| 4/25/2007 | | | | | |
| 5/29/2007 | | | | | |
| 6/25/2007 | | | | | |
| 7/30/2007 | | | | | |
| 11/12/2007 | 0.10 | 6.89 | 6.3 | 406 | 14.6 |
| 3/25/2008 | snow covered | | | | |
| 6/16/2008 | 0.10 | 8.69 | 2.2 | 190 | 29.8 |
| 8/26/2008 | 0.10 | 7.91 | 4 | 496 | 32.8 |
| 10/29/2008 | 0.05 | 7.14 | 3.7 | 541 | 5.7 |
| 6/23/2010 | 0.10 | 12 | 20.4 | 295 | 24.6 |
| 9/28/2010 | 0.10 | 9.33 | | 419 | 14.6 |
| 12/1/2010 | frozen | | | | |
| 2/24/2011 | frozen | | | | |
| 6/4/2012 | 0.60 | 7.6 | | 660 | 10.4 |
| 9/3/2012 | | | | 640 | 8.6 |
| 10/14/2012 | 0.30 | 8 | | 630 | 7.2 |
| 6/16/2013 | 0.20 | 7.3 | | 600 | 9.1 |
| 6/15/2014 | | 7.5 | | 660 | 9 |
| 6/29/2017 | 0.26 | 5.7 | | 500 | 10 |

NOTE: Flows Unmeaured for 11/12/07,6/16/08, 8/26/09, 6/23/08, 9/28/10 and shown as trickle on 10/29/08. Numerical values added to Estimated Flow so plots would show data.

Red Values are SUSPECT

Rock Logic Consulting LLC

Rock Logic Consulting
PO Box 544 • Cedaredge, CO 81413
Phone: (435) 851-9044 • rocklogicconsulting@gmail.com
Brad Lindsay • Consulting Geologist

**Memorandum**

**Date:** 20 April 2011
**To:** Greg Hunt – Carbon Resources
**From:** Brad Lindsay
**Subject:** Aspen Spring Flow Data

This memo is in response to your request for flow data at the sample location "Aspen Spring" in Eagles Canyon east of Scofield, Utah. It was previously designated "Eagle Pond 1" in the spring and seep survey conducted in June 2006. Below is a photo of the pond taken during the spring and seep survey, which was inadvertently omitted from the spring and seep survey report. It appears that someone made an embankment to catch flow from a spring to provide water for animals. The pond sits west of the road and east of the drainage bottom. If any water were to flow down the canyon it would pass to the west of the pond. It is positioned to catch runoff water from only a small area. The water is considered spring water because the pond does not dry up completely even in the summer.

Aspen Spring has been visited nine times, in addition to the Spring and Seep Survey, and water samples have been collected six times. The pond was snow covered the other three visits. Quantitative flow measurements have not been collected because it is unclear where water enters into the pond. No visible stream or spring flows into it and water has never been observed to top the berm and flow out. The upper bank, south east side of the pond, is sometimes wet. Uphill to the south the top of an old buried pipe is exposed. This may be carrying water to the bottom of the pond although I never observed either end of the pipe, just the short exposed section uphill from the pond.

This location was selected for sampling because the ponding results in enough water to sample. The other nearby seeps do not appear to produce enough water to collect an adequate sample. Pond 2 was not chosen as the sample location because it is larger, holding water that might not be as representative of spring water, and the recharge is not visible. Both ponds and the nearby seeps appear to be basically in line and all part of one system.

I reviewed my field notes from when I was at the site collecting water samples. Generally I did not make any notes regarding flow of the spring because the flow is not observable. There were four dates when I did make notes of conditions at the pond.

- November 12, 2007 I noted that there is no visible flow. The upper bank was dry.
- June 16, 2008 I noted low flow. The upper bank of the pond was soggy.
- October 29, 2008 I noted low flow. The upper bank of the pond was soggy.
- September 28, 2010 I noted that the pond was nearly dry.

View of Aspen Spring (AKA Eagle Pond 1) looking north northwest. June 6, 2006

HANSEN ALLEN & LUCE INC ENGINEERS

CLIENT Carbon Resources
PROJECT
FEATURE Aspen Spring
PROJECT NO 308.01.600

SHEET 1 OF 1
COMPUTED DEH
CHECKED
DATE 21 APR 2011

# ESTIMATE OF ASPEN SPRING FLOW

## Assumptions

1. No Surface Outflow from Spring
2. Spring is approx 20' in diameter
3. Evap can be estimated from Pan Evap data (Class A Pan)
4. Source of Water is subsurface, therefore, seepage is minimal
5. Peak flow occurs in June
6. Scofield pan data is applicabe - 1948-1991 June Evap = 7.84"
7. Wildlife also drink water based on Trail Evidence
   Assume the following users

| User | # | Qty @ | Total |
|---|---|---|---|
| Elk | 5 | 0.0056 | 0.028 |
| Deer | 10 | 0.0014 | 0.014 |
| Other | 50 | 0.00084 | 0.040 |
| | | | 0.084 ac-ft |

8. Water Level stays the same in June
9. Aspen Spring is 20' in diameter, approximated by a circle
10. Aspen Spring is not heavily used by large animals due to the lack of Muddy hoof print damage. (ie: livestock)

Calc July flow (31 days)

Animals $0.084 ac\text{-}ft = 3659 ft^3 / 12 = 305 ft^3$

Evaporation

$\frac{7.84"}{12} = 0.653 ft$

$Area = \frac{\pi}{4}(20)^2 = 314 ft^2$

$Vol = 314 * 0.653 = 205 ft^3 \ (85,794 gal)$

$V_{TOTAL} = 305 + 205 = 510 ft^3 \ (213,440 gal)$

$Total\ Flow = \frac{213,440 gal}{31 d * 24 \frac{hr}{d} * 60 \frac{min}{hr}} = 4.78 gpm$

$Evap\ Flow = \frac{85,794}{31(24)60} = 1.9 gpm$

Flow Range - 2-5 gpm

However, flows are most likely in the ±2 gpm range since without constant Animal demand would result in daily fluctuations.

UTAH

MONTHLY AVERAGE PAN EVAPORATION (INCHES)

| | PERIOD OF RECORD | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARCHES NATL PARK HQ | 1980-2005 | 0.00 | 0.00 | 0.00 | 7.44 | 9.81 | 12.33 | 12.94 | 11.15 | 8.16 | 4.73 | 0.00 | 0.00 | 66.56 |
| BEAR RIVER BAY | 1969-1996 | 0.00 | 0.00 | 0.00 | 6.27 | 10.17 | 12.59 | 13.86 | 12.29 | 7.83 | 4.89 | 0.00 | 0.00 | 67.90 |
| BEAR RIVER REFUGE | 1948-1984 | 0.00 | 0.00 | 0.00 | 4.80 | 7.21 | 8.66 | 10.46 | 9.30 | 6.13 | 3.27 | 1.27 | 0.00 | 51.10 |
| BRYCE CANYON NAT'L PRK | 1971-1978 | 0.00 | 0.00 | 0.00 | 0.00 | 6.86 | 7.86 | 8.07 | 7.21 | 5.30 | 0.00 | 0.00 | 0.00 | 35.30 |
| FARMINGTON USU FLD STN | 1948-2005 | 0.00 | 0.00 | 0.00 | 0.00 | 7.33 | 6.35 | 9.25 | 8.62 | 4.63 | 2.97 | 0.00 | 0.00 | 39.15 |
| FERRON | 1948-2005 | 0.00 | 0.00 | 0.00 | 5.20 | 5.66 | 8.06 | 6.58 | 6.39 | 5.49 | 3.53 | 0.00 | 0.00 | 40.91 |
| FISH SPRINGS REFUGE | 1960-2005 | 0.00 | 0.00 | 0.00 | 7.02 | 10.70 | 12.90 | 15.92 | 13.58 | 9.92 | 5.84 | 0.00 | 0.00 | 75.88 |
| FLAMING GORGE | 1957-2005 | 0.00 | 0.00 | 0.00 | 0.00 | 6.23 | 8.74 | 9.71 | 8.62 | 5.76 | 3.94 | 0.00 | 0.00 | 43.00 |
| FORT DUCHESNE | 1894-2005 | 0.00 | 0.00 | 0.00 | 5.16 | 7.41 | 8.61 | 9.06 | 7.98 | 5.57 | 3.25 | 0.00 | 0.00 | 47.04 |
| GREEN RIVER AVIATION | 1893-2005 | 0.00 | 0.00 | 0.00 | 6.07 | 8.07 | 9.29 | 9.49 | 7.97 | 5.74 | 3.52 | 1.60 | 0.00 | 51.75 |
| GUNNISON | 1956-1990 | 0.00 | 0.00 | 0.00 | 5.10 | 7.23 | 8.70 | 9.65 | 8.26 | 6.03 | 3.81 | 0.00 | 0.00 | 48.78 |
| HITE | 1949-1962 | 0.00 | 0.00 | 0.00 | 7.84 | 11.74 | 14.14 | 14.01 | 12.44 | 8.34 | 4.86 | 1.94 | 0.00 | 75.31 |
| LOGAN USU EXP STN | 1950-1978 | 0.00 | 0.00 | 0.00 | 4.01 | 5.98 | 7.05 | 8.37 | 7.50 | 5.02 | 2.92 | 0.00 | 0.00 | 40.85 |
| LOGAN 5 SW EXP FARM | 1969-2005 | 0.00 | 0.00 | 3.30 | 4.57 | 6.57 | 8.48 | 10.05 | 8.93 | 5.88 | 3.51 | 0.00 | 0.00 | 51.29 |
| MANILA | 1952-2005 | 0.00 | 0.00 | 0.00 | 0.00 | 7.31 | 8.66 | 9.83 | 8.37 | 6.50 | 4.63 | 0.00 | 0.00 | 45.30 |
| MEXICAN HAT | 1948-2005 | 0.00 | 0.00 | 6.31 | 8.45 | 11.99 | 14.42 | 14.87 | 12.48 | 9.37 | 5.52 | 2.25 | 0.00 | 85.66 |
| MILFORD | 1906-2005 | 0.00 | 0.00 | 0.00 | 7.47 | 10.22 | 13.54 | 15.47 | 13.24 | 9.88 | 6.16 | 2.32 | 0.00 | 78.30 |
| MOAB | 1889-2005 | 0.00 | 0.00 | 4.19 | 7.29 | 10.41 | 12.03 | 12.72 | 10.75 | 7.66 | 4.25 | 2.26 | 0.00 | 71.56 |
| MORGAN | 1948-2005 | 0.00 | 0.00 | 0.00 | 4.94 | 6.96 | 7.30 | 9.07 | 8.01 | 6.15 | 3.74 | 0.00 | 0.00 | 46.17 |
| PIUTE DAM | 1948-1971 | 0.00 | 0.00 | 0.00 | 0.00 | 7.91 | 9.98 | 10.13 | 8.40 | 6.98 | 4.60 | 0.00 | 0.00 | 48.00 |
| PROVO AIRPORT | 1948-1953 | 0.00 | 0.00 | 2.91 | 6.03 | 6.83 | 8.62 | 8.88 | 8.36 | 6.09 | 3.41 | 0.00 | 0.00 | 51.13 |
| PROVO BYU | 1980-2005 | 0.00 | 0.00 | 2.59 | 4.71 | 6.81 | 8.77 | 9.85 | 8.70 | 5.59 | 2.92 | 0.00 | 0.00 | 49.94 |
| PROVO RADIO KAYK | 1952-1977 | 0.00 | 0.00 | 0.00 | 4.38 | 5.94 | 7.53 | 8.32 | 7.58 | 5.40 | 3.21 | 1.53 | 0.00 | 43.89 |
| ST GEORGE | 1862-2005 | 0.00 | 0.00 | 4.57 | 7.36 | 10.08 | 12.22 | 13.17 | 11.55 | 8.22 | 4.83 | 2.68 | 0.00 | 74.68 |
| SALTAIR SALT PLANT | 1956-1991 | 0.00 | 0.00 | 3.66 | 6.20 | 9.19 | 11.88 | 14.40 | 12.67 | 8.58 | 4.86 | 2.32 | 0.00 | 73.76 |
| * SCOFIELD DAM | 1948-1991 | 0.00 | 0.00 | 0.00 | 0.00 | 5.52 | 7.84 | 8.29 | 6.94 | 5.13 | 3.90 | 0.00 | 0.00 | 37.62 |
| SEVIER DRY LAKE | 1987-1993 | 0.00 | 0.00 | 2.93 | 6.33 | 13.52 | 16.06 | 18.32 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 57.16 |
| STRAWBERRY RESERVOIR EA | 1956-1977 | 0.00 | 0.00 | 0.00 | 0.00 | 5.82 | 7.28 | 7.87 | 7.31 | 5.08 | 3.02 | 0.00 | 0.00 | 36.38 |
| UTAH LAKE LEHI | 1928-2003 | 0.00 | 0.00 | 2.77 | 5.19 | 7.11 | 8.80 | 9.61 | 8.58 | 6.10 | 3.81 | 1.42 | 0.00 | 53.39 |
| VERNAL ARPT | 1928-2005 | 0.00 | 0.00 | 0.00 | 5.07 | 6.41 | 7.48 | 6.64 | 6.34 | 4.89 | 2.92 | 0.00 | 0.00 | 39.75 |
| WANSHIP DAM | 1955-2005 | 0.00 | 0.00 | 0.00 | 0.00 | 6.09 | 6.79 | 7.41 | 6.59 | 4.79 | 3.19 | 0.00 | 0.00 | 34.86 |

Class A Pan Coeff = 0.70 - 0.75 (INTRO TO HYDROLOGY)

Annual Evap for Scofield Dam = 37.62" = 3.135'

$A = \frac{\pi}{4}(4')^2 = 12.56\ ft^2$

3.135' * 0.70 (Lower due to Wooded Loc) = 2.1945'

NOTE: data from www.wrcc.dri.edu/htmlfiles/westevap.final.html#UTAH

STOCKWATERING: The diversion figures for this purpose are based on year-round watering. Stock operations for lesser or intermittent periods would need adjustment accordingly. Water diverted for this use is generally considered to be 100% depleted by the animal, evaporation, phreatophytes, and/or waste water collection.

| | | | |
|---|---|---|---|
| cow or horse | | 0.028 | acre-foot |
| sheep, goat, swine, moose, or elk | * | 0.0056 | acre-foot |
| ostrich or emu | | 0.0036 | acre-foot |
| llama | | 0.0022 | acre-foot |
| deer, antelope, bighorn sheep, or mt. goat | * | 0.0014 | acre-foot |
| chicken, turkey, chukar, sagehen, or pheasant | * | 0.00084 | acre-foot |
| mink or fox (caged) | | 0.00005 | acre-foot |

NOTE: Copied from Utah Division of Water Rights Web Site

# Coal Energy Group, LLC

Kinney II Baseline Water Sampling

Surface Water Field Measurements

## Miller Outlet *

Elevation: **~7,632**

| Date | Estimated Flow (gpm) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|
| 5/11/2005 | 59 | 8.09 | 6.9 | 474 | 10.4 |
| 9/6/2005 | 18 | 8.04 | 4.6 | 433 | 13.1 |
| 10/31/2005 | 134 | 6.89 | 7.2 | 440 | 4.8 |
| 11/28/2005 | frozen | 5.65 | 8.0 | 556 | 1.7 |
| 12/22/2005 | frozen | 6.06 | 6.8 | 435 | 4.2 |
| 1/22/2006 | frozen | 6.04 | 7.1 | 440 | 1.2 |
| 2/26/2006 | frozen | | 4.6 | 320 | 14.0 |
| 3/27/2006 | frozen | **8.1** | | **550** | ~1 |
| 4/26/2006 | 545 | 8.01 | 3.6 | 369 | 19.2 |
| 5/25/2006 | 266 | 8.53 | 4.0 | 408 | 30.2 |
| 6/29/2006 | 171 | 8.57 | 4.2 | 415 | 28.6 |
| 7/31/2006 | 103 | 8.41 | 4.4 | 326 | 27.6 |
| 8/20/2006 | 89 | 8.6 | 4.6 | 110 | 27.7 |
| 9/7/2006 | 122 | lab | 7.4 | 375 | 13.0 |
| 10/30/2006 | 182 | 8.33 | 8.5 | 285 | 13.0 |
| 11/27/2006 | frozen | 8 | 5.1 | 327 | 10.0 |
| 12/26/2006 | frozen | 8.06 | 7.2 | 428 | 8.4 |
| 1/31/2007 | frozen | 8.01 | 5.3 | 387 | 8.6 |
| 2/19/2007 | frozen | 8.12 | 7.0 | 354 | 8.0 |
| 3/29/2007 | 212 | 8.7 | 9.9 | 440 | 13.3 |
| 4/25/2007 | 156 | 8.54 | 6.7 | 436 | 23.4 |
| 5/29/2007 | 142 | 8.42 | 7.9 | 417 | 22.9 |
| 6/25/2006 | 35 | 8.06 | 4.7 | 508 | 31.0 |
| 7/30/2007 | 36 | 8.45 | 4.9 | 362 | 27.7 |
| 3/25/2008 | 23 | 7.8 | 5.0 | 633 | 17.5 |
| 6/16/2008 | 289 | 8.7 | | 377 | 30.4 |
| 8/26/2008 | 66 | 8.26 | 3.9 | 456 | 29.6 |
| 10/29/2008 | 85 | 8.41 | 9.6 | 434 | 12.3 |
| 6/23/2010 | 43 | 12 | 22.9 | 283 | 16.5 |
| 9/28/2010 | 28 | 8.65 | | 480 | 12.5 |
| 12/1/2010 | frozen | 7.5 | | 617 | 0.1 |
| 2/24/2011 | frozen | | | | |
| 3/28/2012 | 341 | 8.5 | | 540 | 6.6 |
| 6/4/2012 | 103 | 8.5 | | 430 | 19.6 |
| 9/3/2012 | N/A | 8.7 | | 510 | 12.5 |
| 11/4/2012 | 112 | 8.6 | | 480 | 5.0 |
| 3/31/2013 | 224 | 8.3 | | 500 | 0.8 |
| 6/16/2013 | 6 | 8.4 | | 530 | 19.3 |
| 9/22/2013 | 153 | 8.2 | | 540 | 6.7 |
| 3/30/2014 | 157 | 8.4 | | 590 | 0.2 |
| 6/15/2014 | 89 | 8.3 | | 440 | 14.0 |
| 3/30/2015 | 201 | 8.1 | | 550 | 5.3 |
| 6/29/2015 | 4 | 7.8 | | 500 | 16.8 |
| 6/29/2017 | 42 | 7 | | 450 | 17.8 |
| 11/30/2017 | 23 | 6.9 | | 600 | 0.4 |
| 6/9/2018 | | 6.9 | | | 11.9 |

**NOTE**: Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity.

***Miller Outlet was initiallly misnamed "Eagle Outlet" and was once misnamed "Eagle Outlook". Samples collected from may 2005 to may 2006 were mislabled "Eagle Outlet" or "Eagle Outlook" and analyltic data are labled accordingly. From June 2006 to present the data are labled as Miller Outlet. Data labled Miller Outlet, Eagle Outlet, & Eagle Outlook represent samples collected at the same location.

Red Values are SUSPECT

# Coal Energy Group, LLC

Kinney II Baseline Water Sampling

Surface Water Field Measurements

## Mud Creek *

Elevation: **~7,685**

| Date | Estimated ** Flow (gpm) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|
| 5/11/2005 | 13,015 | 8.31 | 7.4 | 694 | 10.0 |
| 9/6/2005 | 4,937 | 8.51 | 5.4 | 655 | 17.7 |
| 10/31/2005 | 6,732 | 6.68 | 6.4 | 759 | 10.7 |
| 11/29/2005 | 6,283 | 6.94 | 7.2 | 758 | 5.6 |
| 12/22/2005 | 5,386 | 6.67 | 6.2 | 520 | 13.6 |
| 1/22/2006 | 8,527 | 8.63 | 4.1 | 568 | 7.6 |
| 2/26/2006 | 5,834 | 9.0 | 3.6 | 501 | 19.3 |
| 3/27/2006 | 5,386 | **8.18** | | **1000** | ~2 |
| 4/26/2006 | 17,952 | 8.3 | 5 | 394 | 18.5 |
| 5/25/2006 | 58,797 | 8.45 | 4.4 | 324 | 26.5 |
| 6/29/2006 | 11,670 | | 6.2 | 581 | 28.5 |
| 7/31/2006 | 6,732 | 8.4 | 4.8 | 471 | 26.9 |
| 8/20/2006 | 6,284 | 8.38 | 5.1 | 188 | 27.7 |
| 9/7/2006 | 5,386 | lab | 6.1 | 564 | 14.3 |
| 10/30/2006 | 7,181 | 7.94 | 6.9 | 424 | 17.3 |
| 11/27/2006 | 7,181 | 7.76 | 6 | 463 | 12.0 |
| 12/26/2006 | 6,284 | 8.08 | 7.3 | 571 | 13.1 |
| 1/31/2007 | 7,181 | 7.4 | 5.5 | 834 | 12.4 |
| 2/19/2007 | 6,732 | 8.3 | 6.8 | 476 | 12.4 |
| 3/29/2007 | 8,528 | 8.33 | 7.9 | 555 | 13.4 |
| 4/25/2007 | 9,425 | 8.29 | 7.8 | 546 | 25.0 |
| 5/29/2007 | 12,567 | 8.51 | 7.9 | 481 | 20.7 |
| 6/25/2006 | 6,733 | 8.65 | 5.7 | 742 | 27.7 |
| 7/30/2007 | 6,284 | 8.58 | 5.3 | 532 | 25.5 |
| 3/25/2008 | 4,129 | 7.8 | 5.0 | 633 | 17.5 |
| 6/16/2008 | 38,151 | 8.93 | 4.7 | 355 | 23.8 |
| 8/26/2008 | 6,732 | 8.31 | 3.9 | 651 | 28.6 |
| 10/29/2008 | 6,284 | 8.93 | 11.4 | 667 | 15.9 |
| 6/23/2010 | 7,630 | 9.29 | 3.4 | 289 | 24.6 |
| 9/28/2010 | 4,668 | 8.9 | | 732 | 11.4 |
| 12/1/2010 | 4,892 | 7.62 | | 741 | 6.8 |
| 2/24/2011 | 5,880 | 7.84 | | 744 | 7.8 |
| 3/28/2012 | 8,842 | 8.6 | | 650 | 8.3 |
| 9/3/2012 | 6,867 | 8.6 | | 700 | 12.1 |
| 11/4/2012 | 4,892 | 8.9 | | 560 | 7.6 |
| 3/28/2013 | 5,117 | 8.1 | | 960 | 3.5 |
| 6/16/2013 | 5,745 | 8.4 | | 530 | 17.2 |
| 9/22/2013 | 4,408 | 8.4 | | 650 | 7.5 |
| 12/13/2013 | 3,905 | 8.3 | | 760 | 0.1 |
| 3/30/2014 | 4,533 | 8.1 | | 690 | 1.2 |
| 6/15/2014 | 7,630 | 8.5 | | 460 | 15.7 |
| 6/29/2015 | 5,207 | 8 | | 590 | 16.3 |
| 10/20/2016 | 4,017 | 8.8 | | 650 | 3.5 |
| 6/29/2017 | 10,009 | 7.9 | | 880 | 17.3 |
| 11/30/2017 | 5,745 | 7.1 | | 890 | 2.3 |
| 6/9/2018 | 5,386 | 6.6 | | 0.68 | 13.9 |
| 9/22/2018 | 3,223 | 6.7 | | 720 | 9.5 |

**NOTE**: Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity.

***The sample collected at Mud Creek in May 2005 was mislabled "Muddy Creek" and analyltic data are labled accordingly. Data labled Mud Creek & Muddy Creek represent samples collected at the same location.

** Flow Data From USGS 09310700 MUD CRK BL WINTER QUARTERS CYN @ SCOFIELD, UT From Web Site; http://waterdata.usgs.gov/nwis/dv/?site_no=09310700&agency_cd=USGS&referred_module=sw

Red Values are SUSPECT

# Coal Energy Group, LLC

Kinney II Baseline Water Sampling

Surface Water Field Measurements

## Res-1 (Scofield Reservoir) *

Elevation: **~7620**

| Date | Water Level (feet) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|
| 5/30/2006 | 7613.5 | 8.09 | 5.6 | 424 | 20.6 |
| 6/29/2006 | | 9.03 | 10 | 287 | 31.9 |
| 7/31/2006 | 7609.4 | 10.16 | 9.1 | 257 | 29.8 |
| 8/20/2006 | 7607.7 | 9.82 | 9 | 108 | 35.7 |
| 9/7/2006 | 7606.0 | lab | 5.2 | 365 | 15.5 |
| 10/30/2006 | 7604.5 | 8.13 | 6.7 | 351 | 18.2 |
| 11/27/2006 | 7604.8 | frozen | | | |
| 12/26/2006 | | frozen | | | |
| 1/31/2007 | | frozen | | | |
| 2/19/2007 | | frozen | | | |
| 3/29/2007 | 7607.8 | 8.43 | 9.7 | 408 | 14.9 |
| 4/25/2007 | 7607.8 | 8.39 | 7.8 | 390 | 23.4 |
| 5/29/2007 | 7608.1 | 8.48 | 8 | 350 | 24.9 |
| 6/25/2006 | 7605.6 | 10.52 | 7.3 | 360 | 36.1 |
| 7/30/2007 | 7600.1 | 8.02 | 5.9 | 616 | 28 |
| 3/25/2008 | | 7.14 | 5.3 | 775 | 12.7 |
| 6/16/2008 | 7609.1 | 8.69 | 4.6 | 341 | 31.4 |
| 8/26/2008 | 7602.9 | 8.54 | 7.5 | 743 | 32.1 |
| 10/29/2008 | 7596.8 | 7.98 | 7.6 | 605 | 17 |
| 6/23/2010 | 7608.2 | 12 | 38.2 | 261 | 18.7 |
| 9/28/2010 | 7597.7 | 9.22 | | 867 | 23.1 |
| 12/1/2010 | | frozen | | | |
| 2/24/2011 | | frozen | | | |
| 3/28/2012 | | 6.8 | | 550 | 6.8 |
| 6/4/2012 | | 8.5 | | 410 | 17.6 |
| 9/3/2012 | | 8.7 | | 400 | 17.7 |
| 11/4/2012 | | 8.2 | | 340 | 7.5 |
| 6/16/2013 | | 8.6 | | 370 | 19.2 |
| 9/22/2013 | | 8.4 | | 540 | 10.5 |
| 6/15/2014 | | 8.2 | | 410 | 16.3 |
| 6/29/2015 | | 8.4 | | 420 | 22.2 |
| 9/28/2015 | | 8 | | 400 | 16.8 |
| 10/20/2016 | | 8.1 | | 590 | 7.2 |
| 6/29/2017 | | 8 | | 420 | 18.7 |
| 11/30/2017 | | 7.9 | | 420 | 4.2 |
| 6/9/2018 | | 7.3 | | | 17.5 |
| 9/22/2018 | | | | | |

*****The samples collected at Res-1 in June, July, & Aug 2006 were mislabled "Scofield Res. 1" and analyltic data are labled accordingly. Data labled Res-1 & Scofield Res. 1 represent samples collected at the same location.

Red Values are SUSPECT

# Coal Energy Group, LLC

Kinney II Baseline Water Sampling

Surface Water Field Measurements

## Sulfur Spring *

Elevation: **~7,670**

| Date | Estimated Flow (gpm) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|
| 5/11/2005 | 73 | 6.76 | 0.7 | 603 | 13.6 |
| 9/6/2005 | 32 | 7.2 | 2.4 | 559 | 15.9 |
| 10/31/2005 | 90 | 5.69 | 2.6 | 541 | 13.2 |
| 11/28/2005 | 76 | 5.85 | 3.9 | 561 | 11.9 |
| 12/22/2005 | 69 | 5.64 | 3.5 | 490 | 17.4 |
| 1/22/2006 | 69 | 7.64 | 1.3 | 410 | 14.7 |
| 2/26/2006 | 69 | 8.08 | 4.3 | 383 | 23.9 |
| 3/27/2006 | 90 | **7.38** | | **710** | ~14 |
| 4/26/2006 | 64 | 7.03 | 1.2 | 413 | 23.4 |
| 5/25/2006 | 79 | 7.46 | 2.4 | 503 | 28.2 |
| 6/29/2006 | 69 | 7.45 | 2.9 | 550 | 25.1 |
| 7/31/2006 | 74 | 7.27 | 2.0 | 446 | 24.1 |
| 8/20/2006 | 72 | 7.29 | 2.3 | 169 | 24.1 |
| 9/7/2006 | 86 | lab | 2.2 | 473 | 22.0 |
| 10/30/2006 | 80 | 7.27 | 4.0 | 384 | 22.2 |
| 11/27/2006 | 90 | 7.02 | 1.8 | 389 | 20.0 |
| 12/26/2006 | 90 | 7.00 | 3.0 | 538 | 20.0 |
| 1/31/2007 | 90 | 7.01 | 5.1 | 682 | 17.4 |
| 2/19/2007 | 88 | 7.03 | 4.1 | 473 | 21.5 |
| 3/29/2007 | 72 | 7.39 | 4.4 | 544 | 21.7 |
| 4/25/2007 | 90 | 7.33 | 7.0 | 557 | 23.4 |
| 5/29/2007 | 91 | 7.41 | 5.5 | 523 | 22.8 |
| 6/25/2006 | 86 | 7.25 | 2.4 | 615 | 27.5 |
| 7/30/2007 | 136 | 7.33 | 4.0 | 507 | 22.7 |
| 3/25/2008 | 93 | 6.81 | 2.2 | 973 | 21.9 |
| 6/16/2008 | 93 | 7.68 | 1.9 | 341 | 31.4 |
| 8/26/2008 | 127 | 7.14 | 2.5 | 646 | 27.5 |
| 10/29/2008 | 88 | 7.28 | 4.4 | 595 | 17.1 |
| 6/23/2010 | 82 | 12.00 | 14.6 | 423 | 17.4 |
| 9/28/2010 | 75 | 7.38 | | 715 | 14.8 |
| 12/1/2010 | 93 | 6.25 | | 714 | 13.8 |
| 2/24/2011 | 79 | 6.34 | | 710 | 13.7 |
| 3/28/2012 | | 7.2 | | 600 | 14.0 |
| 6/4/2012 | | 7.2 | | 650 | 14.1 |
| 9/3/2012 | | 9.5 | | 810 | 14.5 |
| 11/4/2012 | | 7.3 | | 690 | 7.6 |
| 3/31/2013 | | 7.4 | | 780 | 13.3 |
| 6/16/2013 | | 7.2 | | 690 | 13.5 |
| 9/22/2013 | | 7.2 | | 610 | 13.9 |
| 12/13/2013 | | 7.1 | | 700 | 13.7 |
| 3/30/2014 | | 7.2 | | 670 | 13.9 |
| 6/15/2014 | | 7.0 | | 700 | 14.0 |
| 3/30/2015 | | 7.2 | | 690 | 14.0 |
| 6/29/2015 | | 6.9 | | 650 | 14.1 |
| 9/28/2015 | | 7.2 | | 740 | 14.3 |
| 10/20/2016 | | 7.0 | | 760 | 13.9 |
| 6/29/2017 | | 6.0 | | 660 | 14.2 |
| 11/30/2017 | | 6.0 | | 890 | |
| 6/9/2018 | | | | | 14.7 |
| 9/22/2018 | | 6.3 | | 660 | 14.0 |

**NOTE**: Bolded values measured in March 2006 were analyzed at the laboratory. Specific conductivity values were actually measured as conductivity.

***Samples collected at Sulfur Spring have occasionaly been mislabled "Sulfur Springs", "Sulfer Spring", & "Sulfer Springs". From May 2005 to Nov 2006 sample names varied. From Dec 06 to present, samples have been labled Sulfur Spring. Analyltic data are Labled accordingly. Data labled Sulfur Spring, Sulfur Springs, Sulfer Spring, & Sulfer Springs represent samples collected at the same location.

Red Values are SUSPECT

**FIGURE 17. FIELD DATA**

# Coal Energy Group 3, LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

## CR-06-01

| | | |
|---|---|---|
| DATUM : | Top of PVC completion string | |
| DATUM ELEVATION: | 7951.2 | |
| Screened Interval Depth: | 79 | 86 |
| Screened Interval Elevation: | 7872.2 | 7865.2 |
| Hiawatha Seam Interval Depth: | 76.9 | 85 |
| Hiawatha Seam Interval Elevation: | 7874.3 | 7866.2 |

| Date | Static Water Level Depth from DATUM (ft) | Static Water Level Elevation (ft) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| | No water encountered durring drilling. | | | | | |
| 3/8/2006 | Dry | | | | | |
| 4/26/2006 | Dry | | | | | |
| 5/25/2006 | Dry | | | | | |
| 6/29/2006 | Dry | | | | | |
| 7/25/2006 | Dry | | | | | |
| 8/20/2006 | Dry | | | | | |
| 9/7/2006 | Dry | | | | | |
| 10/30/2006 | Dry | | | | | |
| 11/27/2006 | Dry | | | | | |
| 12/26/2006 | 97.4 | 7853.8 | | | | |
| 1/31/2007 | 97.5 | 7853.7 | | | | |
| 2/19/2007 | 97.4 | 7853.8 | | | | |
| 3/29/2007 | Dry | | | | | |
| 4/25/2007 | 97.6 | 7853.6 | | | | |
| 5/29/2007 | 97.4 | 7853.8 | | | | |
| 6/25/2007 | not measured | | | | | |
| 7/30/2007 | not measured | | | | | |
| 6/16/2008 | Dry | | | | | |
| 8/26/2008 | Dry | | | | | |
| 10/29/2008 | Dry | | | | | |
| 6/23/2010 | Dry | | | | | |
| 12/1/2010 | Dry | | | | | |
| 6/26/2016 | Dry | | | | | |
| 10/20/2016 | Dry | | | | | |
| 6/29/2017 | Dry | | | | | |
| 12/11/2017 | Dry | | | | | |
| 9/22/2018 | Dry | | | | | |
| 6/8/2019 | Dry | | | | | |

# Coal Energy Group 3, LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

## CR-06-01-BLW

| | | | |
|---|---|---|---|
| DATUM : | Top of Fiberglass completion string | | |
| DATUM ELEVATION: | | 7951.1 | |
| Screened Interval Depth: | | 240 | 250 |
| Screened Interval Elevation: | | 7711.1 | 7701.1 |
| Hiawatha Seam Interval Depth: | | 76.9 | 85 |
| Hiawatha Seam Interval Elevation: | | 7874.2 | 7866.1 |

| Date | Static Water Level Depth from DATUM (ft) | Static Water Level Elevation (ft) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| | Water was observed with a camera in the open hole at 210 feet and 215 feet. | | | | | |
| 3/8/2006 | Dry | | | | | |
| 4/26/2006 | 241.2 | 7,709.9 | | | | |
| 4/26/2006 | 263.3 | 7,687.8 | Tagged apparent bottom of Blank | | | |
| 5/25/2006 | Dry | | | | | |
| 6/29/2006 | 242.0 | 7,709.1 | | | | |
| 7/19/2006 | Dry | | | | | |
| 8/20/2006 | 242.1 | 7,709.0 | | | | |
| 9/7/2006 | 242.0 | 7,709.1 | | | | |
| 10/30/2006 | 242.2 | 7,708.9 | | | | |
| 11/27/2006 | 237.3 | 7,713.8 | | | | |
| 12/26/2006 | 242.1 | 7,709.0 | | | | |
| 1/31/2007 | 242.3 | 7,708.8 | | | | |
| 2/19/2007 | 242.2 | 7,708.9 | | | | |
| 3/29/2007 | Dry | | | | | |
| 4/25/2007 | 242.4 | 7,708.7 | | | | |
| 5/29/2007 | 242.3 | 7,708.8 | | | | |
| 6/25/2007 | not measured | | | | | |
| 7/30/2007 | not measured | | | | | |
| 6/16/2008 | Dry | | | | | |
| 8/26/2008 | Dry | | | | | |
| 10/29/2008 | 249.0 | 7,702.1 | Suspect | | | |
| 6/23/2010 | 254.0 | 7,697.1 | Suspect | Tagged Bottom @ 264 | | |
| 12/1/2010 | 254.0 | 7,697.1 | | Mud on Probe | | |
| 3/20/2015 | | 7,951.1 | 7.3 | | 511.0 | 9.2 |
| 6/26/2016 | Dry | | | | | |
| 10/20/2016 | Dry | | | | | |
| 6/29/2017 | Dry | | | | | |
| 12/11/2017 | Dry | | | | | |
| 9/22/2018 | Dry | | | | | |
| 6/8/2019 | Dry | | | | | |

# Coal Energy Group 3, LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

## CR-06-02

| | | | |
|---|---|---|---|
| DATUM : | Top of PVC completion string | | |
| DATUM ELEVATION: | | 8338.6 | |
| Screened Interval Depth: | | 429 | 437 |
| Screened Interval Elevation: | | 7909.6 | 7901.6 |
| Hiawatha Seam Interval Depth: | | 428 | 437 |
| Hiawatha Seam Interval Elevation: | | 7910.6 | 7901.6 |

| Date | Static Water Level Depth from DATUM (ft) | Static Water Level Elevation (ft) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| | No water encountered durring drilling. | | | | | |
| 3/8/2006 | 437.0 | 7901.6 | | | | |
| 4/26/2006 | 437.1 | 7901.5 | | | | |
| 5/25/2006 | 441.4 | 7897.2 | | | | |
| 6/29/2006 | 438.3 | 7900.3 | | | | |
| 7/19/2006 | 438.1 | 7900.5 | | | | |
| 8/20/2006 | 438.4 | 7900.2 | | | | |
| 9/7/2006 | 439.0 | 7899.6 | | | | |
| 10/30/2006 | 437.6 | 7901.0 | | | | |
| 11/27/2006 | 438.6 | 7900.0 | | | | |
| 12/26/2006 | 439.3 | 7899.3 | | | | |
| 1/31/2007 | 439.7 | 7898.9 | | | | |
| 2/19/2007 | 439.9 | 7898.7 | | | | |
| 3/29/2007 | 439.3 | 7899.3 | | | | |
| 4/25/2007 | 439.9 | 7898.7 | | | | |
| 5/29/2007 | 440.1 | 7898.5 | | | | |
| 6/25/2007 | not measured | | | | | |
| 7/30/2007 | not measured | | | | | |
| 6/16/2008 | 442.2 | 7896.4 | | | | |
| 8/26/2008 | 442.7 | 7895.9 | | | | |
| 10/29/2008 | 442.7 | 7895.9 | | | | |
| 6/23/2010 | 442.7 | 7895.9 | | | | |
| 12/1/2010 | 441.7 | 7896.9 | | | | |
| 6/26/2016 | Dry | | | | | |
| 10/20/2016 | Dry | | | | | |
| 6/29/2017 | Dry | | | | | |
| 12/11/2017 | Dry | | | | | |
| 9/22/2018 | Dry | | | | | |
| 6/8/2019 | Dry | | | | | |

# Coal Energy Group 3, LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

## CR-06-02-ABV

| | | | |
|---|---|---|---|
| DATUM : | Top of PVC completion string | | |
| DATUM ELEVATION: | | 8337.7 | |
| Screened Interval Depth: | | 288 | 298 |
| Screened Interval Elevation: | | 8049.8 | 8039.8 |
| Hiawatha Seam Interval Depth: | | 428 | 437 |
| Hiawatha Seam Interval Elevation: | | 7909.8 | 7900.8 |

| Date | Static Water Level Depth from DATUM (ft) | Static Water Level Elevation (ft) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| | No water encountered durring drilling. | | | | | |
| 3/8/2006 | 302.8 | 8034.9 | | | | |
| 4/26/2006 | 309.0 | 8028.7 | | | | |
| 5/25/2006 | Dry | | | | | |
| 6/29/2006 | 307.2 | 8030.5 | | | | |
| 7/19/2006 | 303.6 | 8034.1 | | | | |
| 8/20/2006 | 301.7 | 8036.0 | | | | |
| 9/7/2006 | 301.6 | 8036.1 | | | | |
| 10/30/2006 | 301.7 | 8036.0 | | | | |
| 11/27/2006 | 301.6 | 8036.1 | | | | |
| 12/26/2006 | 301.6 | 8036.1 | | | | |
| 1/31/2007 | 301.2 | 8036.5 | | | | |
| 2/19/2007 | 301.8 | 8035.9 | | | | |
| 3/29/2007 | 301.7 | 8036.0 | | | | |
| 4/25/2007 | 301.8 | 8035.9 | | | | |
| 5/29/2007 | 301.7 | 8036.0 | | | | |
| 6/25/2007 | not measured | | | | | |
| 7/30/2007 | not measured | | | | | |
| 6/16/2008 | 301.6 | 8037.0 | | | | |
| 8/26/2008 | 301.8 | 8036.8 | | | | |
| 10/29/2008 | 301.8 | 8036.8 | | | | |
| 6/23/2010 | 301.9 | 8036.7 | | | | |
| 12/1/2010 | 301.5 | 8037.1 | | | | |
| 6/29/2015 | 350.0 | 7988.6 | 7.9 | | 980 | |
| 6/26/2016 | 307.8 | 8030.8 | | | | |
| 10/20/2016 | Dry | | | | | |
| 6/29/2017 | Dry | | | | | |
| 12/11/2017 | Dry | | | | | |
| 6/8/2018 | Dry | | | | | |
| 9/22/2018 | Dry | | | | | |

# Coal Energy Group 3, LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

## CR-06-03-ABV

| | | |
|---|---|---|
| DATUM : | Top of Fiberglass completion string | |
| DATUM ELEVATION: | 8,135.97 | |
| Screened Interval Depth: | 480 | 490 |
| Screened Interval Elevation: | 7656 | 7646 |
| Hiawatha Seam Interval Depth: | 647 | 654 |
| Hiawatha Seam Interval Elevation: | 7009 | 7002 |

| Date | Static Water Level Depth from DATUM (ft) | Static Water Level Elevation (ft) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| | Water encountered durring drilling at ~ 380 feet. | | | | | |
| | Higher flow of water durring drilling at ~450 feet. | | | | | |
| 3/6/2006 | Purged approximatly 600 gal of water. | | | | | |
| 3/7/2006 | Purged an additional 300 gal of water. | | | | | |
| 4/26/2006 | 337.1 | 7798.9 | 6.92 | 5.7 | 425 | 26.6 |
| 5/25/2006 | 337.8 | 7798.2 | 7.28 | 1.3 | 599 | 28.3 |
| 6/29/2006 | 338.2 | 7797.8 | 7.23 | 2.2 | 689 | 21.8 |
| 7/31/2006 | 337.5 | 7798.5 | 6.87 | 1.1 | 549 | 23.9 |
| 8/20/2006 | 337.7 | 7798.3 | 6.99 | 1.1 | 245 | 25 |
| 9/7/2006 | 337.8 | 7798.2 | >12 | 1.7 | 522 | 20.7 |
| 10/30/2006 | not measured | | | | | |
| 11/27/2006 | not measured | | | | | |
| 12/26/2006 | not measured | | | | | |
| 1/31/2007 | not measured | | | | | |
| 2/19/2007 | not measured | | | | | |
| 3/29/2007 | not measured | | | | | |
| 4/25/2007 | not measured | | | | | |
| 5/29/2007 | not measured | | | | | |
| 6/25/2007 | not measured | | | | | |
| 7/30/2007 | not measured | | | | | |

Discontinued Measuring

# Coal Energy Group 3, LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

## CR-06-05A

| | | | |
|---|---|---|---|
| DATUM : | Top of PVC completion string | | |
| DATUM ELEVATION: | | 8798.9 | |
| Screened Interval Depth: | | 1036 | 1051 |
| Screened Interval Elevation: | | 7762.9 | 7747.9 |
| Hiawatha Seam Interval Depth: | | 1037 | 1043 |
| Hiawatha Seam Interval Elevation: | | 7761.9 | 7755.9 |

| Date | Static Water Level Depth from DATUM (ft) | Static Water Level Elevation (ft) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| 9/7/2006 | 1051.7 | 7747.2 | | | | |
| 10/30/2006 | 1057.6 | 7741.3 | | | | |
| 11/27/2006 | not measured | | | | | |
| 12/26/2006 | 1058.0 | 7740.9 | | | | |
| 1/31/2007 | 1057.8 | 7741.1 | | | | |
| 2/19/2007 | 1057.9 | 7741.0 | | | | |
| 3/29/2007 | 1057.5 | 7741.4 | | | | |
| 4/25/2007 | 1058.1 | 7740.8 | | | | |
| 5/29/2007 | 1057.8 | 7741.1 | | | | |
| 6/25/2007 | not measured | | | | | |
| 7/30/2007 | not measured | | | | | |
| 6/16/2008 | 1057.7 | 7741.2 | | | | |
| 8/26/2008 | 1058.2 | 7740.7 | | | | |
| 10/29/2008 | 1058.4 | 7740.5 | | | | |
| 6/23/2010 | 1058.5 | 7740.4 | | | | |
| 12/1/2010 | 1055.9 | 7743.0 | | | | |
| 6/26/2016 | Dry | | | | | |
| 10/20/2016 | Dry | | | | | |
| 6/29/2017 | Dry | | | | | |
| 12/11/2017 | Dry | | | | | |
| 6/8/2018 | Dry | | | | | |
| 9/22/2018 | Dry | | | | | |

# Coal Energy Group 3, LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

## CR-06-09-BLW

| | | | |
|---|---|---|---|
| DATUM : | Top of PVC completion string | | |
| DATUM ELEVATION: | | 8842.9 | |
| Screened Interval Depth: | | 1020 | 1040 |
| Screened Interval Elevation: | | 7822.9 | 7802.9 |
| Hiawatha Seam Interval Depth: | | 990 | 1001.5 |
| Hiawatha Seam Interval Elevation: | | 7852.9 | 7841.4 |

| Date | Static Water Level Depth from DATUM (ft) | Static Water Level Elevation (ft) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| | Water appeared durring drilling at ~760 feet. | | | | | |
| | After drilling deeper, appearant wl was ~800 feet. | | | | | |
| Durring geophysical logging wl was 935 feet. | | | | | | |
| 8/18/2006 | 989.5 | 7853.4 | - | - | - | - |
| 9/7/2006 | 990.5 | 7852.4 | | | | |
| 10/30/2006 | 990.8 | 7852.1 | | | | |
| 11/27/2006 | not measured | | | | | |
| 12/26/2006 | 991.0 | 7851.9 | | | | |
| 1/31/2007 | 991.0 | 7851.9 | | | | |
| 2/19/2007 | 990.3 | 7852.6 | | | | |
| 3/29/2007 | 991.2 | 7851.7 | | | | |
| 4/25/2007 | 990.8 | 7852.1 | | | | |
| 5/29/2007 | 991.0 | 7851.9 | | | | |
| 6/25/2007 | not measured | | | | | |
| 7/30/2007 | not measured | | | | | |
| 6/16/2008 | 991.4 | 7851.5 | | | | |
| 8/26/2008 | 991.8 | 7851.1 | | | | |
| 10/29/2008 | 992.2 | 7850.7 | | | | |
| 6/23/2010 | 992.3 | 7850.6 | | | | |
| 12/1/2010 | 991.8 | 7851.1 | | | | |
| 6/26/2016 | not measured | | | | | |
| 10/20/2016 | not measured | | | | | |
| 6/29/2017 | not measured | | | | | |
| 12/11/2017 | not measured | | | | | |
| 6/8/2018 | not measured | | | | | |
| 9/22/2018 | not measured | | | | | |

# Coal Energy Group 3, LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

## CR-06-09

| | | | |
|---|---|---|---|
| DATUM : | Top of PVC completion string | | |
| DATUM ELEVATION: | | 8,843.30 | |
| Screened Interval Depth: | | 989.5 | 1001.5 |
| Screened Interval Elevation: | | 7853.8 | 7841.8 |
| Hiawatha Seam Interval Depth: | | 992.2 | >1002 |
| Hiawatha Seam Interval Elevation: | | 7851.1 | <7840.4 |

| Date | Static Water Level Depth from DATUM (ft) | Static Water Level Elevation (ft) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| | Water encountered durring drilling at ~ 380 feet. Higher flow of water durring drilling at ~450 feet. | | | | | |
| 9/7/2006 | 982.0 | 7861.3 | | | | |
| 10/30/2006 | 984.1 | 7859.2 | | | | |
| 11/27/2006 | not measured | | | | | |
| 12/26/2006 | 982.4 | 7860.9 | | | | |
| 1/31/2007 | 983.1 | 7860.2 | | | | |
| 2/19/2007 | 983.3 | 7860.0 | | | | |
| 3/29/2007 | 982.8 | 7860.5 | | | | |
| 4/25/2007 | 982.9 | 7860.4 | | | | |
| 5/29/2007 | 982.6 | 7860.7 | | | | |
| 6/25/2007 | not measured | | | | | |
| 7/30/2007 | not measured | | | | | |
| 6/16/2008 | 982.1 | 7861.2 | | | | |
| 8/26/2008 | 982.8 | 7860.5 | | | | |
| 10/29/2008 | 983.2 | 7860.1 | | | | |
| 6/23/2010 | 983.1 | 7859.8 | | | | |
| 6/26/25016 | not measured | | | | | |
| 6/20/2016 | not measured | | | | | |
| 6/29/2017 | not measured | | | | | |
| 12/11/2017 | not measured | | | | | |
| 6/8/2018 | not measured | | | | | |
| 9/22/2018 | not measured | | | | | |

# Coal Energy Group 3, LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

## CR-06-09-ABV

| | | | |
|---|---|---|---|
| DATUM : | Top PVC of completion string | | |
| DATUM ELEVATION: | | 8843.3 | |
| Screened Interval Depth: | | 888 | 898 |
| Screened Interval Elevation: | | 7955.3 | 7945.3 |
| Hiawatha Seam Interval Depth: | | 992.2 | >1002 |
| Hiawatha Seam Interval Elevation: | | 7851.1 | <7840.4 |

| Date | Static Water Level Depth from DATUM (ft) | Static Water Level Elevation (ft) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| 9/7/2006 | Not developed - WL 3 days after instalation = 861.3 | | | | | |
| 10/30/2006 | 863.1 | 7980.2 | | | | |
| 11/27/2006 | not measured | | | | | |
| 12/26/2006 | 863.9 | 7979.4 | | | | |
| 1/31/2007 | 864.5 | 7978.8 | | | | |
| 2/19/2007 | 864.1 | 7979.2 | | | | |
| 3/29/2007 | 864.7 | 7978.6 | | | | |
| 4/25/2007 | 866.1 | 7977.2 | | | | |
| 5/29/2007 | 866.1 | 7977.2 | | | | |
| 6/25/2007 | not measured | | | | | |
| 7/30/2007 | not measured | | | | | |
| 6/16/2008 | 867.3 | 7976.0 | | | | |
| 8/26/2008 | 867.9 | 7975.4 | | | | |
| 10/29/2008 | 867.8 | 7975.5 | | | | |
| 6/23/2010 | 867.9 | 7975.0 | | | | |
| 12/1/2010 | 868.3 | 7974.6 | | | | |
| 6/24/2012 | 880.0 | 7962.9 | 9.4 | | 330 | |
| 6/26/2016 | not measured | | | | | |
| 10/20/2016 | not measured | | | | | |
| 6/29/2017 | not measured | | | | | |
| 12/1/2017 | not measured | | | | | |
| 6/8/2018 | not measured | | | | | |
| 9/22/2018 | not measured | | | | | |

# Coal Energy Group 3, LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

## CR-10-11

| | | | |
|---|---|---|---|
| DATUM : | Top 10" Steel Casing | | |
| DATUM ELEVATION: | | 7656.67 | |
| Screened Interval Depth: | | 60.1 | 70.1 |
| Screened Interval Elevation: | | 8783.2 | 8773.2 |
| Hiawatha Seam Interval Depth: | | N/A | N/A |
| Hiawatha Seam Interval Elevation: | | N/A | N/A |

| Date | Static Water Level Depth from DATUM (ft) | Static Water Level Elevation (ft) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| 7/13/2010 | Hole is ARTESIAN. Cuttings DRY down to 20 ft. | | | | | |
| 7/14/2010 | Developed for ~ 12 hours | | | | | |
| 7/15/2010 | 10.4 | 7646.3 | 7.6 | | 250* | 11 |
| 9/28/2010 | 9.5 | 7647.2 | 7.57 | | 539 | 9.3 |
| 10/30/2010 | 8.7 | 7648.0 | 7.36 | | 730 | 8 |
| 11/30/2010 | 8.5 | 7648.2 | 6.32 | | 540 | 6.32 |
| 12/29/2010 | 7.7 | 7649.0 | 6.34 | | 546 | 7.5 |
| 1/22/2011 | 7.8 | 7648.9 | 6.56 | | 553 | 7.5 |
| 2/24/2011 | 8.2 | 7648.5 | 6.55 | | 539 | 8 |
| 3/21/2011 | 7.9 | 7648.8 | 6.48 | | 539 | 8.9 |
| 4/29/2011 | 6.7 | 7650.0 | 6.48 | | 551 | 8 |
| 3/28/2012 | | | 8.7 | | 560 | 7.5 |
| 6/24/2012 | | | 9.9 | | 470 | 7.5 |
| 9/3/2012 | | | 9.4 | | 550 | 7.7 |
| 11/4/2012 | | | 9.4 | | 510 | 7.8 |
| 3/28/2013 | | | 6.5 | | 520 | 6.8 |
| 6/16/2013 | | | 9 | | 480 | 7.4 |
| 9/22/2013 | | | 8.5 | | 540 | 7.9 |
| 12/13/2013 | | | 7.1 | | 530 | 8 |
| 3/30/2014 | | | 7.8 | | 680 | 7.7 |
| 6/15/2014 | | | 8.8 | | 540 | 7.4 |
| 6/29/2015 | | | 10 | | 520 | 7.4 |
| 9/28/2015 | | | 10 | | 430 | 7.4 |
| 6/26/2016 | 10.6 | | | | | |
| 10/20/2016 | 12.3 | | 7.2 | | 580 | 7.9 |
| 6/29/2017 | 8.2 | 7648.5 | 9.1 | | 500 | 7.5 |
| 11/30/2017 | | | 9.6 | | 490 | 7.4 |
| 12/11/2017 | 8.2 | | | | | |
| 6/9/2018 | 8.2 | | 8.4 | | 0.67 | 6.1 |
| 9/22/2018 | 10.6 | | 8.8 | | 660 | |

* Hardness from Colorometric Strips

# Coal Energy Group 3, LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

## CR-10-12

| | | | |
|---|---|---|---|
| DATUM : | Top of 10" Steel Casing | | |
| DATUM ELEVATION: | | 7703.83 | |
| Screened Interval Depth: | | 82.6 | 92.6 |
| Screened Interval Elevation: | | 82.6 | 92.6 |
| Hiawatha Seam Interval Depth: | | N/A | N/A |
| Hiawatha Seam Interval Elevation: | | N/A | N/A |

| Date | Static Water Level Depth from DATUM (ft) | Static Water Level Elevation (ft) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| 7/10/2010 | Hole is Artesian. First water detected during drilling ~90 ft. | | | | | |
| 7/12/2010 | @~15gpm for ~ 20 hours | | | | | |
| 7/14/2010 | 54.6 | 7649.2 | 7.8 | | 250* | 11 |
| 9/28/2010 | 53.0 | 7650.8 | 7.62 | | 588 | 8.9 |
| 10/30/2010 | 53.2 | 7650.6 | 7.6 | | 730 | 8 |
| 11/30/2010 | 52.5 | 7651.3 | 6.56 | | 518 | 7.3 |
| 12/29/2010 | 51.9 | 7652.0 | 6.58 | | 526 | 7.5 |
| 1/22/2011 | 51.9 | 7652.0 | 6.71 | | 534 | 6.71 |
| 2/24/2011 | 52.1 | 7651.7 | 7.84 | | 744 | 7.84 |
| 3/31/2011 | 52.3 | 7651.5 | 6.68 | | 520 | 9 |
| 4/29/2011 | 51.1 | 7652.7 | 6.55 | | 528 | 9 |
| 3/28/2012 | 30 | 7673.8 | 7.5 | | 550 | 9.3 |
| 6/24/2012 | 75 | 7628.8 | 7.4 | | 480 | 9.6 |
| 9/3/2012 | | | 7.7 | | 710 | 10.1 |
| 11/4/2012 | 53.5 | 7650.3 | 7.8 | | 520 | 8.8 |
| 3/28/2013 | | | 7.4 | | 720 | 7.4 |
| 6/16/2013 | 60 | 7643.8 | 7.7 | | 490 | 9.2 |
| 9/22/2013 | 60 | 7643.8 | 8.2 | | 500 | 8.8 |
| 12/13/2013 | 60 | 7643.8 | 8 | | 550 | 8 |
| 3/30/2014 | | | 7.8 | | 960 | 8.7 |
| 6/15/2014 | 60 | 7643.8 | 7.4 | | 610 | 9.2 |
| 6/29/2015 | 65 | 7638.8 | 7.3 | | 540 | 9.3 |
| 9/28/2015 | 56 | 7647.8 | 7.3 | | 560 | |
| 6/26/2016 | 55.5 | 7648.3 | | | | |
| 10/20/2016 | 56.3 | 7647.5 | 8.6 | | 580 | 8.2 |
| 6/29/2017 | 52.8 | 7651.1 | 6.5 | | 510 | 9.2 |
| 11/30/2017 | 45 | 7658.8 | 6 | | 530 | 8.3 |
| 12/11/2017 | 52.78 | 7651.1 | | | | |
| 6/9/2018 | 52.8 | 7651.1 | 5.8 | | 650 | 9.8 |
| 9/22/2018 | 53.1 | 7650.7 | 6.2 | | 464 | 8.9 |

* Hardness from Colorometric Strips

# Coal Energy Group 3, LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

## WRN-2012-5

| | | | |
|---|---|---|---|
| DATUM : | Top of 10" Steel Casing | | |
| DATUM ELEVATION: | | 8465.96 | |
| Screened Interval Depth: | | 640 | 650 |
| Screened Interval Elevation: | | 7825.96 | 7815.96 |
| Hiawatha Seam Interval Depth: | | N/A | N/A |
| Hiawatha Seam Interval Elevation: | | N/A | N/A |

| Date | Static Water Level Depth from DATUM (ft) | Static Water Level Elevation (ft) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| 9/15/2013 | | | 8.3 | | 990 | 8.4 |
| 6/29/2015 | 530 | 7936.0 | 8.2 | | 1150 | 8.8 |
| 9/28/2015 | 522.0 | 7944.0 | 7.7 | | 1030 | 8.9 |
| 6/26/2016 | 522.0 | 7944.0 | | | | |
| 10/20/2016 | 523.0 | | | | | |
| 10/20/2017 | 550.0 | 7916.0 | 8.4 | | 990 | 8.2 |
| 6/29/2017 | 524.0 | 7942.0 | 6.2 | | 950 | 9 |
| 12/10/2017 | 524.0 | 7942.0 | 6.4 | | 670 | 7.1 |
| 6/8/2018 | 524.0 | 7942.0 | 6.5 | | 6.4 | 12.8 |
| 8/25/2018 | 524.2 | 7941.8 | 8.8 | | 890 | 9.6 |

* Suspect Values

# Coal Energy Group 3, LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

## WNR-2012-7

| | | | |
|---|---|---|---|
| DATUM : | Top of 10" Steel Casing | | |
| DATUM ELEVATION: | | 8235.02 | |
| Screened Interval Depth: | | 582.5 | 592.5 |
| Screened Interval Elevation: | | 7883.46 | 7873.46 |
| Hiawatha Seam Interval Depth: | | N/A | N/A |
| Hiawatha Seam Interval Elevation: | | N/A | N/A |

| Date | Static Water Level Depth from DATUM (ft) | Static Water Level Elevation (ft) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| 9/15/2013 | Dry | | | | | |
| 6/29/2015 | Dry | | | | | |
| 9/28/2015 | Dry | | | | | |
| 6/26/2016 | Dry | | | | | |
| 10/20/2016 | Dry | | | | | |
| 10/20/2017 | Dry | | | | | |
| 6/29/2017 | Dry | | | | | |
| 12/10/2017 | Dry | | | | | |
| 6/8/2018 | Dry | | | | | |
| 8/25/2018 | Dry | | | | | |

# Coal Energy Group 3, LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

## WNR-2012-7- BLW

| | | | |
|---|---|---|---|
| DATUM : | Top of 10" Steel Casing | | |
| DATUM ELEVATION: | | 8235.02 | |
| Screened Interval Depth: | | 505 | 515 |
| Screened Interval Elevation: | | 7960.96 | 7950.96 |
| Hiawatha Seam Interval Depth: | | N/A | N/A |
| Hiawatha Seam Interval Elevation: | | N/A | N/A |

| Date | Static Water Level Depth from DATUM (ft) | Static Water Level Elevation (ft) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| 9/15/2013 | Dry | | | | | |
| 6/29/2015 | Dry | | | | | |
| 9/28/2015 | Dry | | | | | |
| 6/26/2016 | Dry | | | | | |
| 10/20/2016 | Dry | | | | | |
| 10/20/2017 | Dry | | | | | |
| 6/29/2017 | Dry | | | | | |
| 12/10/2017 | Dry | | | | | |
| 6/8/2018 | Dry | | | | | |
| 8/25/2018 | Dry | | | | | |

# Coal Energy Group 3, LLC

Kinney II Baseline Water Sampling

Ground Water Field Measurements

## WNR-2012-8

| | | | |
|---|---|---|---|
| DATUM : | Top of 10" Steel Casing | | |
| DATUM ELEVATION: | | 8885.86 | |
| Screened Interval Depth: | | 975 | 985 |
| Screened Interval Elevation: | | 7910.86 | 7900.86 |
| Hiawatha Seam Interval Depth: | | 608.7 | 620 |
| Hiawatha Seam Interval Elevation: | | 8277.16 | 8265.86 |

| Date | Static Water Level Depth from DATUM (ft) | Static Water Level Elevation (ft) | pH | Dissolved Oxygen (ppm) | Specific Conductivity (Us) | Temp ( C ) |
|---|---|---|---|---|---|---|
| 9/15/2013 | | | 8.7 | | 680 | 9 |
| 6/29/2015 | 890.0 | 7995.9 | 8.2 | | 490 | 8.5 |
| 9/28/2015 | 872.0 | 8013.9 | 8.1 | | 470 | 9.7 |
| 6/26/2016 | 872.0 | 8013.9 | | | | |
| 10/20/2016 | 873.0 | 8012.9 | 8.8 | | 500 | 8.4 |
| 6/29/2017 | 874.0 | 8011.9 | 5.9 | | 430 | 8.5 |
| 12/10/2017 | 873.0 | 8012.9 | 6.2 | | 670 | 6.8 |
| 6/8/2018 | 873.0 | 8012.9 | 6.5 | | 0.68 | 11.9 |
| 8/25/2018 | 873.0 | 8012.9 | 6.7 | | 680 | 12.8 |

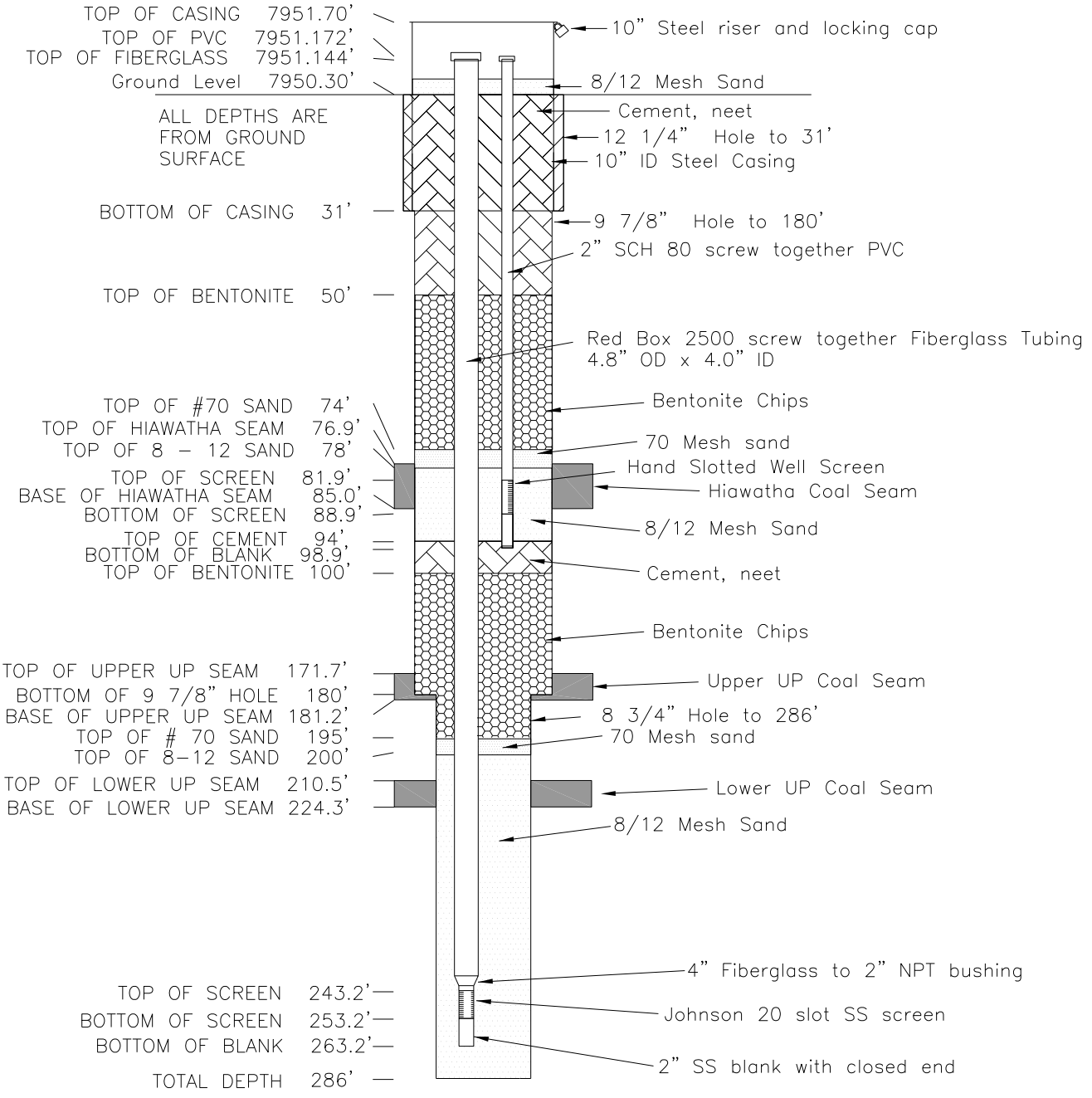
* Suspect Values

# Exhibit 11

# Monitoring Well Completion Details

# Monitor Well Completion Diagram
# CR-06-01 AND CR-06-01-BLW

NOT TO SCALE




8000 ft Elevation Datum
E. 1739299.757
N. 7073837.862
Gounnd Surface, ELEV. 7950'

REVISED: FEB, 2011

Carbon Resources LLC
Monitor Well Completion Diagram
CR-06-01 AND CR-06-01-BLW

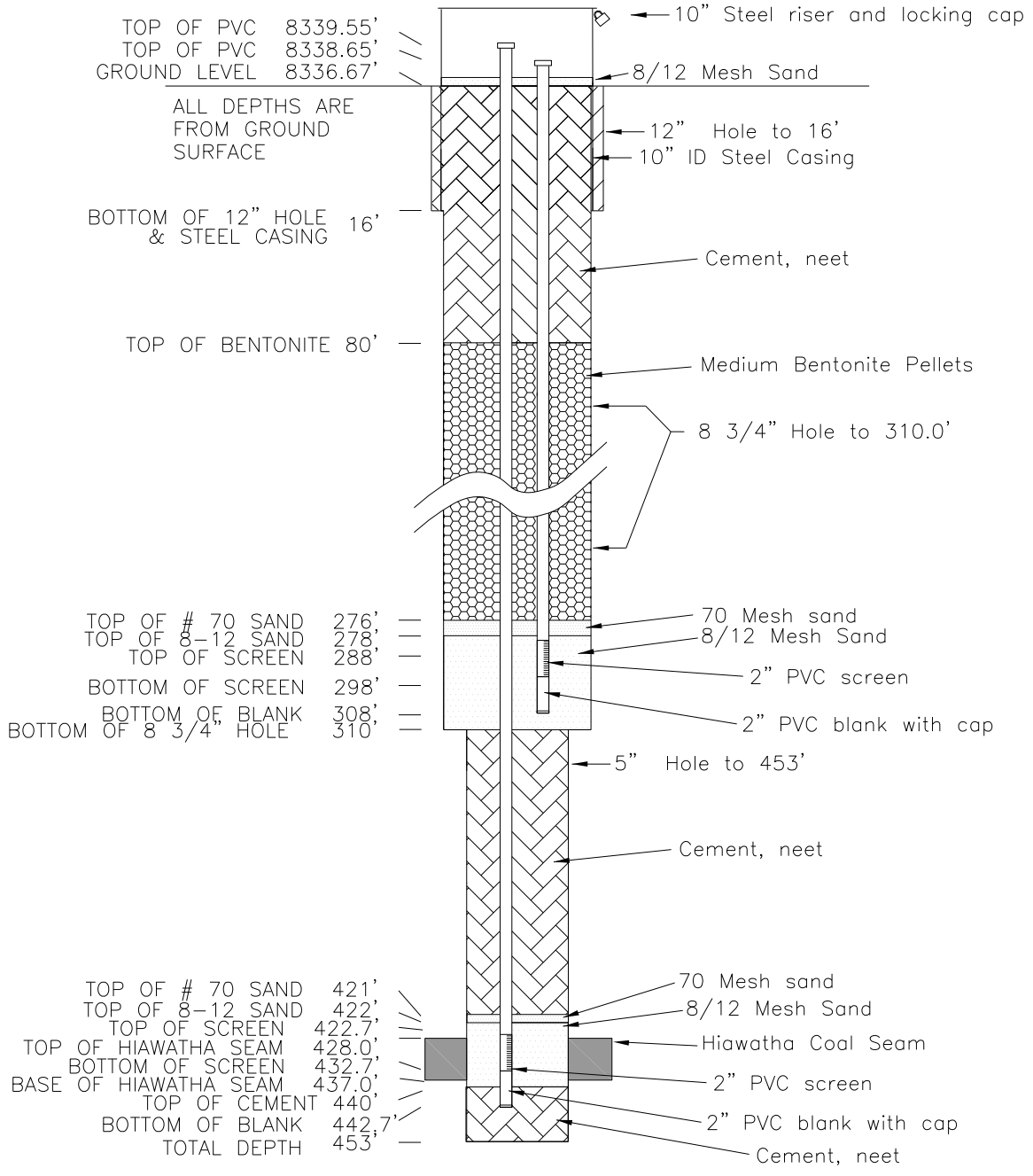
| | | |
|---|---|---|
| DWG | BWL | |
| CKD | | |
| APD | | |

DATE: 3/25/06

Drawing Loc: Drilling Phase 1\Completion Diagrams\CR-06-01 AS BUILT.dwg

# Monitor Well Completion Diagram
# CR-06-02 AND CR-06-02-ABV

NOT TO SCALE




8000 ft Elevation Datum
E. 1739673.995
N. 7072672.439
Gounnd Surface, ELEV. 8337'

REVISED: March 2011

Carbon Resources LLC
Monitor Well Completion Diagram
CR-06-02 AND CR-06-02-ABV

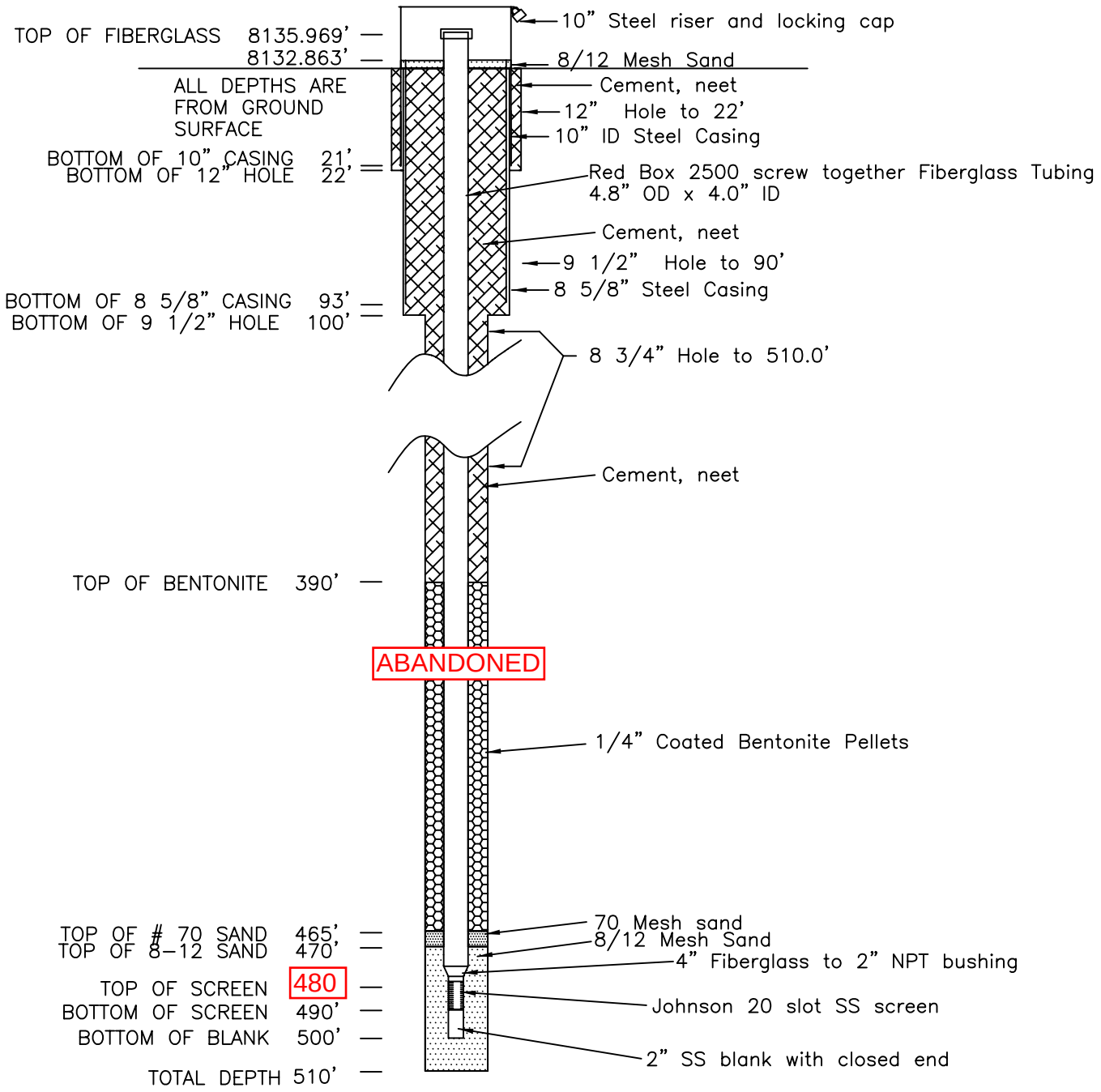
| | | |
|---|---|---|
| DWG | BWL | |
| CKD | | |
| APD | | |

DATE: 3/25/06

Drawing Loc: Drilling Phase 1\Completion Diagrams\CR-06-02 AS BUILT.dwg

# Monitor Well Completion Diagram
# CR-06-03-ABV

NOT TO SCALE




8000 ft Elevation Datum
E. 1742345.531
N. 7076325.902
Gounnd Surface, ELEV. 8132

**Carbon Resources LLC**
**Monitor Well Completion Diagram**
**CR-06-03-ABV**

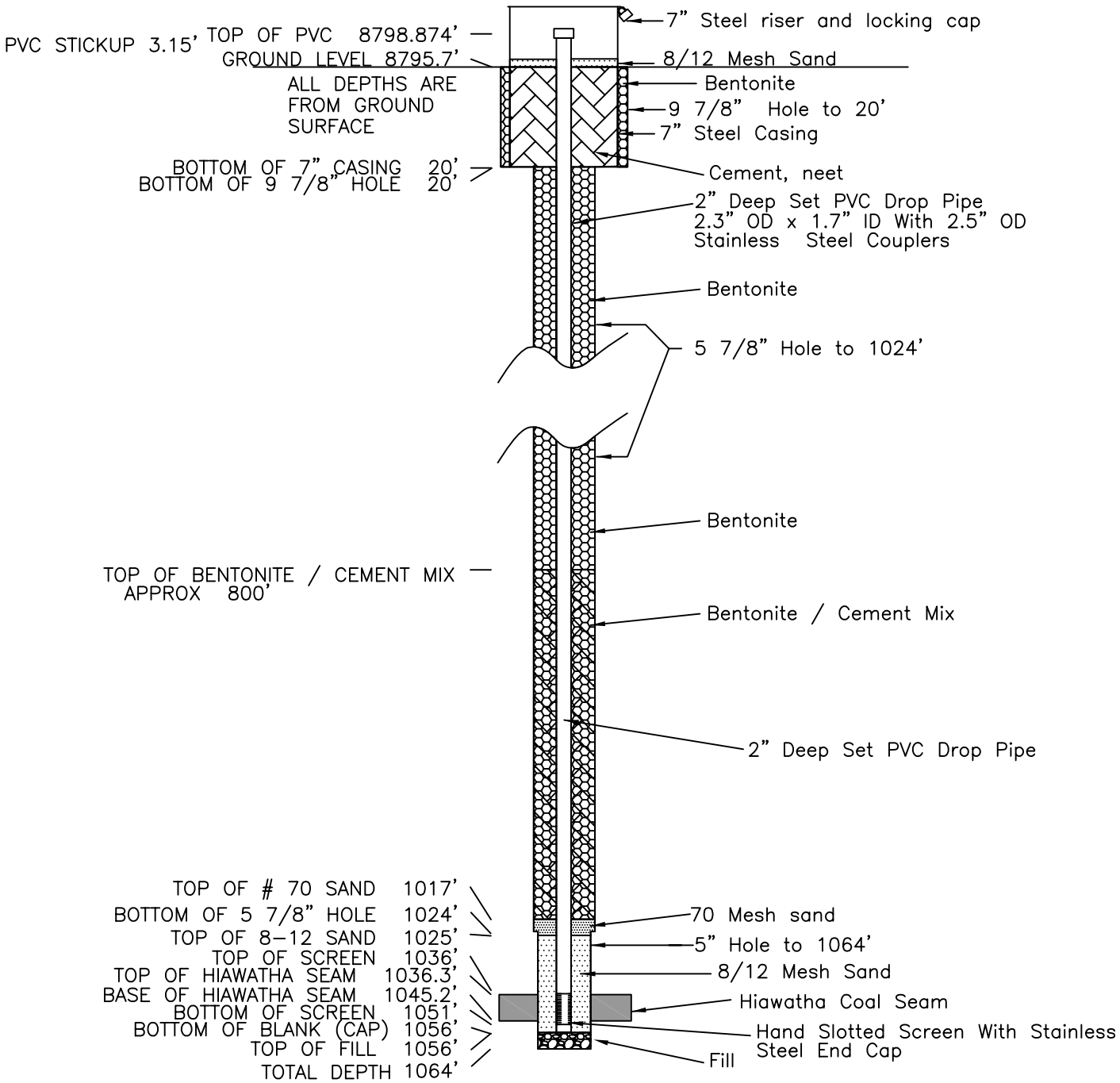
| | | |
|---|---|---|
| DWG | BWL | |
| CKD | | |
| APD | | |

DATE: 3/25/06

Drawing Loc: Drilling Phase 1\Completion Diagrams\CR-06-03-ABV AS BUILT.dwg

# Monitor Well Completion Diagram
# CR–06–05–A

NOT TO SCALE




8000 ft Elevation Datum
E. 1740939.20397
N. 7069330.51296
Gounnd Surface, ELEV. 8795.7'

**Carbon Resources LLC**
**Monitor Well Completion Diagram**
**CR–06–05–A**

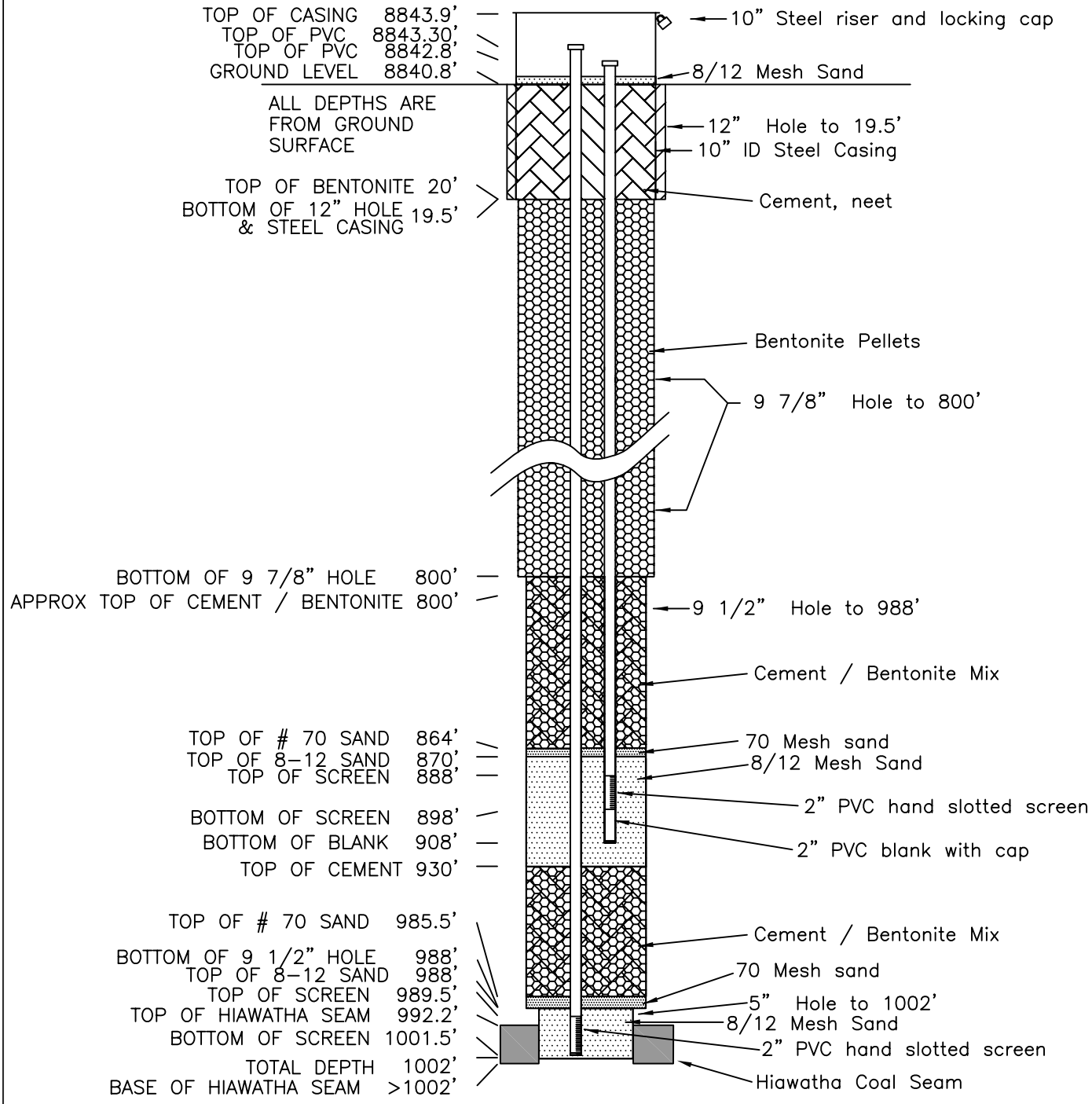
| | | |
|---|---|---|
| DWG | BWL | |
| CKD | | |
| APD | | |

DATE: 12/18/06

\Completion Diagrams\CR–06–05–A AS BUILT.dwg

# Monitor Well Completion Diagram
# CR-06-09 AND CR-06-09-ABV

NOT TO SCALE




E. 1743857.5
N. 7073380.8
Gounnd Surface, ELEV. 8841'

**Carbon Resources LLC**
**Monitor Well Completion Diagram**
**CR-06-09 AND CR-06-09-ABV**

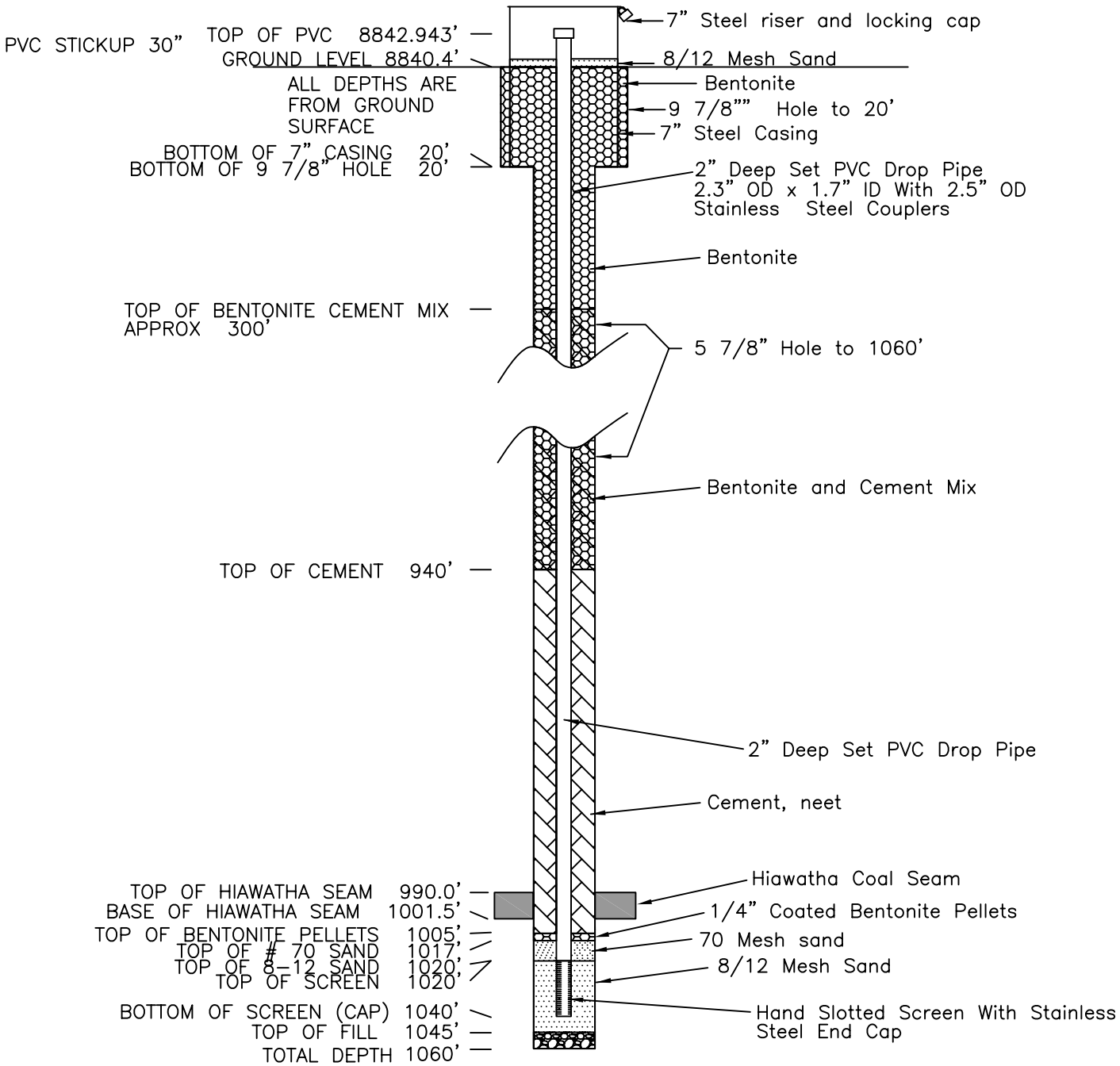
| | | |
|---|---|---|
| DWG | BWL | |
| CKD | | |
| APD | | |

DATE: 12/18/06

Drawing Loc: Drilling Phase 1\Completion Diagrams\CR-06-09 AS BUILT.dwg

# Monitor Well Completion Diagram
# CR–06–09–BLW

NOT TO SCALE




8000 ft Elevation Datum
E. 1743808.008
N. 7073416.824
Gounnd Surface, ELEV. 8840.4

**Carbon Resources LLC**
**Monitor Well Completion Diagram**
**CR–06–09–BLW**

| | | |
|---|---|---|
| DWG | BWL | |
| CKD | | |
| APD | | |

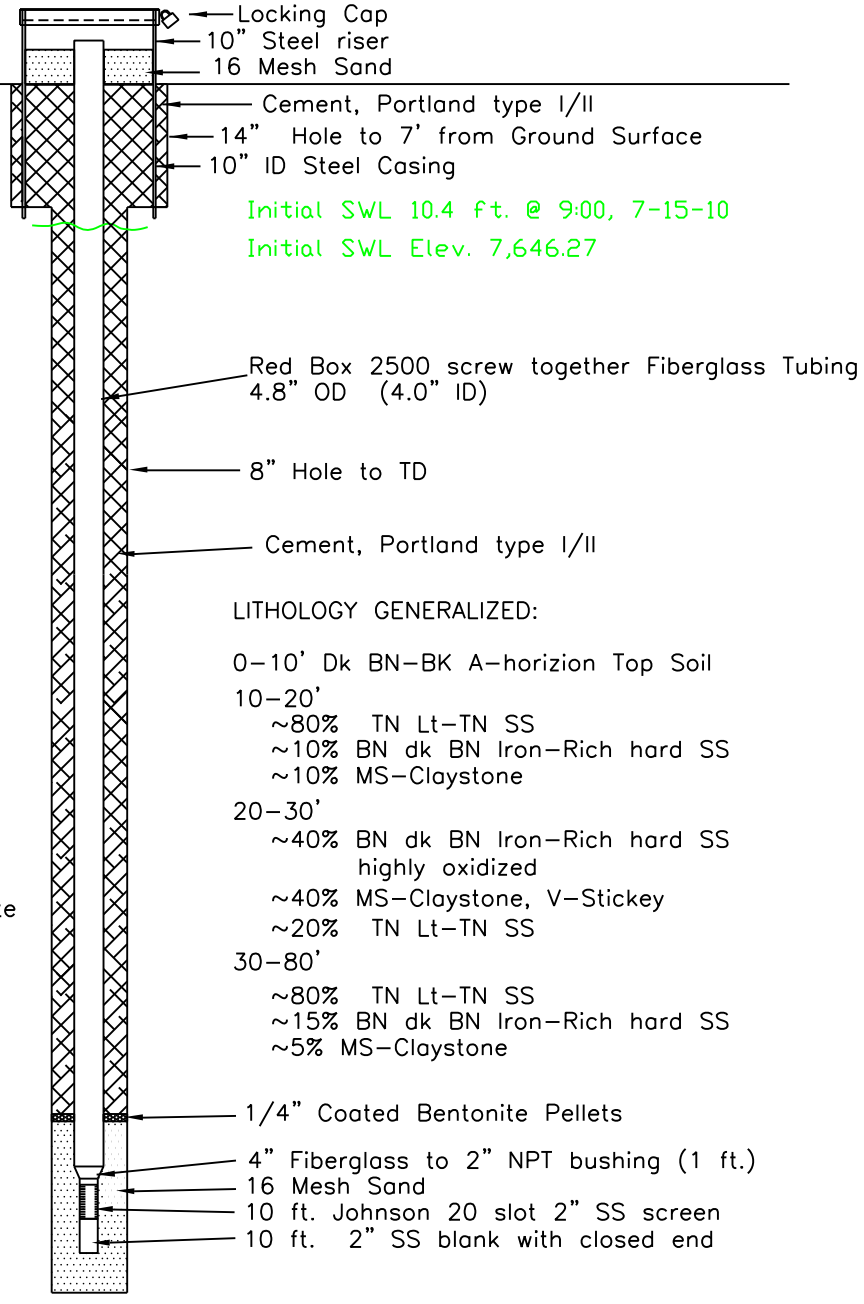
DATE: 9/8/06

\Completion Diagrams\CR–06–09–BLW AS BUILT.dwg

# Monitor Well Completion Diagram

## CR-10-11

NOT TO SCALE




DRILLING PROCESS GENERALIZED:

Medium=air/foam 0-30 ft.
Bentonite Mud 30-83 ft.
Relatively easy drilling, to TD

DRY 0-20 ft.

Damp @ 20 ft.

Switched medium to Mud, made it hard to tell when in water zone.
Viscosity decreased over 2 hrs while circulating mud at 81 ft.; an indication of formation water.

Measured flow by air jetting from 39 ft. @ ~2.3 gpm

Completion Materials;
3, 92.6 lb bags type I/II portland
6, 100lb. bags 16 mesh frac sand
~ 0.5 gallons of 1/4" coated bentonite
19, 92.6 lb bags type I/II portland

LITHOLOGY GENERALIZED:

0-10' Dk BN-BK A-horizion Top Soil
10-20'
~80% TN Lt-TN SS
~10% BN dk BN Iron-Rich hard SS
~10% MS-Claystone
20-30'
~40% BN dk BN Iron-Rich hard SS highly oxidized
~40% MS-Claystone, V-Stickey
~20% TN Lt-TN SS
30-80'
~80% TN Lt-TN SS
~15% BN dk BN Iron-Rich hard SS
~5% MS-Claystone

8000 ft (Local Elevation Convention)
E. 75,936.75
N. 38,622.95
APPROX. Ground Surface, ELEV. 7,655.4

This Survey is in Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Drawing Loc:CR-Kinney\2010 Drilling\CR-10-11

Carbon Resources LLC

CR-10-11

Ground Water Monitor Well

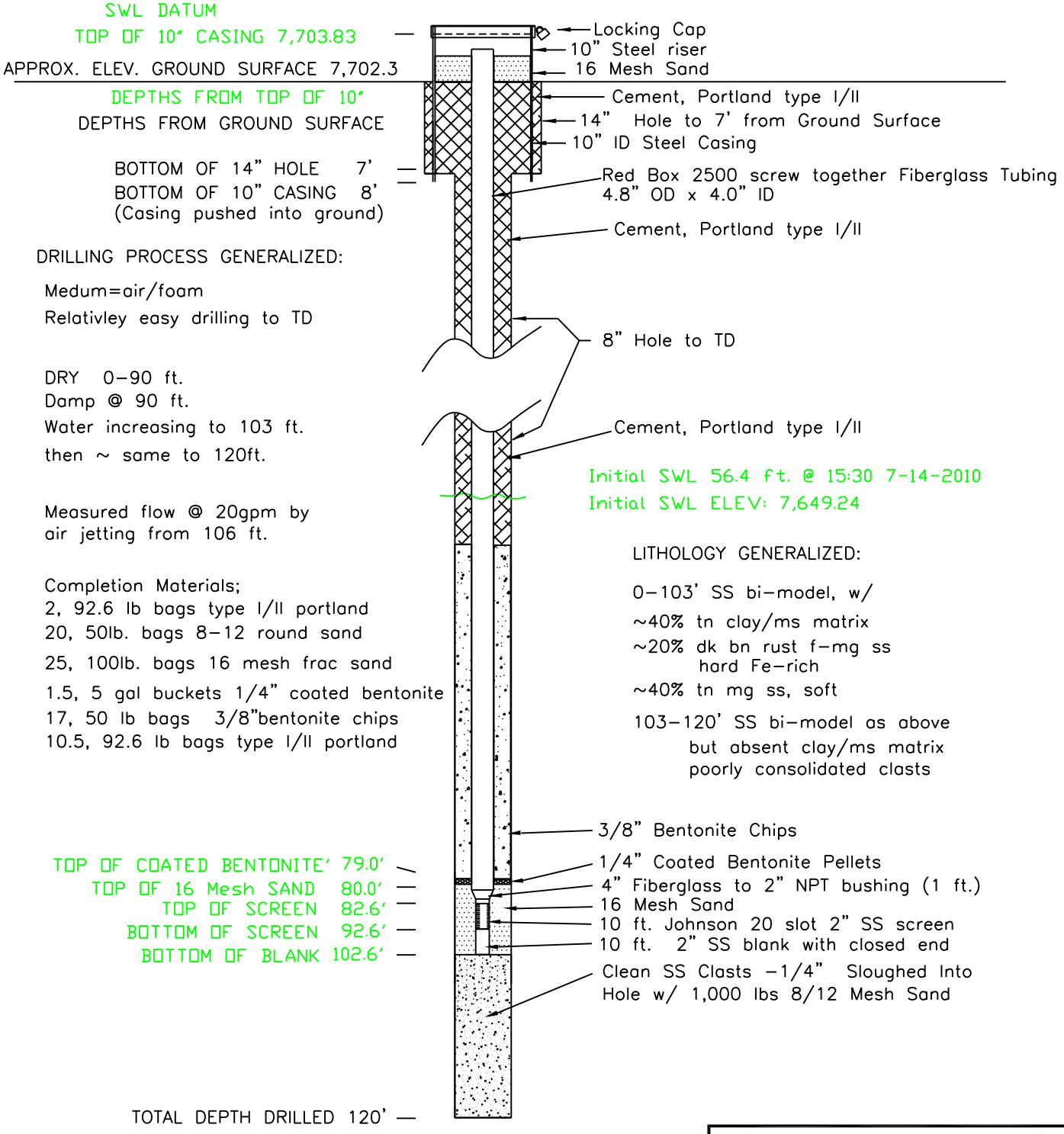
| | |
|---|---|
| DWG | GLH |
| CKD | |
| APD | |

DATE: 7-16-10

# Monitor Well Completion Diagram

## CR-10-12

NOT TO SCALE




DRILLING PROCESS GENERALIZED:

Medum=air/foam

Relativley easy drilling to TD

DRY 0-90 ft.
Damp @ 90 ft.
Water increasing to 103 ft.
then ~ same to 120ft.

Measured flow @ 20gpm by
air jetting from 106 ft.

Completion Materials;
2, 92.6 lb bags type I/II portland
20, 50lb. bags 8-12 round sand
25, 100lb. bags 16 mesh frac sand
1.5, 5 gal buckets 1/4" coated bentonite
17, 50 lb bags 3/8"bentonite chips
10.5, 92.6 lb bags type I/II portland

LITHOLOGY GENERALIZED:

0-103' SS bi-model, w/
~40% tn clay/ms matrix
~20% dk bn rust f-mg ss
hard Fe-rich
~40% tn mg ss, soft

103-120' SS bi-model as above
but absent clay/ms matrix
poorly consolidated clasts

8000 ft (Local Elevation Convention)
E. 74,418.27
N. 38,084.79
Approx. Ground Surface, ELEV. 7,702.3

Surveyed in the Kinney Coordinate System (KCS). It was projected from State Plane NAD83 to a vertical datum of 8,000 ft. using a Combined Factor (CF) of 1.0047927. To project back, add 7,000,000 to Northing and 1,700,000 to Easting, then divide by the CF.

Carbon Resources LLC

CR-10-12

Ground Water Monitor Well

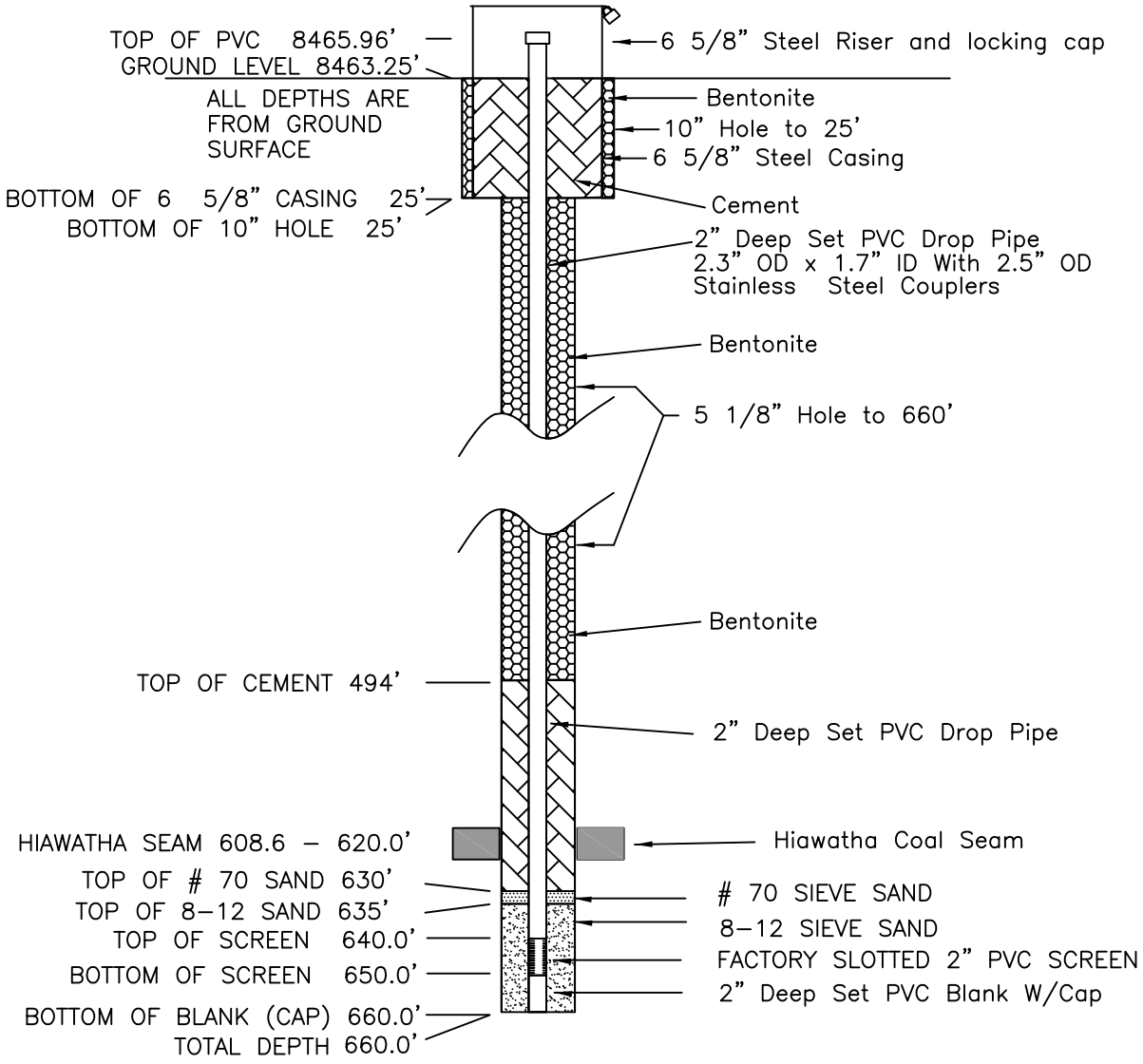
| | |
|---|---|
| DWG | GLH |
| CKD | |
| APD | |

DATE: 7-16-10

Drawing Location CR Kinney\Drilling2010

# Monitor Well Completion Diagram
# WNR 2012–05

NOT TO SCALE



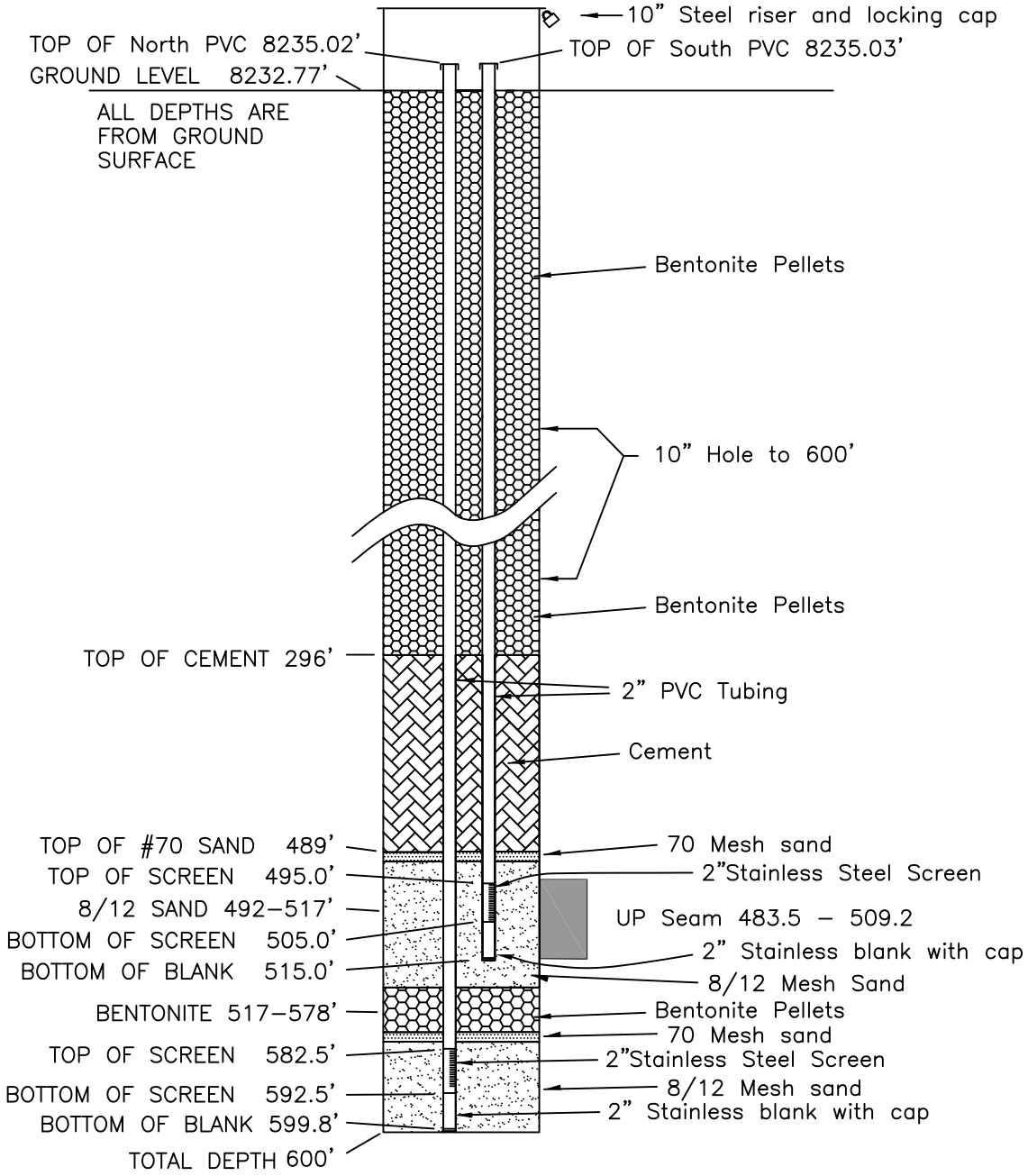

KCS Coordinates
E. 47,952.8
N. 76,552.2
Ground Surface, ELEV. 8463.25'

**Carbon Resources LLC**
**Monitor Well Completion Diagram**
**WNR 2012–05**

| | | |
|---|---|---|
| DWG | GLH | |
| CKD | | |
| APD | | |

# Monitor Well Completion Diagram
# WNR–12–07 & 12–07BLW (UP Seam)

NOT TO SCALE



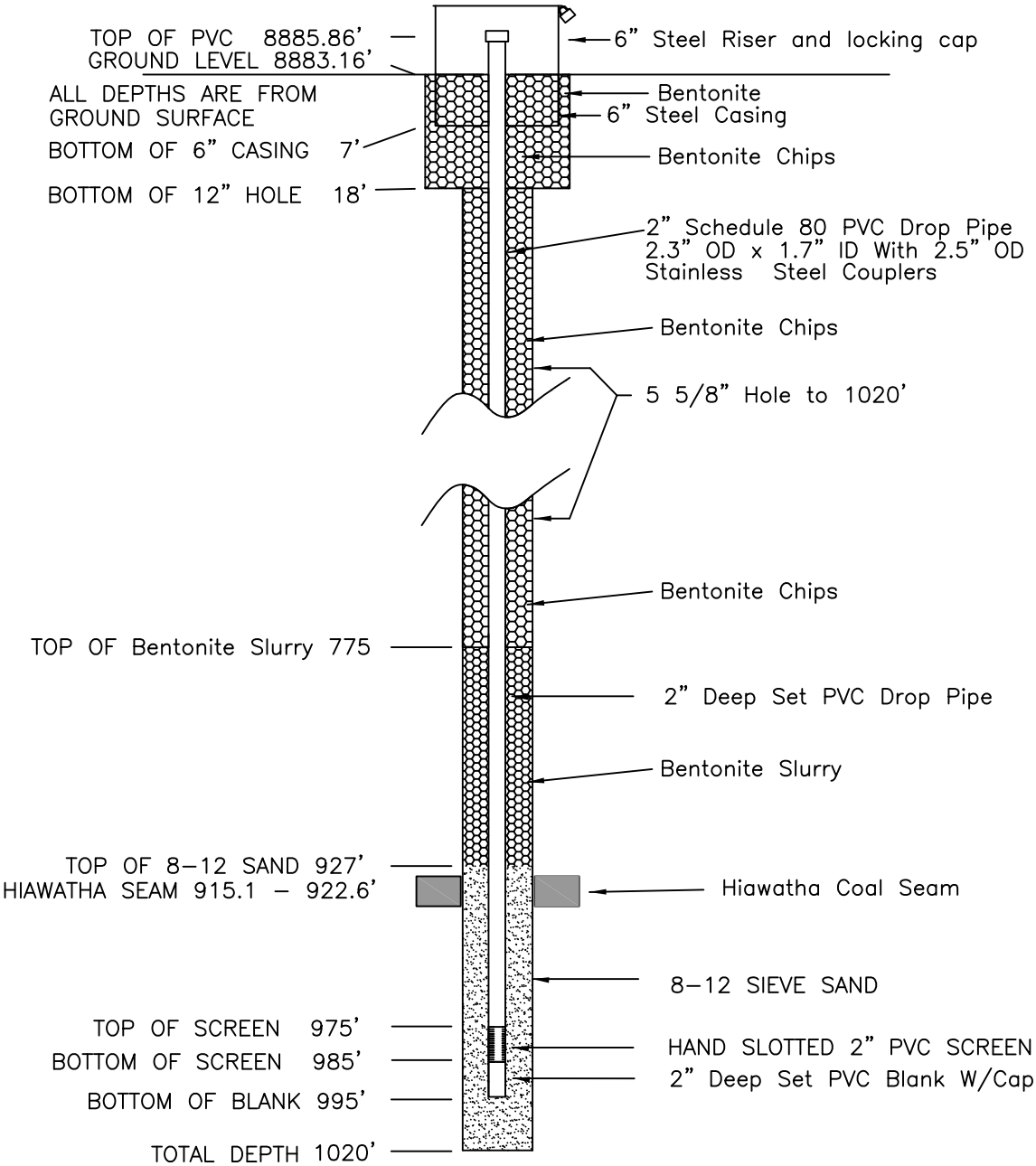

KCS Coordinates
E. 41,320.7
N. 70,132.5
Gounnd Surface, ELEV. 8232.77'

**Carbon Resources LLC**
**Monitor Well Completion Diagram**
**WNR 12–07 & 12–07 BLW**

| | | |
|---|---|---|
| DWG | GLH | |
| CKD | | |
| APD | | |

# Monitor Well Completion Diagram
# WNR 2012–08

NOT TO SCALE




KCS Coordinates
E. 52,664.8
N. 72,843.1
Ground Surface, ELEV. 8883.16'

**Carbon Resources LLC**
**Monitor Well Completion Diagram**
**WNR 2012–08**

| | | |
|---|---|---|
| DWG | GLH | |
| CKD | | |
| APD | | |

# EXHIBIT 12

# SURFACE AND GROUNDWATER QUALITY DATA (5-5-2009 Thru 8-31-2018)

## TWO PARTS

## AWAL Labs
## Organized Spreadsheet Printouts
## 52 Pages

## AWAL Labs
## Individual Analyses Sheet
## 1,085 Pages

## Carbon Resources Kinney # 2 Mine
## 1-10-2010

## Additional Baseline
## Oct. 2010 - Nov. 2018

# EXHIBIT 12

# SURFACE AND GROUNDWATER QUALITY DATA
# (5-5-2009 Thru 8-31-2010)

## AWAL Labs
## Organized Spreadsheet Printouts
## 52 Pages

## Carbon Resources Kinney # 2 Mine

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Angle Spring | L67580-03B | 9/6/2005 | | 9/9/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Angle Spring | L67580-03B | 9/6/2005 | | 9/8/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L67580-03F | 9/6/2005 | 9/7/2005 | 9/8/2005 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L67580-03B | 9/6/2005 | | 9/8/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 96 | 10 | mg/L | | ICP-W-DIS |
| Angle Spring | L67580-03B | 9/6/2005 | | 9/8/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L67580-03B | 9/6/2005 | | 9/13/2005 | Aqueous | Chloride | 16887-00-6 | 10 | 21 | 10 | mg/L | | 300.0-W |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 310 | 10 | mg/L | | HARD |
| Angle Spring | L67580-03C | 9/6/2005 | 9/8/2005 | 9/13/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 17 | 10 | mg/L | | ICP-W-DIS |
| Angle Spring | L67580-03C | 9/6/2005 | 9/8/2005 | 9/15/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L67580-03B | 9/6/2005 | | 8/7/2005 | Aqueous | Nitrate (as N) | | 1 | 0.97 | 0.01 | mg/L | | NO3-W |
| Angle Spring | L67580-03B | 9/6/2005 | | 9/7/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Angle Spring | L67580-03E | 9/6/2005 | | 9/7/2005 | Aqueous | Oil & Grease | | 1 | 4.6 | 3 | mg/L | | OGB-W |
| Angle Spring | L67580-03B | 9/6/2005 | | 9/8/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.06 | mg/L | | PO4-O |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.4 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L67580-03A | 9/6/2005 | | 9/7/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.4 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L67580-03B | 9/6/2005 | | 9/13/2005 | Aqueous | Sulfate | 14808-79-8 | 10 | 15 | 10 | mg/L | | 300.0-W |
| Angle Spring | L67580-03A | 9/6/2005 | | 9/7/2005 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Angle Spring | L67580-03D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/2/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/1/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 320 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03F | 10/31/2005 | 11/7/2005 | 11/9/2005 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/1/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 320 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 5 | 94 | 5 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/1/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/9/2005 | Aqueous | Chloride | 16887-00-6 | 1 | 20 | 5 | mg/L | | CL-W-LAT |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 310 | 10 | mg/L | | HARD |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03C | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 18 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03C | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrate (as N) | | 1 | 0.99 | 0.01 | mg/L | | NO3-W |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Angle Spring | L68520-03E | 10/31/2005 | | 11/2/2005 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/1/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.5 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L68520-03A | 10/31/2005 | | 11/1/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 5 | 9.8 | 5 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/10/2005 | Aqueous | Sulfate | 14808-79-8 | 1 | 0 | 5 | mg/L | | SO4-W |
| Angle Spring | L68520-03A | 10/31/2005 | | 11/1/2005 | Aqueous | TDS | | 1 | 350 | 10 | mg/L | | TDS-W |
| Angle Spring | L68520-03A | 10/31/2005 | | 11/1/2005 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.058 | 0.01 | mg/L | | 6020-W-DISS |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/2/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/1/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 320 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03F | 10/31/2005 | 11/7/2005 | 11/9/2005 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/1/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 320 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 5 | 94 | 5 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/1/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/9/2005 | Aqueous | Chloride | 16887-00-6 | 1 | 20 | 5 | mg/L | | CL-W-LAT |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 310 | 10 | mg/L | | HARD |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03C | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 18 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03C | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrate (as N) | | 1 | 0.99 | 0.01 | mg/L | | NO3-W |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Angle Spring | L68520-03E | 10/31/2005 | | 11/2/2005 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/1/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.5 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Angle Spring | L68520-03A | 10/31/2005 | | 11/1/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 5 | 9.8 | 5 | mg/L | | ICP-W-DIS |
| Angle Spring | L68520-03B | 10/31/2005 | | 11/10/2005 | Aqueous | Sulfate | 14808-79-8 | 1 | 0 | 5 | mg/L | | SO4-W |
| Angle Spring | L68520-03A | 10/31/2005 | | 11/1/2005 | Aqueous | TDS | | 1 | 350 | 10 | mg/L | | TDS-W |
| Angle Spring | L68520-03A | 10/31/2005 | | 11/1/2005 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Angle Spring | L68520-03D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.058 | 0.01 | mg/L | | 6020-W-DISS |
| Angle Spring | L68977-04C | 11/28/2005 | | 12/1/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Angle Spring | L68977-04C | 11/28/2005 | | 11/29/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L68977-04F | 11/28/2005 | 12/6/2005 | 12/7/2005 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L68977-04C | 11/28/2005 | | 11/29/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 5 | 100 | 5 | mg/L | | ICP-W-DIS |
| Angle Spring | L68977-04C | 11/28/2005 | | 11/29/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L68977-04C | 11/28/2005 | | 12/3/2005 | Aqueous | Chloride | 16887-00-6 | 10 | 22 | 10 | mg/L | | 300.0-W |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 340 | 10 | mg/L | | HARD |
| Angle Spring | L68977-04E | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 18 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L68977-04E | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L68977-04C | 11/28/2005 | | 11/29/2005 | Aqueous | Nitrate (as N) | | 1 | 0.96 | 0.01 | mg/L | | NO3-W |
| Angle Spring | L68977-04C | 11/28/2005 | | 11/29/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Angle Spring | L68977-04G | 11/28/2005 | | 11/30/2005 | Aqueous | Oil & Grease | | 1 | 3.7 | 3 | mg/L | | OGB-W |
| Angle Spring | L68977-04C | 11/28/2005 | | 11/29/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.0 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L68977-04A | 11/28/2005 | | 11/29/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 5 | 10 | 5 | mg/L | | ICP-W-DIS |
| Angle Spring | L68977-04C | 11/28/2005 | | 12/3/2005 | Aqueous | Sulfate | 14808-79-8 | 10 | 16 | 10 | mg/L | | 300.0-W |
| Angle Spring | L68977-04B | 11/28/2005 | | 12/2/2005 | Aqueous | TDS | | 1 | 290 | 10 | mg/L | | TDS-W |
| Angle Spring | L68977-04A | 11/28/2005 | | 11/29/2005 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Angle Spring | L68977-04D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.024 | 0.01 | mg/L | | 6020-W-DISS |
| Angle Spring | L69428-04B | 12/22/2005 | | 12/23/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Angle Spring | L69428-04B | 12/22/2005 | | 12/23/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 310 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L69428-04E | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 2 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L69428-04B | 12/22/2005 | | 12/23/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 310 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 2 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 100 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L69428-04B | 12/22/2005 | | 12/23/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L69428-04B | 12/22/2005 | | 12/28/2005 | Aqueous | Chloride | 16887-00-6 | 10 | 22 | 10 | mg/L | | 300.0-W |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 2 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 330 | 10 | mg/L | | HARD |
| Angle Spring | L69428-04D | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 2 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 19 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L69428-04D | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 2 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L69428-04B | 12/22/2005 | | 12/23/2005 | Aqueous | Nitrate (as N) | | 1 | 0.98 | 0.01 | mg/L | | NO3-W |
| Angle Spring | L69428-04B | 12/22/2005 | | 12/23/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Angle Spring | L69428-04F | 12/22/2005 | | 12/28/2005 | Aqueous | Oil & Grease | | 1 | 3.4 | 3 | mg/L | | OGB-W |
| Angle Spring | L69428-04B | 12/22/2005 | | 12/23/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.4 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 2 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L69428-04A | 12/22/2005 | | 12/23/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.8 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L69428-04B | 12/22/2005 | | 12/28/2005 | Aqueous | Sulfate | 14808-79-8 | 10 | 15 | 10 | mg/L | | 300.0-W |
| Angle Spring | L69428-04A | 12/22/2005 | | 12/23/2005 | Aqueous | TDS | | 1 | 400 | 10 | mg/L | | TDS-W |
| Angle Spring | L69428-04A | 12/22/2005 | | 12/23/2005 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Angle Spring | L69428-04C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 2 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Angle Spring | L69847-01B | 1/22/2006 | | 1/24/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Angle Spring | L69847-01B | 1/22/2006 | | 1/24/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L69847-01F | 1/22/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L69847-01C | 1/22/2006 | 1/31/2006 | 2/1/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Angle Spring | L69847-01F | 1/22/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L69847-01B | 1/22/2006 | | 1/24/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L69847-01F | 1/22/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Angle Spring | L69847-01F | 1/22/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0.088 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L69847-01F | 1/22/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 100 | 10 | mg/L | | ICP-W-DIS |
| Angle Spring | L69847-01B | 1/22/2006 | | 1/24/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L69847-01B | 1/22/2006 | | 1/27/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 33 | 10 | mg/L | [1] | 300.0-W |
| Angle Spring | L69847-01F | 1/22/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.020 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L69847-01F | 1/22/2006 | | 1/27/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 330 | 10 | mg/L | | HARD |
| Angle Spring | L69847-01E | 1/22/2006 | 1/24/2006 | 1/27/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Angle Spring | L69847-01F | 1/22/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Angle Spring | L69847-01F | 1/22/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L69847-01F | 1/22/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 19 | 10 | mg/L | | ICP-W-DIS |
| Angle Spring | L69847-01F | 1/22/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.012 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L69847-01E | 1/22/2006 | 1/24/2006 | 1/30/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Angle Spring | L69847-01F | 1/22/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L69847-01B | 1/22/2006 | | 1/24/2006 | Aqueous | Nitrate (as N) | | 1 | 1.1 | 0.01 | mg/L | 1@ | NO3-W |
| Angle Spring | L69847-01B | 1/22/2006 | | 1/24/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Angle Spring | L69847-01D | 1/22/2006 | | 1/24/2006 | Aqueous | Oil & Grease | | 1 | 4.8 | 3 | mg/L | | OGB-W |
| Angle Spring | L69847-01B | 1/22/2006 | | 1/24/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Angle Spring | L69847-01F | 1/22/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.5 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L69847-01F | 1/22/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0.052 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L69847-01A | 1/22/2006 | | 1/24/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Angle Spring | L69847-01F | 1/22/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.4 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L69847-01B | 1/22/2006 | | 1/27/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 16 | 2 | mg/L | | 300.0-W |
| Angle Spring | L69847-01A | 1/22/2006 | | 1/24/2006 | Aqueous | TDS | | 1 | 350 | 10 | mg/L | | TDS-W |
| Angle Spring | L69847-01A | 1/22/2006 | | 1/24/2006 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Angle Spring | L69847-01F | 1/22/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.091 | 0.01 | mg/L | | 6020-W-DISS |
| Angle Spring | L70355-04A | 2/26/2006 | | 2/28/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Angle Spring | L70355-04A | 2/26/2006 | | 2/28/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L70355-04F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L70355-04C | 2/26/2006 | 3/2/2006 | 3/2/2006 | Aqueous | Ammonia (as N) | | 1 | 0.17 | 0.05 | mg/L | | NH3-W |
| Angle Spring | L70355-04F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L70355-04A | 2/26/2006 | | 2/28/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L70355-04F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Angle Spring | L70355-04F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L70355-04F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 100 | 10 | mg/L | 2 | ICP-W-DIS |
| Angle Spring | L70355-04A | 2/26/2006 | | 2/28/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L70355-04A | 2/26/2006 | | 2/28/2006 | Aqueous | Chloride | 16887-00-6 | 10 | 22 | 10 | mg/L | | 300.0-W |
| Angle Spring | L70355-04F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L70355-04F | 2/26/2006 | | 3/7/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 330 | 10 | mg/L | | HARD |
| Angle Spring | L70355-04F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Angle Spring | L70355-04E | 2/26/2006 | 2/28/2006 | 2/28/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Angle Spring | L70355-04F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | @ | 6020-W-DISS |
| Angle Spring | L70355-04F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 19 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L70355-04E | 2/26/2006 | 2/28/2006 | 2/28/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | ICP-W |
| Angle Spring | L70355-04F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L70355-04F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L70355-04A | 2/26/2006 | | 2/27/2006 | Aqueous | Nitrate (as N) | | 1 | 1.1 | 0.01 | mg/L | | NO3-W |
| Angle Spring | L70355-04A | 2/26/2006 | | 2/27/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Angle Spring | L70355-04D | 2/26/2006 | | 2/27/2006 | Aqueous | Oil & Grease | | 1 | 5.5 | 3 | mg/L | | OGB-W |
| Angle Spring | L70355-04A | 2/26/2006 | | 2/27/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Angle Spring | L70355-04F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.6 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L70355-04F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L70355-04B | 2/26/2006 | | 2/27/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Angle Spring | L70355-04F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.9 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L70355-04A | 2/26/2006 | | 2/28/2006 | Aqueous | Sulfate | 14808-79-8 | 10 | 14 | 10 | mg/L | | 300.0-W |
| Angle Spring | L70355-04B | 2/26/2006 | | 3/3/2006 | Aqueous | TDS | | 1 | 240 | 10 | mg/L | | TDS-W |
| Angle Spring | L70355-04B | 2/26/2006 | | 2/28/2006 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Angle Spring | L70355-04F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.073 | 0.01 | mg/L | | 6020-W-DISS |
| Angle Spring | L70885-01B | 3/27/2006 | | 3/30/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L70885-01E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Angle Spring | L70885-01E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L70885-01E | 3/27/2006 | 4/3/2006 | 4/11/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 97 | 10 | mg/L | | ICP-W-DIS |
| Angle Spring | L70885-01B | 3/27/2006 | | 3/30/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L70885-01B | 3/27/2006 | | 3/29/2006 | Aqueous | Chloride | 16887-00-6 | 10 | 24 | 10 | mg/L | | 300.0-W |
| Angle Spring | L70885-01B | 3/27/2006 | | 3/30/2006 | Aqueous | Conductivity | | 1 | 670 | 2 | µmhos/cm | | COND-W |
| Angle Spring | L70885-01E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L70885-01E | 3/27/2006 | | 4/11/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 320 | 10 | mg/L | | HARD |
| Angle Spring | L70885-01E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Angle Spring | L70885-01D | 3/27/2006 | 4/6/2006 | 4/9/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Angle Spring | L70885-01E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L70885-01E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 19 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L70885-01E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L70885-01D | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | ICP-W |
| Angle Spring | L70885-01E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L70885-01B | 3/27/2006 | | 3/29/2006 | Aqueous | Nitrate (as N) | | 1 | 0.92 | 0.01 | mg/L | 1 | NO3-W |
| Angle Spring | L70885-01B | 3/27/2006 | | 3/29/2006 | Aqueous | Nitrite (as N) | | 1 | 0.099 | 0.01 | mg/L | 1@ | NO2-W |
| Angle Spring | L70885-01F | 3/27/2006 | | 3/28/2006 | Aqueous | Oil & Grease | | 1 | 4.0 | 3 | mg/L | | OGB-W |
| Angle Spring | L70885-01B | 3/27/2006 | | 3/28/2006 | Aqueous | pH @ 25° C | | 1 | 7.04 | 0 | pH Units | | PH-W |
| Angle Spring | L70885-01B | 3/27/2006 | | 3/29/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | 1 | PO4-O |
| Angle Spring | L70885-01E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.9 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L70885-01E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L70885-01A | 3/27/2006 | | 3/28/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Angle Spring | L70885-01E | 3/27/2006 | 4/3/2006 | 4/11/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 10 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L70885-01B | 3/27/2006 | | 3/29/2006 | Aqueous | Sulfate | 14808-79-8 | 10 | 15 | 10 | mg/L | | 300.0-W |
| Angle Spring | L70885-01A | 3/27/2006 | | 3/31/2006 | Aqueous | TDS | | 1 | 190 | 10 | mg/L | | TDS-W |
| Angle Spring | L70885-01A | 3/27/2006 | | 3/28/2006 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Angle Spring | L70885-01E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.052 | 0.01 | mg/L | | 6020-W-DISS |
| Angle Spring | L71507-03B | 4/26/2006 | | 5/2/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Angle Spring | L71507-03B | 4/26/2006 | | 5/2/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L71507-03E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Angle Spring | L71507-03C | 4/26/2006 | 5/3/2006 | 5/3/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Angle Spring | L71507-03E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0.0086 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L71507-03B | 4/26/2006 | | 5/2/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L71507-03E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Angle Spring | L71507-03E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L71507-03E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 100 | 10 | mg/L | | ICP-W-dis |
| Angle Spring | L71507-03B | 4/26/2006 | | 5/2/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L71507-03B | 4/26/2006 | | 5/12/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 22 | 10 | mg/L | | 300.0-W |
| Angle Spring | L71507-03E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.0046 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L71507-03E | 4/26/2006 | | 5/15/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 340 | 10 | mg/L | | HARD |
| Angle Spring | L71507-03E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Angle Spring | L71507-03D | 4/26/2006 | 5/3/2006 | 5/11/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Angle Spring | L71507-03E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L71507-03E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 20 | 10 | mg/L | | ICP-W-dis |
| Angle Spring | L71507-03D | 4/26/2006 | 5/3/2006 | 5/11/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | ICP-W |
| Angle Spring | L71507-03E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L71507-03E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Angle Spring | L71507-03C | 4/26/2006 | | 5/4/2006 | Aqueous | Nitrate/Nitrite (as N) | | 1 | 1.4 | 0.01 | mg/L | | NO2/NO3-W |
| Angle Spring | L71507-03F | 4/26/2006 | | 5/5/2006 | Aqueous | Oil & Grease | | 1 | 3.8 | 3 | mg/L | | OGB-W |
| Angle Spring | L71507-03B | 4/26/2006 | | 4/28/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.04 | 0.05 | mg/L | | PO4-O |
| Angle Spring | L71507-03E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 0 | 1 | mg/L | | ICP-W-dis |
| Angle Spring | L71507-03E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0.013 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L71507-03A | 4/26/2006 | | 4/28/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Angle Spring | L71507-03E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 21 | 10 | mg/L | | ICP-W-dis |
| Angle Spring | L71507-03B | 4/26/2006 | | 5/12/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 19 | 10 | mg/L | | 300.0-W |
| Angle Spring | L71507-03A | 4/26/2006 | | 4/28/2006 | Aqueous | TDS | | 1 | 310 | 10 | mg/L | | TDS-W |
| Angle Spring | L71507-03A | 4/26/2006 | | 4/28/2006 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Angle Spring | L71507-03E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.11 | 0.01 | mg/L | | 6020-W-DISS |
| Angle Spring | L72071-03B | 5/25/2006 | | 5/30/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Angle Spring | L72071-03B | 5/25/2006 | | 5/30/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 290 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L72071-03E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L72071-03C | 5/25/2006 | 5/30/2006 | 5/31/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Angle Spring | L72071-03E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L72071-03B | 5/25/2006 | | 5/30/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 290 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L72071-03E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Angle Spring | L72071-03E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L72071-03E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 90 | 10 | mg/L | | ICP-W-DIS |
| Angle Spring | L72071-03B | 5/25/2006 | | 5/30/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L72071-03B | 5/25/2006 | | 6/1/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 22 | 10 | mg/L | | 300.0-W |
| Angle Spring | L72071-03E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L72071-03E | 5/25/2006 | | 6/9/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 220 | 10 | mg/L | | HARD |
| Angle Spring | L72071-03D | 5/25/2006 | 5/29/2006 | 6/8/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Angle Spring | L72071-03E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Angle Spring | L72071-03E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L72071-03E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 18 | 10 | mg/L | | ICP-W-DIS |
| Angle Spring | L72071-03D | 5/25/2006 | 5/29/2006 | 6/8/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | ICP-W |
| Angle Spring | L72071-03E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L72071-03E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L72071-03B | 5/25/2006 | | 5/26/2006 | Aqueous | Nitrate (as N) | | 1 | 0.96 | 0.01 | mg/L | | NO3-W |
| Angle Spring | L72071-03B | 5/25/2006 | | 5/26/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Angle Spring | L72071-03F | 5/25/2006 | | 5/30/2006 | Aqueous | Oil & Grease | | 1 | 4.3 | 3 | mg/L | | OGB-W |
| Angle Spring | L72071-03B | 5/25/2006 | | 5/26/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Angle Spring | L72071-03E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.5 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L72071-03E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L72071-03A | 5/25/2006 | | 5/26/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Angle Spring | L72071-03E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.6 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L72071-03B | 5/25/2006 | | 6/1/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 14 | 10 | mg/L | | 300.0-W |
| Angle Spring | L72071-03A | 5/25/2006 | | 5/26/2006 | Aqueous | TDS | | 1 | 330 | 10 | mg/L | | TDS-W |
| Angle Spring | L72071-03A | 5/25/2006 | | 5/26/2006 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Angle Spring | L72071-03E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.010 | 0.01 | mg/L | | 6020-W-DISS |
| Angle Spring | L72660-05B | 6/29/2006 | | 7/3/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Angle Spring | L72660-05B | 6/29/2006 | | 7/3/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 290 | 20 | mg/L | | 2320B-ALK-W |
| Angle Spring | L72660-05E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L72660-05C | 6/29/2006 | 7/5/2006 | 7/7/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Angle Spring | L72660-05E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L72660-05B | 6/29/2006 | | 7/3/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 290 | 20 | mg/L | | 2320B-ALK-W |
| Angle Spring | L72660-05E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Angle Spring | L72660-05E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L72660-05E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 92 | 10 | mg/L | | ICP-W-DIS |
| Angle Spring | L72660-05B | 6/29/2006 | | 7/3/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| Angle Spring | L72660-05B | 6/29/2006 | | 7/5/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 22 | 10 | mg/L | | 300.0-W |
| Angle Spring | L72660-05E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L72660-05E | 6/29/2006 | | 7/11/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 330 | 10 | mg/L | | HARD |
| Angle Spring | L72660-05D | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Angle Spring | L72660-05E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Angle Spring | L72660-05E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L72660-05E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 18 | 10 | mg/L | | ICP-W-DIS |
| Angle Spring | L72660-05E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L72660-05D | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | ICP-W |
| Angle Spring | L72660-05E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L72660-05B | 6/29/2006 | | 6/30/2006 | Aqueous | Nitrate (as N) | | 1 | 0.94 | 0.01 | mg/L | | NO3-W |
| Angle Spring | L72660-05B | 6/29/2006 | | 6/30/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Angle Spring | L72660-05F | 6/29/2006 | | 6/30/2006 | Aqueous | Oil & Grease | | 1 | 3.1 | 3 | mg/L | | OGB-W |
| Angle Spring | L72660-05B | 6/29/2006 | | 6/30/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Angle Spring | L72660-05E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.2 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L72660-05E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L72660-05A | 6/29/2006 | | 6/30/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Angle Spring | L72660-05E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.7 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L72660-05B | 6/29/2006 | | 7/5/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 18 | 10 | mg/L | | 300.0-W |
| Angle Spring | L72660-05A | 6/29/2006 | | 6/30/2006 | Aqueous | TDS | | 1 | 280 | 20 | mg/L | | TDS-W |
| Angle Spring | L72660-05A | 6/29/2006 | | 6/30/2006 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Angle Spring | L72660-05E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Angle Spring | L73160-02B | 7/31/2006 | | 8/2/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Angle Spring | L73160-02B | 7/31/2006 | | 8/2/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 290 | 20 | mg/L | | 2320B-ALK-W |
| Angle Spring | L73160-02E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L73160-02C | 7/31/2006 | 8/2/2006 | 8/4/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Angle Spring | L73160-02E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L73160-02B | 7/31/2006 | | 8/2/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| Angle Spring | L73160-02E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Angle Spring | L73160-02E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L73160-02E | 7/31/2006 | 8/3/2006 | 8/15/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 96 | 10 | mg/L | | ICP-W-DIS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Angle Spring | L73160-02B | 7/31/2006 | | 8/2/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| Angle Spring | L73160-02B | 7/31/2006 | | 8/8/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 67 | 10 | mg/L | | 300.0-W |
| Angle Spring | L73160-02E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L73160-02E | 7/31/2006 | | 8/15/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 310 | 10 | mg/L | | HARD |
| Angle Spring | L73160-02D | 7/31/2006 | 8/3/2006 | 8/8/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Angle Spring | L73160-02E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Angle Spring | L73160-02E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L73160-02E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 18 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L73160-02D | 7/31/2006 | 8/3/2006 | 8/8/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | ICP-W |
| Angle Spring | L73160-02E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L73160-02E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L73160-02B | 7/31/2006 | | 8/2/2006 | Aqueous | Nitrate (as N) | | 1 | 1.0 | 0.01 | mg/L | | NO3-W |
| Angle Spring | L73160-02B | 7/31/2006 | | 8/2/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Angle Spring | L73160-02F | 7/31/2006 | | 8/8/2006 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Angle Spring | L73160-02B | 7/31/2006 | | 8/2/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Angle Spring | L73160-02E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.1 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L73160-02E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L73160-02A | 7/31/2006 | | 8/2/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Angle Spring | L73160-02E | 7/31/2006 | 8/3/2006 | 8/15/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.4 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L73160-02B | 7/31/2006 | | 8/8/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 18 | 10 | mg/L | | 300.0-W |
| Angle Spring | L73160-02A | 7/31/2006 | | 8/3/2006 | Aqueous | TDS | | 1 | 290 | 20 | mg/L | | TDS-W |
| Angle Spring | L73160-02A | 7/31/2006 | | 8/2/2006 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Angle Spring | L73160-02E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.021 | 0.01 | mg/L | | 6020-W-DISS |
| Angle Spring | L73504-02B | 8/21/2006 | | 8/23/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Angle Spring | L73504-02B | 8/21/2006 | | 8/23/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 300 | 20 | mg/L | | 2320B-ALK-W |
| Angle Spring | L73504-02E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L73504-02C | 8/21/2006 | 8/23/2006 | 8/24/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Angle Spring | L73504-02E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L73504-02B | 8/21/2006 | | 8/23/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 300 | 20 | mg/L | | 2320B-ALK-W |
| Angle Spring | L73504-02E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Angle Spring | L73504-02E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L73504-02E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 100 | 10 | mg/L | | ICP-W-DIS |
| Angle Spring | L73504-02B | 8/21/2006 | | 8/23/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Angle Spring | L73504-02B | 8/21/2006 | | 8/24/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 23 | 10 | mg/L | | 300.0-W |
| Angle Spring | L73504-02E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Angle Spring | L73504-02E | 8/21/2006 | | 9/5/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 330 | 10 | mg/L | | HARD |
| Angle Spring | L73504-02E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Angle Spring | L73504-02D | 8/21/2006 | 8/23/2006 | 9/1/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Angle Spring | L73504-02E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L73504-02E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 19 | 10 | mg/L | | ICP-W-DIS |
| Angle Spring | L73504-02E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L73504-02D | 8/21/2006 | 8/23/2006 | 9/1/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | ICP-W |
| Angle Spring | L73504-02E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Angle Spring | L73504-02B | 8/21/2006 | | 8/23/2006 | Aqueous | Nitrate (as N) | | 1 | 0.94 | 0.01 | mg/L | | NO3-W |
| Angle Spring | L73504-02B | 8/21/2006 | | 8/23/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Angle Spring | L73504-02F | 8/21/2006 | | 8/23/2006 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Angle Spring | L73504-02B | 8/21/2006 | | 8/23/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Angle Spring | L73504-02E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.5 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L73504-02E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Angle Spring | L73504-02A | 8/21/2006 | | 8/23/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Angle Spring | L73504-02E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 10 | 1 | mg/L | | ICP-W-DIS |
| Angle Spring | L73504-02B | 8/21/2006 | | 8/24/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 18 | 10 | mg/L | | 300.0-W |
| Angle Spring | L73504-02A | 8/21/2006 | | 8/25/2006 | Aqueous | TDS | | 1 | 270 | 20 | mg/L | | TDS-W |
| Angle Spring | L73504-02A | 8/21/2006 | | 8/23/2006 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Angle Spring | L73504-02E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Aspen Spring | L81026-05B | 11/12/2007 | | 11/15/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Aspen Spring | L81026-05B | 11/12/2007 | | 11/15/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Aspen Spring | L81026-05F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Aspen Spring | L81026-05C | 11/12/2007 | 11/15/2007 | 11/15/2007 | Aqueous | Ammonia (as N) | | 1 | 0.093 | 0.05 | mg/L | | NH3-W |
| Aspen Spring | L81026-05F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0.0016 | 0.0006 | mg/L | | 6020-W-DISS |
| Aspen Spring | L81026-05B | 11/12/2007 | | 11/15/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Aspen Spring | L81026-05F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Aspen Spring | L81026-05F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Aspen Spring | L81026-05F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 64 | 10 | mg/L | # | ICP-W-dis |
| Aspen Spring | L81026-05B | 11/12/2007 | | 11/15/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Aspen Spring | L81026-05B | 11/12/2007 | | 11/21/2007 | Aqueous | Chloride | 16887-00-6 | 10 | 26 | 10 | mg/L | | 300.0-W |
| Aspen Spring | L81026-05F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0020 | 0.0008 | mg/L | | 6020-W-DISS |
| Aspen Spring | L81026-05F | 11/12/2007 | | 11/27/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 210 | 10 | mg/L | | HARD |
| Aspen Spring | L81026-05E | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous | Iron | 7439-89-6 | 1 | 5.2 | 0.05 | mg/L | | ICP-W |
| Aspen Spring | L81026-05F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 1.5 | 0.05 | mg/L | | ICP-W-dis |
| Aspen Spring | L81026-05F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0001 | mg/L | | 6020-W-DISS |
| Aspen Spring | L81026-05F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 13 | 1 | mg/L | | ICP-W-dis |
| Aspen Spring | L81026-05F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.75 | 0.0012 | mg/L | | 6020-W-DISS |
| Aspen Spring | L81026-05E | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.90 | 0.005 | mg/L | | ICP-W |
| Aspen Spring | L81026-05F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Aspen Spring | L81026-05B | 11/12/2007 | | 11/14/2007 | Aqueous | Nitrate (as N) | | 1 | 0.36 | 0.01 | mg/L | | NO3-W |
| Aspen Spring | L81026-05B | 11/12/2007 | | 11/14/2007 | Aqueous | Nitrite (as N) | | 1 | 0.012 | 0.01 | mg/L | | NO2-W |
| Aspen Spring | L81026-05D | 11/12/2007 | | 11/21/2007 | Aqueous | Oil & Grease | | 1 | 5.1 | 3 | mg/L | | OGB-W |
| Aspen Spring | L81026-05B | 11/12/2007 | | 11/14/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Aspen Spring | L81026-05F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 15 | 1 | mg/L | | ICP-W-dis |
| Aspen Spring | L81026-05F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Aspen Spring | L81026-05A | 11/12/2007 | | 11/14/2007 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Aspen Spring | L81026-05F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 27 | 1 | mg/L | | ICP-W-dis |
| Aspen Spring | L81026-05B | 11/12/2007 | | 11/27/2007 | Aqueous | Sulfate | 14808-79-8 | 1 | 1.7 | 1 | mg/L | | 300.0-W |
| Aspen Spring | L81026-05A | 11/12/2007 | | 11/14/2007 | Aqueous | TDS | | 1 | 340 | 20 | mg/L | | TDS-W |
| Aspen Spring | L81026-05A | 11/12/2007 | | 11/14/2007 | Aqueous | TSS | | 1 | 27 | 3 | mg/L | | TSS-W-2540D |
| Aspen Spring | L81026-05F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0 | 0.0054 | mg/L | | 6020-W-DISS |
| Aspen Spring | L84608-06B | 6/16/2008 | | 6/20/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Aspen Spring | L84608-06B | 6/16/2008 | | 6/20/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 75 | 20 | mg/L | | 2320B-ALK-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Aspen Spring | L84608-06F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Aspen Spring | L84608-06C | 6/16/2008 | 6/20/2008 | 6/25/2008 | Aqueous | Ammonia (as N) | | 1 | 0.052 | 0.05 | mg/L | | NH3-W |
| Aspen Spring | L84608-06F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Arsenic | 7440-38-2 | 20 | 0.0010 | 0.0006 | mg/L | | 6020-W-DISS |
| Aspen Spring | L84608-06B | 6/16/2008 | | 6/20/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 71 | 20 | mg/L | | 2320B-ALK-W |
| Aspen Spring | L84608-06F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Aspen Spring | L84608-06F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Aspen Spring | L84608-06F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Calcium | 7440-70-2 | 1 | 20 | 1 | mg/L | | ICP-W-dis |
| Aspen Spring | L84608-06B | 6/16/2008 | | 6/20/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| Aspen Spring | L84608-06B | 6/16/2008 | | 6/26/2008 | Aqueous | Chloride | 16887-00-6 | 5 | 5.8 | 0.5 | mg/L | | 300.0-W |
| Aspen Spring | L84608-06F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Copper | 7440-50-8 | 20 | 0.0040 | 0.0008 | mg/L | | 6020-W-DISS |
| Aspen Spring | L84608-06F | 6/16/2008 | | 6/18/2008 | Aqueous Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 70 | 10 | mg/L | | HARD |
| Aspen Spring | L84608-06E | 6/16/2008 | 6/20/2008 | 6/27/2008 | Aqueous | Iron | 7439-89-6 | 1 | 1.2 | 0.05 | mg/L | | ICP-W |
| Aspen Spring | L84608-06F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Iron | 7439-89-6 | 1 | 0.17 | 0.05 | mg/L | | ICP-W-dis |
| Aspen Spring | L84608-06F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Aspen Spring | L84608-06F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Magnesium | 7439-95-4 | 1 | 4.7 | 1 | mg/L | | ICP-W-dis |
| Aspen Spring | L84608-06E | 6/16/2008 | 6/20/2008 | 6/27/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.10 | 0.005 | mg/L | | ICP-W |
| Aspen Spring | L84608-06F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Manganese | 7439-96-5 | 20 | 0.0040 | 0.0012 | mg/L | | 6020-W-DISS |
| Aspen Spring | L84608-06F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Aspen Spring | L84608-06B | 6/16/2008 | | 6/18/2008 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Aspen Spring | L84608-06B | 6/16/2008 | | 6/18/2008 | Aqueous | Nitrite (as N) | | 1 | 0.011 | 0.01 | mg/L | | NO2-W |
| Aspen Spring | L84608-06D | 6/16/2008 | | 6/18/2008 | Aqueous | Oil & Grease | | 1 | 6.4 | 3 | mg/L | * | OGB-W |
| Aspen Spring | L84608-06B | 6/16/2008 | | 6/18/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Aspen Spring | L84608-06F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Potassium | 7440-09-7 | 1 | 3.2 | 1 | mg/L | | ICP-W-dis |
| Aspen Spring | L84608-06F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Aspen Spring | L84608-06A | 6/16/2008 | | 6/18/2008 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Aspen Spring | L84608-06F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Sodium | 7440-23-5 | 1 | 14 | 1 | mg/L | | ICP-W-dis |
| Aspen Spring | L84608-06B | 6/16/2008 | | 6/26/2008 | Aqueous | Sulfate | 14808-79-8 | 5 | 4.8 | 3.8 | mg/L | | 300.0-W |
| Aspen Spring | L84608-06A | 6/16/2008 | | 6/19/2008 | Aqueous | TDS | | 1 | 120 | 100 | mg/L | | TDS-W |
| Aspen Spring | L84608-06A | 6/16/2008 | | 6/18/2008 | Aqueous | TSS | | 1 | 26 | 3 | mg/L | | TSS-W-2540D |
| Aspen Spring | L84608-06F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Zinc | 7440-66-6 | 20 | 0.022 | 0.0054 | mg/L | | 6020-W-DISS |
| Aspen Spring | L85972-01B | 8/26/2008 | | 8/29/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Aspen Spring | L85972-01B | 8/26/2008 | | 8/28/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 180 | 20 | mg/L | | 2320B-ALK-W |
| Aspen Spring | L85972-01E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Aspen Spring | L85972-01D | 8/26/2008 | 8/28/2008 | 8/29/2008 | Aqueous | Ammonia (as N) | | 1 | 0.057 | 0.05 | mg/L | | NH3-W |
| Aspen Spring | L85972-01E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0.00092 | 0.0006 | mg/L | | 6020-W-DISS |
| Aspen Spring | L85972-01B | 8/26/2008 | | 8/28/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 180 | 20 | mg/L | | 2320B-ALK-W |
| Aspen Spring | L85972-01E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Aspen Spring | L85972-01E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Aspen Spring | L85972-01E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 57 | 10 | mg/L | ² ~ | ICP-W-dis |
| Aspen Spring | L85972-01B | 8/26/2008 | | 8/28/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Aspen Spring | L85972-01B | 8/26/2008 | | 8/28/2008 | Aqueous | Chloride | 16887-00-6 | 20 | 24 | 2 | mg/L | | 300.0-W |
| Aspen Spring | L85972-01E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0022 | 0.0008 | mg/L | | 6020-W-DISS |
| Aspen Spring | L85972-01E | 8/26/2008 | | 9/5/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 200 | 10 | mg/L | | HARD |
| Aspen Spring | L85972-01E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Aspen Spring | L85972-01F | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous | Iron | 7439-89-6 | 1 | 1.4 | 0.05 | mg/L | | ICP-W |
| Aspen Spring | L85972-01E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0.0011 | 0.0004 | mg/L | | 6020-W-DISS |
| Aspen Spring | L85972-01E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 12 | 1 | mg/L | | ICP-W-dis |
| Aspen Spring | L85972-01E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.053 | 0.0012 | mg/L | | 6020-W-DISS |
| Aspen Spring | L85972-01F | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.22 | 0.005 | mg/L | | ICP-W |
| Aspen Spring | L85972-01E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Aspen Spring | L85972-01B | 8/26/2008 | | 8/28/2008 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Aspen Spring | L85972-01B | 8/26/2008 | | 8/28/2008 | Aqueous | Nitrate/Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2/NO3-W |
| Aspen Spring | L85972-01B | 8/26/2008 | | 8/28/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Aspen Spring | L85972-01C | 8/26/2008 | | 9/5/2008 | Aqueous | Oil & Grease | | 1 | 3.2 | 3 | mg/L | | OGB-W |
| Aspen Spring | L85972-01B | 8/26/2008 | | 8/28/2008 | Aqueous | Phosphorus, Orthophosphate (as I | 7723-14-0 | 1 | 0 | 0.1 | mg/L | | 300.0-W |
| Aspen Spring | L85972-01E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 10 | 1 | mg/L | | ICP-W-dis |
| Aspen Spring | L85972-01E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Aspen Spring | L85972-01A | 8/26/2008 | | 8/28/2008 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Aspen Spring | L85972-01E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 22 | 10 | mg/L | ~ | ICP-W-dis |
| Aspen Spring | L85972-01B | 8/26/2008 | | 8/28/2008 | Aqueous | Sulfate | 14808-79-8 | 1 | 8.7 | 0.75 | mg/L | | 300.0-W |
| Aspen Spring | L85972-01A | 8/26/2008 | | 8/28/2008 | Aqueous | TDS | | 1 | 280 | 20 | mg/L | | TDS-W |
| Aspen Spring | L85972-01A | 8/26/2008 | | 8/28/2008 | Aqueous | TSS | | 1 | 27 | 3 | mg/L | | TSS-W-2540D |
| Aspen Spring | L85972-01E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0 | 0.0054 | mg/L | | 6020-W-DISS |
| Aspen Spring | L87283-05B | 10/29/2008 | | 10/31/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Aspen Spring | L87283-05B | 10/29/2008 | | 10/31/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 280 | 20 | mg/L | | 2320B-ALK-W |
| Aspen Spring | L87283-05E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Aspen Spring | L87283-05D | 10/29/2008 | 11/6/2008 | 11/7/2008 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Aspen Spring | L87283-05E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0.00094 | 0.0006 | mg/L | | 6020-W-DISS |
| Aspen Spring | L87283-05B | 10/29/2008 | | 10/31/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 280 | 20 | mg/L | | 2320B-ALK-W |
| Aspen Spring | L87283-05E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Aspen Spring | L87283-05E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Aspen Spring | L87283-05E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 92 | 10 | mg/L | ~ | ICP-W-dis |
| Aspen Spring | L87283-05B | 10/29/2008 | | 10/31/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Aspen Spring | L87283-05B | 10/29/2008 | | 11/11/2008 | Aqueous | Chloride | 16887-00-6 | 5 | 25 | 0.5 | mg/L | | 300.0-W |
| Aspen Spring | L87283-05E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.00089 | 0.0008 | mg/L | | 6020-W-DISS |
| Aspen Spring | L87283-05E | 10/29/2008 | | 11/5/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 290 | 10 | mg/L | | HARD |
| Aspen Spring | L87283-05E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0.057 | 0.05 | mg/L | | ICP-W-dis |
| Aspen Spring | L87283-05F | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous | Iron | 7439-89-6 | 1 | 2.5 | 0.05 | mg/L | | ICP-W |
| Aspen Spring | L87283-05E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Aspen Spring | L87283-05E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 15 | 1 | mg/L | | ICP-W-dis |
| Aspen Spring | L87283-05F | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.65 | 0.005 | mg/L | | ICP-W |
| Aspen Spring | L87283-05E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.025 | 0.0012 | mg/L | | 6020-W-DISS |
| Aspen Spring | L87283-05E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Aspen Spring | L87283-05B | 10/29/2008 | | 10/31/2008 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Aspen Spring | L87283-05B | 10/29/2008 | | 10/31/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Aspen Spring | L87283-05C | 10/29/2008 | | 11/2/2008 | Aqueous | Oil & Grease | | 1 | 4.0 | 3 | mg/L | | OGB-W |
| Aspen Spring | L87283-05B | 10/29/2008 | | 10/31/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Aspen Spring | L87283-05E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 6.0 | 1 | mg/L | | ICP-W-dis |
| Aspen Spring | L87283-05E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Aspen Spring | L87283-05A | 10/29/2008 | | 10/30/2008 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Aspen Spring | L87283-05E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.6 | 1 | mg/L | | ICP-W-dis |
| Aspen Spring | L87283-05B | 10/29/2008 | | 11/11/2008 | Aqueous | Sulfate | 14808-79-8 | 5 | 8.7 | 3.8 | mg/L | | 300.0-W |
| Aspen Spring | L87283-05A | 10/29/2008 | | 10/31/2008 | Aqueous | TDS | | 1 | 370 | 20 | mg/L | | TDS-W |
| Aspen Spring | L87283-05A | 10/29/2008 | | 10/30/2008 | Aqueous | TSS | | 1 | 26 | 3 | mg/L | | TSS-W-2540D |
| Aspen Spring | L87283-05E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0.022 | 0.0054 | mg/L | | 6020-W-DISS |
| Aspen Spring | 1006480-001 | 6/23/2010 | | 6/25/2010 | Aqueous | Settleable Solids | | 1 | 0 | 0.10 | mL/L | | SS-W-2540F |
| Aspen Spring | 1006480-001 | 6/23/2010 | | 6/25/2010 | Aqueous | Total Dissolved Solids | | 2 | 220 | 20 | mg/L | | TDS-W-2540C |
| Aspen Spring | 1006480-001 | 6/23/2010 | | 6/25/2010 | Aqueous | Total Suspended Solids | TSS | 1 | 13 | 3.0 | mg/L | | TSS-W-2540D |
| Aspen Spring | 1006480-001 | 6/23/2010 | | 6/29/2010 | Aqueous | Chloride | 16887-00-6 | 10 | 18 | 1.0 | mg/L | | 300.0-W |
| Aspen Spring | 1006480-001 | 6/23/2010 | | 6/29/2010 | Aqueous | Sulfate | 14808-79-8 | 10 | 9.9 | 7.5 | mg/L | | 300.0-W |
| Aspen Spring | 1006480-001 | 6/23/2010 | | 6/28/2010 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Aspen Spring | 1006480-001 | 6/23/2010 | | 6/28/2010 | Aqueous | Alkalinity (as CaCO3) | | 2 | 150 | 20 | mg/L | | ALK-W-2320B |
| Aspen Spring | 1006480-001 | 6/23/2010 | | 6/28/2010 | Aqueous | Bicarbonate (as CaCO3) | | 2 | 150 | 20 | mg/L | | ALK-W-2320B |
| Aspen Spring | 1006480-001 | 6/23/2010 | | 6/28/2010 | Aqueous | Carbonate (as CaCO3) | | 2 | 0 | 10 | mg/L | | ALK-W-2320B |
| Aspen Spring | 1006480-001 | 6/23/2010 | | 6/25/2010 | Aqueous | Nitrite (as N) | 14797-65-0 | 1 | 0.021 | 0.010 | mg/L | | NO2-W-353.2 |
| Aspen Spring | 1006480-001 | 6/23/2010 | | 6/25/2010 | Aqueous | Nitrate (as N) | 14797-55-8 | 1 | 0 | 0.010 | mg/L | | NO3-W-353.2 |
| Aspen Spring | 1006480-001 | 6/23/2010 | | 6/25/2010 | Aqueous | pH @ 25° C | | 1 | 7.71 | 1.00 | pH Units | H | PH-4500H+B |
| Aspen Spring | 1006480-001 | 6/23/2010 | | 6/25/2010 | Aqueous | Phosphate, Total Ortho (as P) | 7723-14-0 | 1 | 0 | 0.050 | mg/L | [1] | PO4-O-365.1 |
| Aspen Spring | 1006480-001 | 6/23/2010 | | 6/30/2010 | Aqueous | Oil & Grease | | 1 | 0 | 3.0 | mg/L | | OGB-W-1664A |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/28/2010 | 6/29/2010 | Aqueous | Ammonia (as N) | 7664-41-7 | 1 | 0.15 | 0.050 | mg/L | | NH3-W-350.1 |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Aluminum | 7429-90-5 | 1 | 0 | 0.10 | mg/L | | 6010C-DIS |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Boron | 7440-42-8 | 1 | 0 | 0.50 | mg/L | | 6010C-DIS |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Calcium | 7440-70-2 | 1 | 44 | 1.0 | mg/L | | 6010C-DIS |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Iron | 7439-89-6 | 1 | 1.1 | 0.10 | mg/L | | 6010C-DIS |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Magnesium | 7439-95-4 | 1 | 9.1 | 1.0 | mg/L | | 6010C-DIS |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Molybdenum | 7439-98-7 | 1 | 0 | 0.020 | mg/L | | 6010C-DIS |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Potassium | 7440-09-7 | 1 | 12 | 1.0 | mg/L | | 6010C-DIS |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Sodium | 7440-23-5 | 1 | 5.8 | 1.0 | mg/L | | 6010C-DIS |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Arsenic | 7440-38-2 | 20 | 0.0034 | 0.00060 | mg/L | | 6020-DIS |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-DIS |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Copper | 7440-50-8 | 20 | 0.00095 | 0.00080 | mg/L | | 6020-DIS |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Lead | 7439-92-1 | 20 | 0 | 0.00040 | mg/L | | 6020-DIS |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.0066 | 0.0012 | mg/L | | 6020-DIS |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Selenium | 7782-49-2 | 20 | 0.0013 | 0.00080 | mg/L | | 6020-DIS |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Zinc | 7440-66-6 | 20 | 0 | 0.0050 | mg/L | | 6020-DIS |
| Aspen Spring | 1006480-001 | 6/23/2010 | | 6/28/2010 | Aqueous | Hardness (as CaCO3) | | 1 | 150 | 10 | mg/L | | HARD-2340B |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Iron | 7439-89-6 | 1 | 4.8 | 0.10 | mg/L | | 6010C-W |
| Aspen Spring | 1006480-001 | 6/23/2010 | 6/25/2010 | 6/25/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.15 | 0.0012 | mg/L | | 6020-W |
| CR-06-03 | L72071-05B | 5/25/2006 | | 5/30/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| CR-06-03 | L72071-05B | 5/25/2006 | | 5/30/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 370 | 10 | mg/L | | 2320B-ALK-W |
| CR-06-03 | L72071-05E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| CR-06-03 | L72071-05C | 5/25/2006 | 5/30/2006 | 5/31/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| CR-06-03 | L72071-05E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0.027 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03 | L72071-05B | 5/25/2006 | | 5/30/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 370 | 10 | mg/L | | 2320B-ALK-W |
| CR-06-03 | L72071-05E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| CR-06-03 | L72071-05E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| CR-06-03 | L72071-05E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 110 | 10 | mg/L | | ICP-W-DIS |
| CR-06-03 | L72071-05B | 5/25/2006 | | 5/30/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| CR-06-03 | L72071-05B | 5/25/2006 | | 6/1/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 19 | 10 | mg/L | | 300.0-W |
| CR-06-03 | L72071-05E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.0064 | 0.004 | mg/L | | 6020-W-DISS |
| CR-06-03 | L72071-05E | 5/25/2006 | | 6/9/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 280 | 10 | mg/L | | HARD |
| CR-06-03 | L72071-05D | 5/25/2006 | 5/29/2006 | 6/8/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.51 | 0.05 | mg/L | | ICP-W |
| CR-06-03 | L72071-05E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| CR-06-03 | L72071-05E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03 | L72071-05E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 28 | 10 | mg/L | | ICP-W-DIS |
| CR-06-03 | L72071-05E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.048 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03 | L72071-05D | 5/25/2006 | 5/29/2006 | 6/8/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.053 | 0.005 | mg/L | | ICP-W |
| CR-06-03 | L72071-05E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| CR-06-03 | L72071-05B | 5/25/2006 | | 5/26/2006 | Aqueous | Nitrate (as N) | | 1 | 0.029 | 0.01 | mg/L | | NO3-W |
| CR-06-03 | L72071-05B | 5/25/2006 | | 5/26/2006 | Aqueous | Nitrite (as N) | | 1 | 0.018 | 0.01 | mg/L | | NO2-W |
| CR-06-03 | L72071-05B | 5/25/2006 | | 5/26/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| CR-06-03 | L72071-05E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.3 | 1 | mg/L | | ICP-W-DIS |
| CR-06-03 | L72071-05E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03 | L72071-05E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 20 | 10 | mg/L | | ICP-W-DIS |
| CR-06-03 | L72071-05B | 5/25/2006 | | 6/1/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 34 | 10 | mg/L | | 300.0-W |
| CR-06-03 | L72071-05A | 5/25/2006 | | 5/26/2006 | Aqueous | TDS | | 1 | 430 | 10 | mg/L | | TDS-W |
| CR-06-03 | L72071-05E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.36 | 0.01 | mg/L | | 6020-W-DISS |
| CR-06-03 ABV | L73160-01B | 7/31/2006 | | 8/2/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| CR-06-03 ABV | L73160-01B | 7/31/2006 | | 8/2/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 380 | 20 | mg/L | | 2320B-ALK-W |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0.12 | 0.1 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73160-01C | 7/31/2006 | 8/2/2006 | 8/4/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0.035 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03 ABV | L73160-01B | 7/31/2006 | | 8/2/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 380 | 20 | mg/L | | 2320B-ALK-W |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | 8/3/2006 | 8/15/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 120 | 10 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73160-01B | 7/31/2006 | | 8/2/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| CR-06-03 ABV | L73160-01B | 7/31/2006 | | 8/8/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 63 | 10 | mg/L | | 300.0-W |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | | 8/15/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 430 | 10 | mg/L | | HARD |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73160-01D | 7/31/2006 | 8/3/2006 | 8/8/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.64 | 0.05 | mg/L | | ICP-W |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 29 | 1 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.021 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03 ABV | L73160-01D | 7/31/2006 | 8/3/2006 | 8/8/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.022 | 0.005 | mg/L | | ICP-W |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73160-01B | 7/31/2006 | | 8/2/2006 | Aqueous | Nitrate (as N) | | 1 | 0.069 | 0.01 | mg/L | | NO3-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| CR-06-03 ABV | L73160-01B | 7/31/2006 | | 8/2/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| CR-06-03 ABV | L73160-01B | 7/31/2006 | | 8/2/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | 1 | PO4-O |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.9 | 1 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | 8/3/2006 | 8/15/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.0 | 1 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73160-01B | 7/31/2006 | | 8/8/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 42 | 10 | mg/L | | 300.0-W |
| CR-06-03 ABV | L73160-01A | 7/31/2006 | | 8/3/2006 | Aqueous | TDS | | 1 | 370 | 20 | mg/L | | TDS-W |
| CR-06-03 ABV | L73160-01E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.28 | 0.01 | mg/L | | 6020-W-DISS |
| CR-06-03 ABV | L73504-01B | 8/21/2006 | | 8/23/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| CR-06-03 ABV | L73504-01B | 8/21/2006 | | 8/23/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 370 | 20 | mg/L | | 2320B-ALK-W |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73504-01C | 8/21/2006 | 8/23/2006 | 8/24/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | 1 | NH3-W |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0.037 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03 ABV | L73504-01B | 8/21/2006 | | 8/23/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 370 | 20 | mg/L | | 2320B-ALK-W |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 120 | 10 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73504-01B | 8/21/2006 | | 8/23/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| CR-06-03 ABV | L73504-01B | 8/21/2006 | | 8/24/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 20 | 10 | mg/L | | 300.0-W |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | | 9/5/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 420 | 10 | mg/L | | HARD |
| CR-06-03 ABV | L73504-01D | 8/21/2006 | 8/23/2006 | 9/1/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.95 | 0.05 | mg/L | | ICP-W |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 30 | 10 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73504-01D | 8/21/2006 | 8/23/2006 | 9/1/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.018 | 0.005 | mg/L | | ICP-W |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0.021 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73504-01B | 8/21/2006 | | 8/23/2006 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | 1 | NO3-W |
| CR-06-03 ABV | L73504-01B | 8/21/2006 | | 8/23/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| CR-06-03 ABV | L73504-01B | 8/21/2006 | | 8/23/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.0 | 1 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.8 | 1 | mg/L | | ICP-W-DIS |
| CR-06-03 ABV | L73504-01B | 8/21/2006 | | 8/24/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 40 | 10 | mg/L | | 300.0-W |
| CR-06-03 ABV | L73504-01E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0.23 | 0.01 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L70402-01B | 2/28/2006 | | 3/2/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| CR-06-03-ABV | L70402-01B | 2/28/2006 | | 3/2/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 400 | 10 | mg/L | | 2320B-ALK-W |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | 3/2/2006 | 3/7/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L70402-01C | 2/28/2006 | 3/2/2006 | 3/2/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.1 | mg/L | | NH3-W |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | 3/2/2006 | 3/13/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0.036 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L70402-01B | 2/28/2006 | | 3/2/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 400 | 10 | mg/L | | 2320B-ALK-W |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | 3/2/2006 | 3/7/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | 3/2/2006 | 3/13/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | 3/2/2006 | 3/7/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 130 | 10 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L70402-01B | 2/28/2006 | | 3/2/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| CR-06-03-ABV | L70402-01B | 2/28/2006 | | 3/3/2006 | Aqueous | Chloride | 16887-00-6 | 10 | 36 | 10 | mg/L | | 300.0-W |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | 3/2/2006 | 3/13/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.068 | 0.004 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | | 3/7/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 460 | 10 | mg/L | | HARD |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | 3/2/2006 | 3/7/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L70402-01D | 2/28/2006 | 3/1/2006 | 3/2/2006 | Aqueous | Iron | 7439-89-6 | 1 | 4.3 | 0.05 | mg/L | | ICP-W |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | 3/2/2006 | 3/13/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | 3/2/2006 | 3/7/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 30 | 1 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L70402-01D | 2/28/2006 | 3/1/2006 | 3/2/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.15 | 0.005 | mg/L | | ICP-W |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | 3/2/2006 | 3/13/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.095 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | 3/2/2006 | 3/7/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L70402-01B | 2/28/2006 | | 3/2/2006 | Aqueous | Nitrate (as N) | | 1 | 0.086 | 0.01 | mg/L | | NO3-W |
| CR-06-03-ABV | L70402-01B | 2/28/2006 | | 3/2/2006 | Aqueous | Nitrite (as N) | | 1 | 0.019 | 0.01 | mg/L | | NO2-W |
| CR-06-03-ABV | L70402-01B | 2/28/2006 | | 3/1/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.066 | 0.05 | mg/L | | PO4-O |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | 3/2/2006 | 3/7/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.4 | 1 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | 3/2/2006 | 3/13/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | 3/2/2006 | 3/7/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 25 | 10 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L70402-01B | 2/28/2006 | | 3/3/2006 | Aqueous | Sulfate | 14808-79-8 | 10 | 50 | 10 | mg/L | | 300.0-W |
| CR-06-03-ABV | L70402-01A | 2/28/2006 | | 3/3/2006 | Aqueous | TDS | | 1 | 460 | 10 | mg/L | | TDS-W |
| CR-06-03-ABV | L70402-01E | 2/28/2006 | 3/2/2006 | 3/13/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 2.8 | 0.01 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L70885-05E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L70885-05E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L70885-05E | 3/27/2006 | 4/3/2006 | 4/11/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 120 | 10 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L70885-05B | 3/27/2006 | | 3/30/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| CR-06-03-ABV | L70885-05B | 3/27/2006 | | 3/29/2006 | Aqueous | Chloride | 16887-00-6 | 10 | 17 | 10 | mg/L | | 300.0-W |
| CR-06-03-ABV | L70885-05B | 3/27/2006 | | 3/30/2006 | Aqueous | Conductivity | | 1 | 800 | 2 | umhos/cm | | COND-W |
| CR-06-03-ABV | L70885-05E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.0088 | 0.004 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L70885-05E | 3/27/2006 | | 4/11/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 420 | 10 | mg/L | | HARD |
| CR-06-03-ABV | L70885-05D | 3/27/2006 | 4/6/2006 | 4/9/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.46 | 0.05 | mg/L | | ICP-W |
| CR-06-03-ABV | L70885-05E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0.052 | 0.05 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L70885-05E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L70885-05E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 31 | 1 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L70885-05E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.075 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L70885-05D | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.11 | 0.005 | mg/L | | ICP-W |
| CR-06-03-ABV | L70885-05E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L70885-05B | 3/27/2006 | | 3/29/2006 | Aqueous | Nitrate (as N) | | 1 | 0.076 | 0.01 | mg/L | | NO3-W |
| CR-06-03-ABV | L70885-05B | 3/27/2006 | | 3/29/2006 | Aqueous | Nitrite (as N) | | 1 | 0.025 | 0.01 | mg/L | | NO2-W |
| CR-06-03-ABV | L70885-05B | 3/27/2006 | | 3/28/2006 | Aqueous | pH @ 25° C | | 1 | 7.14 | 0 | pH Units | | PH-W |
| CR-06-03-ABV | L70885-05B | 3/27/2006 | | 3/29/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| CR-06-03-ABV | L70885-05E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.5 | 1 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L70885-05E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L70885-05E | 3/27/2006 | 4/3/2006 | 4/11/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.4 | 1 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L70885-05B | 3/27/2006 | | 3/29/2006 | Aqueous | Sulfate | 14808-79-8 | 10 | 34 | 10 | mg/L | | 300.0-W |
| CR-06-03-ABV | L70885-05A | 3/27/2006 | | 3/31/2006 | Aqueous | TDS | | 1 | 350 | 10 | mg/L | | TDS-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| CR-06-03-ABV | L70885-05E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.43 | 0.01 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L71507-05B | 4/26/2006 | | 5/2/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| CR-06-03-ABV | L71507-05B | 4/26/2006 | | 5/2/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 410 | 10 | mg/L | | 2320B-ALK-W |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| CR-06-03-ABV | L71507-05C | 4/26/2006 | 5/3/2006 | 5/3/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0.026 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L71507-05B | 4/26/2006 | | 5/2/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 410 | 10 | mg/L | | 2320B-ALK-W |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 130 | 10 | mg/L | | ICP-W-dis |
| CR-06-03-ABV | L71507-05B | 4/26/2006 | | 5/2/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| CR-06-03-ABV | L71507-05B | 4/26/2006 | | 5/13/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 17 | 10 | mg/L | | 300.0-W |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.011 | 0.004 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | | 5/15/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 450 | 10 | mg/L | | HARD |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| CR-06-03-ABV | L71507-05D | 4/26/2006 | 5/3/2006 | 5/11/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.99 | 0.05 | mg/L | | ICP-W |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 31 | 10 | mg/L | | ICP-W-dis |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.058 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L71507-05D | 4/26/2006 | 5/3/2006 | 5/11/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.063 | 0.005 | mg/L | | ICP-W |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| CR-06-03-ABV | L71507-05C | 4/26/2006 | | 5/4/2006 | Aqueous | Nitrate/Nitrite (as N) | | 1 | 0.024 | 0.01 | mg/L | | NO2/NO3-W |
| CR-06-03-ABV | L71507-05B | 4/26/2006 | | 4/28/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.04 | 0.05 | mg/L | | PO4-O |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.4 | 1 | mg/L | | ICP-W-dis |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 21 | 10 | mg/L | | ICP-W-dis |
| CR-06-03-ABV | L71507-05B | 4/26/2006 | | 5/13/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 31 | 10 | mg/L | | 300.0-W |
| CR-06-03-ABV | L71507-05A | 4/26/2006 | | 4/28/2006 | Aqueous | TDS | | 1 | 410 | 10 | mg/L | | TDS-W |
| CR-06-03-ABV | L71507-05E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.40 | 0.01 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L72660-06B | 6/29/2006 | | 7/3/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| CR-06-03-ABV | L72660-06B | 6/29/2006 | | 7/3/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 380 | 20 | mg/L | | 2320B-ALK-W |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L72660-06C | 6/29/2006 | 7/5/2006 | 7/7/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0.033 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L72660-06B | 6/29/2006 | | 7/3/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 380 | 20 | mg/L | | 2320B-ALK-W |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 110 | 10 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L72660-06B | 6/29/2006 | | 7/3/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| CR-06-03-ABV | L72660-06B | 6/29/2006 | | 7/5/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 17 | 10 | mg/L | | 300.0-W |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | | 7/11/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 430 | 10 | mg/L | | HARD |
| CR-06-03-ABV | L72660-06D | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.31 | 0.05 | mg/L | | ICP-W |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 29 | 10 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L72660-06D | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.025 | 0.005 | mg/L | | ICP-W |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.031 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L72660-06B | 6/29/2006 | | 6/30/2006 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| CR-06-03-ABV | L72660-06B | 6/29/2006 | | 6/30/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| CR-06-03-ABV | L72660-06B | 6/29/2006 | | 6/30/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.0 | 1 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.7 | 1 | mg/L | | ICP-W-DIS |
| CR-06-03-ABV | L72660-06B | 6/29/2006 | | 7/5/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 39 | 10 | mg/L | | 300.0-W |
| CR-06-03-ABV | L72660-06A | 6/29/2006 | | 6/30/2006 | Aqueous | TDS | | 1 | 370 | 20 | mg/L | | TDS-W |
| CR-06-03-ABV | L72660-06E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.38 | 0.01 | mg/L | | 6020-W-DISS |
| CR-06-03-ABV | L73504-01A | 8/21/2006 | | 8/25/2006 | Aqueous | TDS | | 1 | 400 | 20 | mg/L | | TDS-W |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/16/2010 | Aqueous | Chloride | 16887-00-6 | 10 | 14.2 | 1.00 | mg/L | | 300.0-W |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/16/2010 | Aqueous | Sulfate | 14808-79-8 | 10 | 27.4 | 7.50 | mg/L | | 300.0-W |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/19/2010 | Aqueous | Acidity | | 1 | 50.0 | 15.0 | mg/L | | ACIDITY-W-2310B |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/19/2010 | Aqueous | Alkalinity (as CaCO3) | | 2 | 212 | 20.0 | mg/L | | ALK-W-2320B |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/19/2010 | Aqueous | Bicarbonate (as CaCO3) | | 2 | 212 | 20.0 | mg/L | | ALK-W-2320B |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/19/2010 | Aqueous | Carbonate (as CaCO3) | | 2 | 0 | 10.0 | mg/L | | ALK-W-2320B |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/16/2010 | Aqueous | Nitrite (as N) | 14797-65-0 | 1 | 0 | 0.0100 | mg/L | | NO2-W-353.2 |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/16/2010 | Aqueous | Nitrate (as N) | 14797-55-8 | 10 | 2.54 | 0.100 | mg/L | | NO3-W-353.2 |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/16/2010 | Aqueous | Phosphate, Total Ortho (as P) | 7723-14-0 | 1 | 0.0584 | 0.0500 | mg/L | [1] | PO4-O-365.1 |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/28/2010 | 7/29/2010 | Aqueous | Ammonia (as N) | 7664-41-7 | 1 | 0 | 0.0500 | mg/L | | NH3-W-350.1 |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Aluminum | 7429-90-5 | 1 | 0 | 0.100 | mg/L | | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Boron | 7440-42-8 | 1 | 0 | 0.500 | mg/L | | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Calcium | 7440-70-2 | 10 | 77.9 | 10.0 | mg/L | [2] | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.100 | mg/L | | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Magnesium | 7439-95-4 | 1 | 11.9 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Molybdenum | 7439-98-7 | 1 | 0 | 0.0200 | mg/L | | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Potassium | 7440-09-7 | 1 | 0 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Sodium | 7440-23-5 | 1 | 11.4 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/19/2010 | Aqueous | Arsenic | 7440-38-2 | 20 | 0 | 0.000600 | mg/L | | 6020-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/19/2010 | Aqueous | Cadmium | 7440-43-9 | 20 | 0 | 0.000180 | mg/L | | 6020-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/19/2010 | Aqueous | Copper | 7440-50-8 | 20 | 0 | 0.000800 | mg/L | | 6020-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/19/2010 | Aqueous | Lead | 7439-92-1 | 20 | 0 | 0.000400 | mg/L | | 6020-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/19/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.00213 | 0.00120 | mg/L | | 6020-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/19/2010 | Aqueous | Selenium | 7782-49-2 | 20 | 0.00206 | 0.000800 | mg/L | | 6020-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/19/2010 | Aqueous | Zinc | 7440-66-6 | 20 | 0.0113 | 0.00500 | mg/L | | 6020-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/20/2010 | Aqueous | Hardness (as CaCO3) | | 10 | 243 | 100 | mg/L | | HARD-2340B |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/19/2010 | 7/21/2010 | Aqueous | Iron | 7439-89-6 | 1 | 0.648 | 0.100 | mg/L | | 6010C-W |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/19/2010 | 7/20/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.00801 | 0.00120 | mg/L | | 6020-W |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/16/2010 | Aqueous | Total Dissolved Solids | | 2 | 288 | 20.0 | mg/L | | TDS-W-2540C |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/16/2010 | Aqueous | Chloride | 16887-00-6 | 10 | 14.2 | 1.00 | mg/L | | 300.0-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/16/2010 | Aqueous | Sulfate | 14808-79-8 | 10 | 27.4 | 7.50 | mg/L | | 300.0-W |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/19/2010 | Aqueous | Acidity | | 1 | 50.0 | 15.0 | mg/L | | ACIDITY-W-2310B |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/19/2010 | Aqueous | Alkalinity (as CaCO3) | | 2 | 212 | 20.0 | mg/L | | ALK-W-2320B |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/19/2010 | Aqueous | Bicarbonate (as CaCO3) | | 2 | 212 | 20.0 | mg/L | | ALK-W-2320B |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/19/2010 | Aqueous | Carbonate (as CaCO3) | | 2 | 0 | 10.0 | mg/L | | ALK-W-2320B |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/16/2010 | Aqueous | Nitrite (as N) | 14797-65-0 | 1 | 0 | 0.0100 | mg/L | | NO2-W-353.2 |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/16/2010 | Aqueous | Nitrate (as N) | 14797-55-8 | 10 | 2.54 | 0.100 | mg/L | | NO3-W-353.2 |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/16/2010 | Aqueous | Phosphate, Total Ortho (as P) | 7723-14-0 | 1 | 0.0584 | 0.0500 | mg/L | 1 | PO4-O-365.1 |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/28/2010 | 7/29/2010 | Aqueous | Ammonia (as N) | 7664-41-7 | 1 | 0 | 0.0500 | mg/L | | NH3-W-350.1 |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Aluminum | 7429-90-5 | 1 | 0 | 0.100 | mg/L | | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Boron | 7440-42-8 | 1 | 0 | 0.500 | mg/L | | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Calcium | 7440-70-2 | 10 | 77.9 | 10.0 | mg/L | 2 | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.100 | mg/L | | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Magnesium | 7439-95-4 | 1 | 11.9 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Molybdenum | 7439-98-7 | 1 | 0 | 0.0200 | mg/L | | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Potassium | 7440-09-7 | 1 | 0 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/20/2010 | Aqueous | Sodium | 7440-23-5 | 1 | 11.4 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/19/2010 | Aqueous | Arsenic | 7440-38-2 | 20 | 0 | 0.000600 | mg/L | | 6020-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/19/2010 | Aqueous | Cadmium | 7440-43-9 | 20 | 0 | 0.000180 | mg/L | | 6020-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/19/2010 | Aqueous | Copper | 7440-50-8 | 20 | 0 | 0.000800 | mg/L | | 6020-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/19/2010 | Aqueous | Lead | 7439-92-1 | 20 | 0 | 0.000400 | mg/L | | 6020-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/19/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.00213 | 0.00120 | mg/L | | 6020-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/19/2010 | Aqueous | Selenium | 7782-49-2 | 20 | 0.00206 | 0.000800 | mg/L | | 6020-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/16/2010 | 7/19/2010 | Aqueous | Zinc | 7440-66-6 | 20 | 0.0113 | 0.00500 | mg/L | | 6020-DIS |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/20/2010 | Aqueous | Hardness (as CaCO3) | | 10 | 243 | 100 | mg/L | | HARD-2340B |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/19/2010 | 7/21/2010 | Aqueous | Iron | 7439-89-6 | 1 | 0.648 | 0.100 | mg/L | | 6010C-W |
| CR-10-11 | 1007245-001 | 7/15/2010 | 7/19/2010 | 7/20/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.00801 | 0.00120 | mg/L | | 6020-W |
| CR-10-11 | 1007245-001 | 7/15/2010 | | 7/16/2010 | Aqueous | Total Dissolved Solids | | 2 | 288 | 20.0 | mg/L | | TDS-W-2540C |
| CR-10-11 | 1009035-001 | 8/31/2010 | | 9/2/2010 | Aqueous | Settleable Solids | | 1 | 6.50 | 0.100 | mL/L | | SS-W-2540F |
| CR-10-11 | 1009035-001 | 8/31/2010 | | 9/2/2010 | Aqueous | Total Dissolved Solids | | 1 | 470 | 50.0 | mg/L | | TDS-W-2540C |
| CR-10-11 | 1009035-001 | 8/31/2010 | | 9/2/2010 | Aqueous | Total Suspended Solids | TSS | 1 | 2,690 | 30.0 | mg/L | | TSS-W-2540D |
| CR-10-11 | 1009035-001 | 8/31/2010 | | 9/2/2010 | Aqueous | Chloride | 16887-00-6 | 5 | 14.7 | 0.500 | mg/L | | 300.0-W |
| CR-10-11 | 1009035-001 | 8/31/2010 | | 9/2/2010 | Aqueous | Sulfate | 14808-79-8 | 5 | 28.3 | 3.75 | mg/L | | 300.0-W |
| CR-10-11 | 1009035-001 | 8/31/2010 | | 9/3/2010 | Aqueous | Acidity | | 1 | 46.0 | 15.0 | mg/L | | ACIDITY-W-2310B |
| CR-10-11 | 1009035-001 | 8/31/2010 | | 9/3/2010 | Aqueous | Alkalinity (as CaCO3) | | 2 | 214 | 20.0 | mg/L | | ALK-W-2320B |
| CR-10-11 | 1009035-001 | 8/31/2010 | | 9/3/2010 | Aqueous | Bicarbonate (as CaCO3) | | 2 | 214 | 20.0 | mg/L | | ALK-W-2320B |
| CR-10-11 | 1009035-001 | 8/31/2010 | | 9/3/2010 | Aqueous | Carbonate (as CaCO3) | | 2 | 0 | 10.0 | mg/L | | ALK-W-2320B |
| CR-10-11 | 1009035-001 | 8/31/2010 | | 9/2/2010 | Aqueous | Nitrite (as N) | 14797-65-0 | 1 | 0.0828 | 0.0100 | mg/L | | NO2-W-353.2 |
| CR-10-11 | 1009035-001 | 8/31/2010 | | 9/2/2010 | Aqueous | Nitrate (as N) | 14797-55-8 | 10 | 2.54 | 0.100 | mg/L | 1 | NO3-W-353.2 |
| CR-10-11 | 1009035-001 | 8/31/2010 | | 9/2/2010 | Aqueous | Phosphate, Total Ortho (as P) | 7723-14-0 | 1 | 0.225 | 0.0500 | mg/L | | PO4-O-365.1 |
| CR-10-11 | 1009035-001 | 8/31/2010 | | 9/7/2010 | Aqueous | Oil & Grease | | 1 | 0 | 3.00 | mg/L | | OGB-W-1664A |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/10/2010 | 9/14/2010 | Aqueous | Ammonia (as N) | 7664-41-7 | 1 | 0 | 0.0500 | mg/L | | NH3-W-350.1 |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Aluminum | 7429-90-5 | 1 | 0 | 0.100 | mg/L | | 6010C-DIS |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Boron | 7440-42-8 | 1 | 0 | 0.500 | mg/L | | 6010C-DIS |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Calcium | 7440-70-2 | 10 | 82.3 | 10.0 | mg/L | 2 | 6010C-DIS |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.100 | mg/L | | 6010C-DIS |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Magnesium | 7439-95-4 | 1 | 12.4 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Molybdenum | 7439-98-7 | 1 | 0 | 0.0200 | mg/L | | 6010C-DIS |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Potassium | 7440-09-7 | 1 | 1.27 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Sodium | 7440-23-5 | 1 | 11.5 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/3/2010 | 9/6/2010 | Aqueous | Arsenic | 7440-38-2 | 20 | 0 | 0.000600 | mg/L | | 6020-DIS |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/3/2010 | 9/6/2010 | Aqueous | Cadmium | 7440-43-9 | 20 | 0 | 0.000180 | mg/L | | 6020-DIS |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/3/2010 | 9/6/2010 | Aqueous | Copper | 7440-50-8 | 20 | 0.00140 | 0.000800 | mg/L | | 6020-DIS |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/3/2010 | 9/6/2010 | Aqueous | Lead | 7439-92-1 | 20 | 0 | 0.000400 | mg/L | | 6020-DIS |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/3/2010 | 9/6/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.0182 | 0.00120 | mg/L | | 6020-DIS |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/3/2010 | 9/6/2010 | Aqueous | Selenium | 7782-49-2 | 20 | 0.00130 | 0.000800 | mg/L | | 6020-DIS |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/3/2010 | 9/6/2010 | Aqueous | Zinc | 7440-66-6 | 20 | 0.00958 | 0.00500 | mg/L | | 6020-DIS |
| CR-10-11 | 1009035-001 | 8/31/2010 | | 9/14/2010 | Aqueous | Hardness (as CaCO3) | | 1 | 257 | 10.0 | mg/L | | HARD-2340B |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/5/2010 | 9/8/2010 | Aqueous | Iron | 7439-89-6 | 1 | 22.7 | 0.100 | mg/L | | 6010C-W |
| CR-10-11 | 1009035-001 | 8/31/2010 | 9/5/2010 | 9/6/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.437 | 0.00120 | mg/L | | 6020-W |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/15/2010 | Aqueous | Chloride | 16887-00-6 | 10 | 21.8 | 1.00 | mg/L | | 300.0-W |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/15/2010 | Aqueous | Sulfate | 14808-79-8 | 10 | 73.9 | 7.50 | mg/L | | 300.0-W |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/19/2010 | Aqueous | Acidity | | 1 | 0 | 15.0 | mg/L | | ACIDITY-W-2310B |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/16/2010 | Aqueous | Alkalinity (as CaCO3) | | 2 | 175 | 20.0 | mg/L | | ALK-W-2320B |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/16/2010 | Aqueous | Bicarbonate (as CaCO3) | | 2 | 175 | 20.0 | mg/L | | ALK-W-2320B |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/16/2010 | Aqueous | Carbonate (as CaCO3) | | 2 | 0 | 10.0 | mg/L | | ALK-W-2320B |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/15/2010 | Aqueous | Nitrite (as N) | 14797-65-0 | 1 | 0.180 | 0.0100 | mg/L | | NO2-W-353.2 |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/15/2010 | Aqueous | Nitrate (as N) | 14797-55-8 | 10 | 6.70 | 0.100 | mg/L | 1 | NO3-W-353.2 |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/15/2010 | Aqueous | Phosphate, Total Ortho (as P) | 7723-14-0 | 1 | 0.379 | 0.0500 | mg/L | | PO4-O-365.1 |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/19/2010 | Aqueous | Ammonia (as N) | 7664-41-7 | 1 | 0 | 0.0500 | mg/L | | NH3-W-350.1 |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Aluminum | 7429-90-5 | 1 | 0 | 0.100 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Boron | 7440-42-8 | 1 | 0 | 0.500 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Calcium | 7440-70-2 | 10 | 99.9 | 10.0 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.100 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Magnesium | 7439-95-4 | 1 | 8.96 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Molybdenum | 7439-98-7 | 1 | 0 | 0.0200 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Potassium | 7440-09-7 | 1 | 1.20 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Sodium | 7440-23-5 | 1 | 16.1 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Arsenic | 7440-38-2 | 20 | 0 | 0.000600 | mg/L | | 6020-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Cadmium | 7440-43-9 | 20 | 0 | 0.000180 | mg/L | | 6020-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Copper | 7440-50-8 | 20 | 0 | 0.000800 | mg/L | | 6020-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Lead | 7439-92-1 | 20 | 0 | 0.000400 | mg/L | | 6020-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0 | 0.00120 | mg/L | | 6020-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Selenium | 7782-49-2 | 20 | 0.00120 | 0.000800 | mg/L | | 6020-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Zinc | 7440-66-6 | 20 | 0 | 0.00500 | mg/L | | 6020-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/16/2010 | Aqueous | Hardness (as CaCO3) | | 10 | 286 | 100 | mg/L | | HARD-2340B |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Iron | 7439-89-6 | 1 | 44.8 | 0.100 | mg/L | 2 | 6010C-W |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Manganese | 7439-96-5 | 100 | 0.559 | 0.00600 | mg/L | | 6020-W |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/16/2010 | Aqueous | Total Dissolved Solids | | 10 | 620 | 100 | mg/L | | TDS-W-2540C |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/15/2010 | Aqueous | Chloride | 16887-00-6 | 10 | 21.8 | 1.00 | mg/L | | 300.0-W |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/15/2010 | Aqueous | Sulfate | 14808-79-8 | 10 | 73.9 | 7.50 | mg/L | | 300.0-W |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/19/2010 | Aqueous | Acidity | | 1 | 0 | 15.0 | mg/L | | ACIDITY-W-2310B |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/16/2010 | Aqueous | Alkalinity (as CaCO3) | | 2 | 175 | 20.0 | mg/L | | ALK-W-2320B |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/16/2010 | Aqueous | Bicarbonate (as CaCO3) | | 2 | 175 | 20.0 | mg/L | | ALK-W-2320B |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/16/2010 | Aqueous | Carbonate (as CaCO3) | | 2 | 0 | 10.0 | mg/L | | ALK-W-2320B |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/15/2010 | Aqueous | Nitrite (as N) | 14797-65-0 | 1 | 0.180 | 0.0100 | mg/L | | NO2-W-353.2 |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/15/2010 | Aqueous | Nitrate (as N) | 14797-55-8 | 10 | 6.70 | 0.100 | mg/L | [1] | NO3-W-353.2 |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/15/2010 | Aqueous | Phosphate, Total Ortho (as P) | 7723-14-0 | 1 | 0.379 | 0.0500 | mg/L | | PO4-O-365.1 |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/19/2010 | Aqueous | Ammonia (as N) | 7664-41-7 | 1 | 0 | 0.0500 | mg/L | | NH3-W-350.1 |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Aluminum | 7429-90-5 | 1 | 0 | 0.100 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Boron | 7440-42-8 | 1 | 0 | 0.500 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Calcium | 7440-70-2 | 10 | 99.9 | 10.0 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.100 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Magnesium | 7439-95-4 | 1 | 8.96 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Molybdenum | 7439-98-7 | 1 | 0 | 0.0200 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Potassium | 7440-09-7 | 1 | 1.20 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/16/2010 | Aqueous | Sodium | 7440-23-5 | 1 | 16.1 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Arsenic | 7440-38-2 | 20 | 0 | 0.000600 | mg/L | | 6020-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Cadmium | 7440-43-9 | 20 | 0 | 0.000180 | mg/L | | 6020-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Copper | 7440-50-8 | 20 | 0 | 0.000800 | mg/L | | 6020-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Lead | 7439-92-1 | 20 | 0 | 0.000400 | mg/L | | 6020-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0 | 0.00120 | mg/L | | 6020-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Selenium | 7782-49-2 | 20 | 0.00120 | 0.000800 | mg/L | | 6020-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Zinc | 7440-66-6 | 20 | 0 | 0.00500 | mg/L | | 6020-DIS |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/16/2010 | Aqueous | Hardness (as CaCO3) | | 10 | 286 | 100 | mg/L | | HARD-2340B |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Iron | 7439-89-6 | 1 | 44.8 | 0.100 | mg/L | [2] | 6010C-W |
| CR-10-12 | 1007213-001 | 7/13/2010 | 7/15/2010 | 7/15/2010 | Aqueous | Manganese | 7439-96-5 | 100 | 0.559 | 0.00600 | mg/L | | 6020-W |
| CR-10-12 | 1007213-001 | 7/13/2010 | | 7/16/2010 | Aqueous | Total Dissolved Solids | | 10 | 620 | 100 | mg/L | | TDS-W-2540C |
| CR-10-12 | 1009035-002 | 8/31/2010 | | 9/2/2010 | Aqueous | Settleable Solids | | 1 | 0 | 0.100 | mL/L | | SS-W-2540F |
| CR-10-12 | 1009035-002 | 8/31/2010 | | 9/2/2010 | Aqueous | Total Dissolved Solids | | 1 | 308 | 20.0 | mg/L | @ | TDS-W-2540C |
| CR-10-12 | 1009035-002 | 8/31/2010 | | 9/2/2010 | Aqueous | Total Suspended Solids | TSS | 1 | 95.0 | 3.00 | mg/L | | TSS-W-2540D |
| CR-10-12 | 1009035-002 | 8/31/2010 | | 9/2/2010 | Aqueous | Chloride | 16887-00-6 | 5 | 18.8 | 0.500 | mg/L | | 300.0-W |
| CR-10-12 | 1009035-002 | 8/31/2010 | | 9/2/2010 | Aqueous | Sulfate | 14808-79-8 | 5 | 37.1 | 3.75 | mg/L | | 300.0-W |
| CR-10-12 | 1009035-002 | 8/31/2010 | | 9/3/2010 | Aqueous | Acidity | | 1 | 0 | 15.0 | mg/L | | ACIDITY-W-2310B |
| CR-10-12 | 1009035-002 | 8/31/2010 | | 9/3/2010 | Aqueous | Alkalinity (as CaCO3) | | 2 | 175 | 20.0 | mg/L | | ALK-W-2320B |
| CR-10-12 | 1009035-002 | 8/31/2010 | | 9/3/2010 | Aqueous | Bicarbonate (as CaCO3) | | 2 | 175 | 20.0 | mg/L | | ALK-W-2320B |
| CR-10-12 | 1009035-002 | 8/31/2010 | | 9/3/2010 | Aqueous | Carbonate (as CaCO3) | | 2 | 0 | 10.0 | mg/L | | ALK-W-2320B |
| CR-10-12 | 1009035-002 | 8/31/2010 | | 9/2/2010 | Aqueous | Nitrite (as N) | 14797-65-0 | 1 | 0.0426 | 0.0100 | mg/L | | NO2-W-353.2 |
| CR-10-12 | 1009035-002 | 8/31/2010 | | 9/2/2010 | Aqueous | Nitrate (as N) | 14797-55-8 | 10 | 5.17 | 0.100 | mg/L | | NO3-W-353.2 |
| CR-10-12 | 1009035-002 | 8/31/2010 | | 9/2/2010 | Aqueous | Phosphate, Total Ortho (as P) | 7723-14-0 | 1 | 0.0907 | 0.0500 | mg/L | | PO4-O-365.1 |
| CR-10-12 | 1009035-002 | 8/31/2010 | | 9/7/2010 | Aqueous | Oil & Grease | | 1 | 0 | 3.00 | mg/L | | OGB-W-1664A |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/10/2010 | 9/14/2010 | Aqueous | Ammonia (as N) | 7664-41-7 | 1 | 0 | 0.0500 | mg/L | | NH3-W-350.1 |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Aluminum | 7429-90-5 | 1 | 0 | 0.100 | mg/L | | 6010C-DIS |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Boron | 7440-42-8 | 1 | 0 | 0.500 | mg/L | | 6010C-DIS |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Calcium | 7440-70-2 | 10 | 66.2 | 10.0 | mg/L | | 6010C-DIS |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.100 | mg/L | | 6010C-DIS |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Magnesium | 7439-95-4 | 1 | 6.10 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Molybdenum | 7439-98-7 | 1 | 0 | 0.0200 | mg/L | | 6010C-DIS |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Potassium | 7440-09-7 | 1 | 1.04 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/3/2010 | 9/14/2010 | Aqueous | Sodium | 7440-23-5 | 1 | 25.7 | 1.00 | mg/L | | 6010C-DIS |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/3/2010 | 9/6/2010 | Aqueous | Arsenic | 7440-38-2 | 20 | 0 | 0.000600 | mg/L | | 6020-DIS |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/3/2010 | 9/6/2010 | Aqueous | Cadmium | 7440-43-9 | 20 | 0 | 0.000180 | mg/L | | 6020-DIS |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/3/2010 | 9/6/2010 | Aqueous | Copper | 7440-50-8 | 20 | 0 | 0.000800 | mg/L | | 6020-DIS |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/3/2010 | 9/6/2010 | Aqueous | Lead | 7439-92-1 | 20 | 0 | 0.000400 | mg/L | | 6020-DIS |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/3/2010 | 9/6/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.00212 | 0.00120 | mg/L | | 6020-DIS |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/3/2010 | 9/6/2010 | Aqueous | Selenium | 7782-49-2 | 20 | 0.000870 | 0.000800 | mg/L | | 6020-DIS |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/3/2010 | 9/6/2010 | Aqueous | Zinc | 7440-66-6 | 20 | 0 | 0.00500 | mg/L | | 6020-DIS |
| CR-10-12 | 1009035-002 | 8/31/2010 | | 9/14/2010 | Aqueous | Hardness (as CaCO3) | | 1 | 191 | 10.0 | mg/L | | HARD-2340B |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/5/2010 | 9/8/2010 | Aqueous | Iron | 7439-89-6 | 1 | 3.01 | 0.100 | mg/L | | 6010C-W |
| CR-10-12 | 1009035-002 | 8/31/2010 | 9/5/2010 | 9/6/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.0287 | 0.00120 | mg/L | | 6020-W |
| Eagle Spring | L65736-02B | 5/9/2005 | | 5/11/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Eagle Spring | L65736-02B | 5/9/2005 | | 5/11/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 46 | 10 | mg/L | | 2320B-ALK-W |
| Eagle Spring | L65736-02D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0.94 | 0.1 | mg/L | | ICP-W-dis |
| Eagle Spring | L65736-02F | 5/9/2005 | 5/11/2005 | 5/12/2005 | Aqueous | Ammonia (as N) | | 1 | 0.082 | 0.05 | mg/L | | NH3-W |
| Eagle Spring | L65736-02D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0.002 | 0.005 | mg/L | | 6020-W-DISS |
| Eagle Spring | L65736-02B | 5/9/2005 | | 5/11/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 46 | 10 | mg/L | | 2320B-ALK-W |
| Eagle Spring | L65736-02D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0.08 | 0.5 | mg/L | | ICP-W-dis |
| Eagle Spring | L65736-02D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Eagle Spring | L65736-02D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 15 | 1 | mg/L | | ICP-W-dis |
| Eagle Spring | L65736-02B | 5/9/2005 | | 5/11/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Eagle Spring | L65736-02B | 5/9/2005 | | 5/18/2005 | Aqueous | Chloride | 16887-00-6 | 1 | 5.0 | 1 | mg/L | | 300.0-W |
| Eagle Spring | L65736-02D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.0057 | 0.004 | mg/L | | 6020-W-DISS |
| Eagle Spring | L65736-02D | 5/9/2005 | | 5/20/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 55 | 10 | mg/L | | HARD |
| Eagle Spring | L65736-02D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0.75 | 0.05 | mg/L | | ICP-W-dis |
| Eagle Spring | L65736-02C | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous | Iron | 7439-89-6 | 1 | 1.1 | 0.05 | mg/L | | ICP-W |
| Eagle Spring | L65736-02D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Eagle Spring | L65736-02D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 3.5 | 1 | mg/L | | ICP-W-dis |
| Eagle Spring | L65736-02C | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.018 | 0.005 | mg/L | | 6020-W |
| Eagle Spring | L65736-02D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.017 | 0.005 | mg/L | | 6020-W-DISS |
| Eagle Spring | L65736-02D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Eagle Spring | L65736-02B | 5/9/2005 | | 5/11/2005 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Eagle Spring | L65736-02B | 5/9/2005 | | 5/11/2005 | Aqueous | Nitrite (as N) | | 1 | 0.010 | 0.01 | mg/L | | NO2-W |
| Eagle Spring | L65736-02E | 5/9/2005 | | 5/11/2005 | Aqueous | Oil & Grease | | 1 | 3.3 | 3 | mg/L | | OGB-W |
| Eagle Spring | L65736-02B | 5/9/2005 | | 5/11/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.13 | 0.05 | mg/L | | PO4-O |
| Eagle Spring | L65736-02D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.5 | 1 | mg/L | | ICP-W-dis |
| Eagle Spring | L65736-02D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0.002 | 0.005 | mg/L | | 6020-W-DISS |
| Eagle Spring | L65736-02A | 5/9/2005 | | 5/10/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Eagle Spring | L65736-02D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 4.4 | 1 | mg/L | | ICP-W-dis |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Eagle Spring | L65736-02B | 5/9/2005 | | 5/18/2005 | Aqueous | Sulfate | 14808-79-8 | 1 | 6.2 | 1 | mg/L | | 300.0-W |
| Eagle Spring | L65736-02A | 5/9/2005 | | 5/10/2005 | Aqueous | TDS | | 1 | 120 | 10 | mg/L | | TDS-W |
| Eagle Spring | L65736-02A | 5/9/2005 | | 5/10/2005 | Aqueous | TSS | | 1 | 8.0 | 3 | mg/L | | TSS-W |
| Eagle Spring | L65736-02D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.016 | 0.01 | mg/L | | 6020-W-DISS |
| Eagle Spring | L71507-06B | 4/26/2006 | | 5/2/2006 | Aqueous | Acidity | | 1 | 24 | 15 | mg/L | | ACIDITY-W |
| Eagle Spring | L71507-06B | 4/26/2006 | | 5/2/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 64 | 10 | mg/L | | 2320B-ALK-W |
| Eagle Spring | L71507-06E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 1.5 | 0.1 | mg/L | | ICP-W-dis |
| Eagle Spring | L71507-06C | 4/26/2006 | 5/3/2006 | 5/3/2006 | Aqueous | Ammonia (as N) | | 1 | 0.081 | 0.05 | mg/L | | NH3-W |
| Eagle Spring | L71507-06E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0.0056 | 0.005 | mg/L | | 6020-W-DISS |
| Eagle Spring | L71507-06B | 4/26/2006 | | 5/2/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 64 | 10 | mg/L | | 2320B-ALK-W |
| Eagle Spring | L71507-06E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Eagle Spring | L71507-06E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Eagle Spring | L71507-06E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 15 | 1 | mg/L | | ICP-W-dis |
| Eagle Spring | L71507-06B | 4/26/2006 | | 5/2/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Eagle Spring | L71507-06B | 4/26/2006 | | 5/13/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 3.8 | 1 | mg/L | | 300.0-W |
| Eagle Spring | L71507-06E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.0058 | 0.004 | mg/L | | 6020-W-DISS |
| Eagle Spring | L71507-06E | 4/26/2006 | | 5/15/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 51 | 10 | mg/L | | HARD |
| Eagle Spring | L71507-06E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 1.1 | 0.05 | mg/L | | ICP-W-dis |
| Eagle Spring | L71507-06D | 4/26/2006 | 5/3/2006 | 5/11/2006 | Aqueous | Iron | 7439-89-6 | 1 | 2.7 | 0.05 | mg/L | 1 | ICP-W |
| Eagle Spring | L71507-06E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Eagle Spring | L71507-06E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 3.3 | 1 | mg/L | | ICP-W-dis |
| Eagle Spring | L71507-06D | 4/26/2006 | 5/3/2006 | 5/11/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.016 | 0.005 | mg/L | | ICP-W |
| Eagle Spring | L71507-06E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.0060 | 0.005 | mg/L | | 6020-W-DISS |
| Eagle Spring | L71507-06E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Eagle Spring | L71507-06C | 4/26/2006 | | 5/4/2006 | Aqueous | Nitrate/Nitrite (as N) | | 1 | 0.31 | 0.01 | mg/L | | NO2/NO3-W |
| Eagle Spring | L71507-06F | 4/26/2006 | | 5/5/2006 | Aqueous | Oil & Grease | | 1 | 3.3 | 3 | mg/L | | OGB-W |
| Eagle Spring | L71507-06B | 4/26/2006 | | 4/28/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.11 | 0.05 | mg/L | H | PO4-O |
| Eagle Spring | L71507-06E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.3 | 1 | mg/L | | ICP-W-dis |
| Eagle Spring | L71507-06E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Eagle Spring | L71507-06A | 4/26/2006 | | 4/28/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Eagle Spring | L71507-06E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 25 | 1 | mg/L | | ICP-W-dis |
| Eagle Spring | L71507-06B | 4/26/2006 | | 5/13/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 4.8 | 1 | mg/L | | 300.0-W |
| Eagle Spring | L71507-06A | 4/26/2006 | | 4/28/2006 | Aqueous | TDS | | 1 | 150 | 10 | mg/L | | TDS-W |
| Eagle Spring | L71507-06A | 4/26/2006 | | 4/28/2006 | Aqueous | TSS | | 1 | 36 | 3 | mg/L | ~ | TSS-W |
| Eagle Spring | L71507-06E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.026 | 0.01 | mg/L | | 6020-W-DISS |
| Eagle Spring | L72071-06B | 5/25/2006 | | 5/30/2006 | Aqueous | Acidity | | 1 | 18 | 15 | mg/L | | ACIDITY-W |
| Eagle Spring | L72071-06B | 5/25/2006 | | 5/30/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 34 | 10 | mg/L | | 2320B-ALK-W |
| Eagle Spring | L72071-06E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 1.2 | 0.1 | mg/L | | ICP-W-DIS |
| Eagle Spring | L72071-06C | 5/25/2006 | 5/30/2006 | 5/31/2006 | Aqueous | Ammonia (as N) | | 1 | 0.091 | 0.05 | mg/L | | NH3-W |
| Eagle Spring | L72071-06E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Eagle Spring | L72071-06B | 5/25/2006 | | 5/30/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 34 | 10 | mg/L | | 2320B-ALK-W |
| Eagle Spring | L72071-06E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Eagle Spring | L72071-06E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Eagle Spring | L72071-06E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 11 | 10 | mg/L | | ICP-W-DIS |
| Eagle Spring | L72071-06B | 5/25/2006 | | 5/30/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Eagle Spring | L72071-06B | 5/25/2006 | | 6/1/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 5.0 | 1 | mg/L | | 300.0-W |
| Eagle Spring | L72071-06E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.0063 | 0.004 | mg/L | | 6020-W-DISS |
| Eagle Spring | L72071-06E | 5/25/2006 | | 6/9/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 28 | 10 | mg/L | | HARD |
| Eagle Spring | L72071-06D | 5/25/2006 | 5/29/2006 | 6/8/2006 | Aqueous | Iron | 7439-89-6 | 1 | 2.2 | 0.05 | mg/L | 1 | ICP-W |
| Eagle Spring | L72071-06E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0.94 | 0.05 | mg/L | | ICP-W-DIS |
| Eagle Spring | L72071-06E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Eagle Spring | L72071-06E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 2.7 | 1 | mg/L | | ICP-W-DIS |
| Eagle Spring | L72071-06D | 5/25/2006 | 5/29/2006 | 6/8/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.0093 | 0.005 | mg/L | | ICP-W |
| Eagle Spring | L72071-06E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Eagle Spring | L72071-06E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Eagle Spring | L72071-06B | 5/25/2006 | | 5/26/2006 | Aqueous | Nitrate (as N) | | 1 | 0.099 | 0.01 | mg/L | | NO3-W |
| Eagle Spring | L72071-06B | 5/25/2006 | | 5/26/2006 | Aqueous | Nitrite (as N) | | 1 | 0.025 | 0.01 | mg/L | | NO2-W |
| Eagle Spring | L72071-06F | 5/25/2006 | | 5/30/2006 | Aqueous | Oil & Grease | | 1 | 3.4 | 3 | mg/L | | OGB-W |
| Eagle Spring | L72071-06B | 5/25/2006 | | 5/26/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.060 | 0.05 | mg/L | | PO4-O |
| Eagle Spring | L72071-06E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.1 | 1 | mg/L | | ICP-W-DIS |
| Eagle Spring | L72071-06E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Eagle Spring | L72071-06A | 5/25/2006 | | 5/26/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Eagle Spring | L72071-06E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 11 | 10 | mg/L | | ICP-W-DIS |
| Eagle Spring | L72071-06B | 5/25/2006 | | 6/1/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 6.0 | 1 | mg/L | | 300.0-W |
| Eagle Spring | L72071-06A | 5/25/2006 | | 5/26/2006 | Aqueous | TDS | | 1 | 140 | 10 | mg/L | | TDS-W |
| Eagle Spring | L72071-06A | 5/25/2006 | | 5/26/2006 | Aqueous | TSS | | 1 | 33 | 3 | mg/L | | TSS-W |
| Eagle Spring | L72071-06E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.027 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L65736-01B | 5/9/2005 | | 5/11/2005 | Aqueous | Acidity | | 1 | 86 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L65736-01B | 5/9/2005 | | 5/11/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 260 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L65736-01D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L65736-01F | 5/9/2005 | 5/11/2005 | 5/12/2005 | Aqueous | Ammonia (as N) | | 1 | 0.055 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L65736-01D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0.001 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L65736-01B | 5/9/2005 | | 5/11/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 260 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L65736-01D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0.03 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L65736-01D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L65736-01D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 92 | 10 | mg/L | 1 | ICP-W-dis |
| Miller Outlet | L65736-01B | 5/9/2005 | | 5/11/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L65736-01B | 5/9/2005 | | 5/18/2005 | Aqueous | Chloride | 16887-00-6 | 1 | 13 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L65736-01D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.002 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L65736-01D | 5/9/2005 | | 5/20/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 310 | 10 | mg/L | | HARD |
| Miller Outlet | L65736-01D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L65736-01C | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous | Iron | 7439-89-6 | 1 | 2.3 | 0.05 | mg/L | 1 | ICP-W |
| Miller Outlet | L65736-01D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L65736-01D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 18 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L65736-01C | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.16 | 0.005 | mg/L | | 6020-W |
| Miller Outlet | L65736-01D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.075 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L65736-01D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L65736-01B | 5/9/2005 | | 5/11/2005 | Aqueous | Nitrate (as N) | | 1 | 0.023 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L65736-01B | 5/9/2005 | | 5/11/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Miller Outlet | L65736-01E | 5/9/2005 | | 5/11/2005 | Aqueous | Oil & Grease | | 1 | 3.5 | 3 | mg/L | | OGB-W |
| Miller Outlet | L65736-01B | 5/9/2005 | | 5/11/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L65736-01D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.6 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L65736-01D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0.002 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L65736-01A | 5/9/2005 | | 5/10/2005 | Aqueous | Settable Solids | | 1 | 0.20 | 0.1 | ml/L | | SS |
| Miller Outlet | L65736-01D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 11 | 1 | mg/L | 1 | ICP-W-dis |
| Miller Outlet | L65736-01B | 5/9/2005 | | 5/18/2005 | Aqueous | Sulfate | 14808-79-8 | 1 | 42 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L65736-01A | 5/9/2005 | | 5/10/2005 | Aqueous | TDS | | 1 | 330 | 10 | mg/L | | TDS-W |
| Miller Outlet | L65736-01A | 5/9/2005 | | 5/10/2005 | Aqueous | TSS | | 1 | 150 | 3 | mg/L | | TSS-W |
| Miller Outlet | L65736-01D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L67580-01B | 9/6/2005 | | 9/9/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L67580-01B | 9/6/2005 | | 9/8/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 220 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0.24 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L67580-01F | 9/6/2005 | 9/7/2005 | 9/8/2005 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L67580-01B | 9/6/2005 | | 9/8/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 71 | 10 | mg/L | 1 | ICP-W-DIS |
| Miller Outlet | L67580-01B | 9/6/2005 | | 9/8/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L67580-01B | 9/6/2005 | | 9/13/2005 | Aqueous | Chloride | 16887-00-6 | 10 | 11 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 250 | 10 | mg/L | | HARD |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 1.3 | 0.05 | mg/L | | ICP-W-DIS |
| Miller Outlet | L67580-01C | 9/6/2005 | 9/8/2005 | 9/13/2005 | Aqueous | Iron | 7439-89-6 | 1 | 2.2 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 17 | 10 | mg/L | | ICP-W-DIS |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.15 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L67580-01C | 9/6/2005 | 9/8/2005 | 9/15/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.16 | 0.005 | mg/L | | 6020-W |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L67580-01B | 9/6/2005 | | 8/7/2005 | Aqueous | Nitrate (as N) | | 1 | 0.018 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L67580-01B | 9/6/2005 | | 9/7/2005 | Aqueous | Nitrite (as N) | | 1 | 0.024 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L67580-01E | 9/6/2005 | | 9/7/2005 | Aqueous | Oil & Grease | | 1 | 4.0 | 3 | mg/L | | OGB-W |
| Miller Outlet | L67580-01B | 9/6/2005 | | 9/8/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.06 | mg/L | 1@ | PO4-O |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.6 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L67580-01A | 9/6/2005 | | 9/7/2005 | Aqueous | Settable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 6.9 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L67580-01B | 9/6/2005 | | 9/13/2005 | Aqueous | Sulfate | 14808-79-8 | 10 | 22 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L67580-01A | 9/6/2005 | | 9/7/2005 | Aqueous | TSS | | 1 | 100 | 3 | mg/L | | TSS-W |
| Miller Outlet | L67580-01D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.019 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/2/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/1/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 280 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01F | 10/31/2005 | 11/7/2005 | 11/9/2005 | Aqueous | Ammonia (as N) | | 1 | 0.057 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/1/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 280 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 5 | 79 | 5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/1/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/9/2005 | Aqueous | Chloride | 16887-00-6 | 1 | 9.9 | 5 | mg/L | | CL-W-LAT |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 270 | 10 | mg/L | | HARD |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01C | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous | Iron | 7439-89-6 | 1 | 2.2 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 17 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01C | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.13 | 0.005 | mg/L | | 6020-W |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.042 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrate (as N) | | 1 | 0.092 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L68520-01E | 10/31/2005 | | 11/2/2005 | Aqueous | Oil & Grease | | 1 | 3.3 | 3 | mg/L | | OGB-W |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/1/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.055 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.7 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68520-01A | 10/31/2005 | | 11/1/2005 | Aqueous | Settable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 5 | 6.9 | 5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/10/2005 | Aqueous | Sulfate | 14808-79-8 | 1 | 29 | 5 | mg/L | | SO4-W |
| Miller Outlet | L68520-01A | 10/31/2005 | | 11/1/2005 | Aqueous | TDS | | 1 | 300 | 10 | mg/L | | TDS-W |
| Miller Outlet | L68520-01A | 10/31/2005 | | 11/1/2005 | Aqueous | TSS | | 1 | 88 | 3 | mg/L | | TSS-W |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.011 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/2/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/1/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 280 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01F | 10/31/2005 | 11/7/2005 | 11/9/2005 | Aqueous | Ammonia (as N) | | 1 | 0.057 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/1/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 280 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 5 | 79 | 5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/1/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/9/2005 | Aqueous | Chloride | 16887-00-6 | 1 | 9.9 | 5 | mg/L | | CL-W-LAT |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 270 | 10 | mg/L | | HARD |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01C | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous | Iron | 7439-89-6 | 1 | 2.2 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 17 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01C | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.13 | 0.005 | mg/L | | 6020-W |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.042 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrate (as N) | | 1 | 0.092 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L68520-01E | 10/31/2005 | | 11/2/2005 | Aqueous | Oil & Grease | | 1 | 3.3 | 3 | mg/L | | OGB-W |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/1/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.055 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.7 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68520-01A | 10/31/2005 | | 11/1/2005 | Aqueous | Settable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 5 | 6.9 | 5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68520-01B | 10/31/2005 | | 11/10/2005 | Aqueous | Sulfate | 14808-79-8 | 1 | 29 | 5 | mg/L | | SO4-W |
| Miller Outlet | L68520-01A | 10/31/2005 | | 11/1/2005 | Aqueous | TDS | | 1 | 300 | 10 | mg/L | | TDS-W |
| Miller Outlet | L68520-01A | 10/31/2005 | | 11/1/2005 | Aqueous | TSS | | 1 | 88 | 3 | mg/L | | TSS-W |
| Miller Outlet | L68520-01D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.011 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68977-01C | 11/28/2005 | | 12/1/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L68977-01C | 11/28/2005 | | 11/29/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 290 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68977-01F | 11/28/2005 | 12/6/2005 | 12/7/2005 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68977-01C | 11/28/2005 | | 11/29/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 290 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 5 | 100 | 5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68977-01C | 11/28/2005 | | 11/29/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 7 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L68977-01C | 11/28/2005 | | 12/3/2005 | Aqueous | Chloride | 16887-00-6 | 10 | 12 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 330 | 10 | mg/L | | HARD |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68977-01E | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous | Iron | 7439-89-6 | 1 | 1.2 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 20 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68977-01E | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.12 | 0.005 | mg/L | | 6020-W |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.070 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68977-01C | 11/28/2005 | | 11/29/2005 | Aqueous | Nitrate (as N) | | 1 | 0.36 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L68977-01C | 11/28/2005 | | 11/29/2005 | Aqueous | Nitrite (as N) | | 1 | 0.010 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L68977-01G | 11/28/2005 | | 11/30/2005 | Aqueous | Oil & Grease | | 1 | 3.9 | 3 | mg/L | | OGB-W |
| Miller Outlet | L68977-01C | 11/28/2005 | | 11/29/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.8 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L68977-01A | 11/28/2005 | | 11/29/2005 | Aqueous | Settable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 5 | 7.3 | 5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L68977-01C | 11/28/2005 | | 12/3/2005 | Aqueous | Sulfate | 14808-79-8 | 10 | 30 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L68977-01B | 11/28/2005 | | 12/2/2005 | Aqueous | TDS | | 1 | 300 | 10 | mg/L | | TDS-W |
| Miller Outlet | L68977-01A | 11/28/2005 | | 11/29/2005 | Aqueous | TSS | | 1 | 44 | 3 | mg/L | | TSS-W |
| Miller Outlet | L68977-01D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.015 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L69428-03B | 12/22/2005 | | 12/23/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L69428-03B | 12/22/2005 | | 12/23/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 280 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L69428-03E | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous | Ammonia (as N) | | 1 | 0.087 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 2 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L69428-03B | 12/22/2005 | | 12/23/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 280 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 2 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 95 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L69428-03B | 12/22/2005 | | 12/23/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L69428-03B | 12/22/2005 | | 12/28/2005 | Aqueous | Chloride | 16887-00-6 | 10 | 11 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 2 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 310 | 10 | mg/L | | HARD |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Miller Outlet | L69428-03D | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous | Iron | 7439-89-6 | 1 | 1.5 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 2 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 18 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L69428-03D | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.14 | 0.005 | mg/L | | 6020-W |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 2 | 0.074 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L69428-03B | 12/22/2005 | | 12/23/2005 | Aqueous | Nitrate (as N) | | 1 | 0.53 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L69428-03B | 12/22/2005 | | 12/23/2005 | Aqueous | Nitrite (as N) | | 1 | 0.012 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L69428-03F | 12/22/2005 | | 12/28/2005 | Aqueous | Oil & Grease | | 1 | 3.5 | 3 | mg/L | | OGB-W |
| Miller Outlet | L69428-03B | 12/22/2005 | | 12/23/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.9 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 2 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L69428-03A | 12/22/2005 | | 12/23/2005 | Aqueous | Settable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 6.4 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L69428-03B | 12/22/2005 | | 12/28/2005 | Aqueous | Sulfate | 14808-79-8 | 10 | 27 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L69428-03A | 12/22/2005 | | 12/23/2005 | Aqueous | TDS | | 1 | 370 | 10 | mg/L | | TDS-W |
| Miller Outlet | L69428-03A | 12/22/2005 | | 12/23/2005 | Aqueous | TSS | | 1 | 75 | 3 | mg/L | | TSS-W |
| Miller Outlet | L69428-03C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 2 | 0.023 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L69847-02B | 1/23/2006 | | 1/24/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L69847-02B | 1/23/2006 | | 1/24/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L69847-02F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L69847-02C | 1/23/2006 | 1/31/2006 | 2/1/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L69847-02F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L69847-02B | 1/23/2006 | | 1/24/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L69847-02F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L69847-02F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0.053 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L69847-02F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 98 | 10 | mg/L | | ICP-W-DIS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Miller Outlet | L69847-02B | 1/23/2006 | | 1/24/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L69847-02B | 1/23/2006 | | 1/27/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 10 | 2 | mg/L | | 300.0-W |
| Miller Outlet | L69847-02F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.0063 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L69847-02F | 1/23/2006 | | 1/27/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 310 | 10 | mg/L | | HARD |
| Miller Outlet | L69847-02F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Miller Outlet | L69847-02E | 1/23/2006 | 1/24/2006 | 1/27/2006 | Aqueous | Iron | 7439-89-6 | 1 | 1.4 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L69847-02F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L69847-02F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 17 | 10 | mg/L | | ICP-W-DIS |
| Miller Outlet | L69847-02F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.071 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L69847-02E | 1/23/2006 | 1/24/2006 | 1/30/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.14 | 0.005 | mg/L | | 6020-W |
| Miller Outlet | L69847-02F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L69847-02B | 1/23/2006 | | 1/24/2006 | Aqueous | Nitrate (as N) | | 1 | 0.67 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L69847-02B | 1/23/2006 | | 1/24/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L69847-02D | 1/23/2006 | | 1/24/2006 | Aqueous | Oil & Grease | | 1 | 3.9 | 3 | mg/L | | OGB-W |
| Miller Outlet | L69847-02B | 1/23/2006 | | 1/24/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L69847-02F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.9 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L69847-02F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0.031 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L69847-02A | 1/23/2006 | | 1/24/2006 | Aqueous | Settable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS |
| Miller Outlet | L69847-02F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 6.6 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L69847-02B | 1/23/2006 | | 1/27/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 26 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L69847-02A | 1/23/2006 | | 1/24/2006 | Aqueous | TDS | | 1 | 310 | 10 | mg/L | | TDS-W |
| Miller Outlet | L69847-02A | 1/23/2006 | | 1/24/2006 | Aqueous | TSS | | 1 | 58 | 3 | mg/L | | TSS-W |
| Miller Outlet | L69847-02F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.090 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L70355-03A | 2/26/2006 | | 2/28/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L70355-03A | 2/26/2006 | | 2/28/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 290 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L70355-03F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L70355-03C | 2/26/2006 | 3/2/2006 | 3/2/2006 | Aqueous | Ammonia (as N) | | 1 | 0.16 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L70355-03F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L70355-03A | 2/26/2006 | | 2/28/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 290 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L70355-03F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L70355-03F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L70355-03F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 100 | 10 | mg/L | | ICP-W-DIS |
| Miller Outlet | L70355-03A | 2/26/2006 | | 2/28/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L70355-03A | 2/26/2006 | | 3/1/2006 | Aqueous | Chloride | 16887-00-6 | 10 | 11 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L70355-03F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.0046 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L70355-03F | 2/26/2006 | | 3/7/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 320 | 10 | mg/L | | HARD |
| Miller Outlet | L70355-03F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Miller Outlet | L70355-03E | 2/26/2006 | 2/28/2006 | 2/28/2006 | Aqueous | Iron | 7439-89-6 | 1 | 3.2 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L70355-03F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L70355-03F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 18 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L70355-03E | 2/26/2006 | 2/28/2006 | 2/28/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.22 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L70355-03F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.065 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L70355-03F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L70355-03A | 2/26/2006 | | 2/27/2006 | Aqueous | Nitrate (as N) | | 1 | 0.69 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L70355-03A | 2/26/2006 | | 2/27/2006 | Aqueous | Nitrite (as N) | | 1 | 0.042 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L70355-03D | 2/26/2006 | | 2/27/2006 | Aqueous | Oil & Grease | | 1 | 5.6 | 3 | mg/L | | OGB-W |
| Miller Outlet | L70355-03A | 2/26/2006 | | 2/27/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.13 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L70355-03F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.7 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L70355-03F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0.0057 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L70355-03B | 2/26/2006 | | 2/27/2006 | Aqueous | Settable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS |
| Miller Outlet | L70355-03F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 12 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L70355-03A | 2/26/2006 | | 3/1/2006 | Aqueous | Sulfate | 14808-79-8 | 10 | 24 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L70355-03B | 2/26/2006 | | 3/3/2006 | Aqueous | TDS | | 1 | 240 | 10 | mg/L | | TDS-W |
| Miller Outlet | L70355-03B | 2/26/2006 | | 2/28/2006 | Aqueous | TSS | | 1 | 100 | 3 | mg/L | | TSS-W |
| Miller Outlet | L70355-03F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.070 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L70885-04B | 3/27/2006 | | 3/30/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 280 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L70885-04E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L70885-04E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L70885-04E | 3/27/2006 | 4/3/2006 | 4/11/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 86 | 10 | mg/L | | ICP-W-DIS |
| Miller Outlet | L70885-04B | 3/27/2006 | | 3/30/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L70885-04B | 3/27/2006 | | 3/29/2006 | Aqueous | Chloride | 16887-00-6 | 10 | 11 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L70885-04B | 3/27/2006 | | 3/30/2006 | Aqueous | Conductivity | | 1 | 550 | 2 | umhos/cm | | COND-W |
| Miller Outlet | L70885-04E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L70885-04E | 3/27/2006 | | 4/11/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 280 | 10 | mg/L | | HARD |
| Miller Outlet | L70885-04D | 3/27/2006 | 4/6/2006 | 4/9/2006 | Aqueous | Iron | 7439-89-6 | 1 | 6.5 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L70885-04E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0.053 | 0.05 | mg/L | | ICP-W-DIS |
| Miller Outlet | L70885-04E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L70885-04E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 17 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L70885-04E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.078 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L70885-04D | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.32 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L70885-04E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L70885-04B | 3/27/2006 | | 3/29/2006 | Aqueous | Nitrate (as N) | | 1 | 0.58 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L70885-04B | 3/27/2006 | | 3/29/2006 | Aqueous | Nitrite (as N) | | 1 | 0.019 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L70885-04F | 3/27/2006 | | 3/28/2006 | Aqueous | Oil & Grease | | 1 | 3.9 | 3 | mg/L | | OGB-W |
| Miller Outlet | L70885-04B | 3/27/2006 | | 3/28/2006 | Aqueous | pH @ 25° C | | 1 | 8.10 | 0 | pH Units | | PH-W |
| Miller Outlet | L70885-04B | 3/27/2006 | | 3/29/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.087 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L70885-04E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.8 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L70885-04E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L70885-04A | 3/27/2006 | | 3/28/2006 | Aqueous | Settable Solids | | 1 | 0.20 | 0.1 | ml/L | | SS |
| Miller Outlet | L70885-04E | 3/27/2006 | 4/3/2006 | 4/11/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 11 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L70885-04B | 3/27/2006 | | 3/29/2006 | Aqueous | Sulfate | 14808-79-8 | 10 | 26 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L70885-04A | 3/27/2006 | | 3/31/2006 | Aqueous | TDS | | 1 | 270 | 10 | mg/L | | TDS-W |
| Miller Outlet | L70885-04A | 3/27/2006 | | 3/28/2006 | Aqueous | TSS | | 1 | 260 | 3 | mg/L | | TSS-W |
| Miller Outlet | L70885-04E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.028 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L71507-01B | 4/26/2006 | | 5/2/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L71507-01B | 4/26/2006 | | 5/2/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L71507-01E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L71507-01C | 4/26/2006 | 5/3/2006 | 5/3/2006 | Aqueous | Ammonia (as N) | | 1 | 0.16 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L71507-01E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Miller Outlet | L71507-01B | 4/26/2006 | | 5/2/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 280 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L71507-01E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L71507-01E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L71507-01E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 100 | 10 | mg/L | | ICP-W-dis |
| Miller Outlet | L71507-01B | 4/26/2006 | | 5/2/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 21 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L71507-01B | 4/26/2006 | | 5/12/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 39 | 5 | mg/L | | 300.0-W |
| Miller Outlet | L71507-01E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L71507-01E | 4/26/2006 | | 5/15/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 330 | 10 | mg/L | | HARD |
| Miller Outlet | L71507-01E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L71507-01D | 4/26/2006 | 5/3/2006 | 5/11/2006 | Aqueous | Iron | 7439-89-6 | 1 | 5.7 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L71507-01E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L71507-01E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 18 | 10 | mg/L | | ICP-W-dis |
| Miller Outlet | L71507-01E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.074 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L71507-01D | 4/26/2006 | 5/3/2006 | 5/11/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.34 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L71507-01E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L71507-01C | 4/26/2006 | | 5/4/2006 | Aqueous | Nitrate/Nitrite (as N) | | 1 | 0.33 | 0.01 | mg/L | | NO2/NO3-W |
| Miller Outlet | L71507-01F | 4/26/2006 | | 5/5/2006 | Aqueous | Oil & Grease | | 1 | 3.9 | 3 | mg/L | | OGB-W |
| Miller Outlet | L71507-01B | 4/26/2006 | | 4/28/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.069 | 0.05 | mg/L | H | PO4-O |
| Miller Outlet | L71507-01E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.5 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L71507-01E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L71507-01A | 4/26/2006 | | 4/28/2006 | Aqueous | Settable Solids | | 1 | 0.30 | 0.1 | ml/L | | SS |
| Miller Outlet | L71507-01E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 19 | 10 | mg/L | | ICP-W-dis |
| Miller Outlet | L71507-01B | 4/26/2006 | | 5/12/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 48 | 5 | mg/L | | 300.0-W |
| Miller Outlet | L71507-01A | 4/26/2006 | | 4/28/2006 | Aqueous | TDS | | 1 | 360 | 10 | mg/L | | TDS-W |
| Miller Outlet | L71507-01A | 4/26/2006 | | 4/28/2006 | Aqueous | TSS | | 1 | 270 | 3 | mg/L | | TSS-W |
| Miller Outlet | L71507-01E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.023 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L72071-01B | 5/25/2006 | | 5/30/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L72071-01B | 5/25/2006 | | 5/30/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 220 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L72071-01E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72071-01C | 5/25/2006 | 5/30/2006 | 5/31/2006 | Aqueous | Ammonia (as N) | | 1 | 0.088 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L72071-01E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L72071-01B | 5/25/2006 | | 5/30/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 210 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L72071-01E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72071-01E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L72071-01E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 73 | 10 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72071-01B | 5/25/2006 | | 5/30/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 14 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L72071-01B | 5/25/2006 | | 6/1/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 8.5 | 5 | mg/L | | 300.0-W |
| Miller Outlet | L72071-01E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L72071-01E | 5/25/2006 | | 6/9/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 180 | 10 | mg/L | | HARD |
| Miller Outlet | L72071-01D | 5/25/2006 | 5/29/2006 | 6/8/2006 | Aqueous | Iron | 7439-89-6 | 1 | 2.6 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L72071-01E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72071-01E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L72071-01E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 14 | 10 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72071-01E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L72071-01D | 5/25/2006 | 5/29/2006 | 6/8/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.16 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L72071-01E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72071-01B | 5/25/2006 | | 5/26/2006 | Aqueous | Nitrate (as N) | | 1 | 0.17 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L72071-01B | 5/25/2006 | | 5/26/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | 1 | NO2-W |
| Miller Outlet | L72071-01F | 5/25/2006 | | 5/30/2006 | Aqueous | Oil & Grease | | 1 | 4.1 | 3 | mg/L | | OGB-W |
| Miller Outlet | L72071-01B | 5/25/2006 | | 5/26/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L72071-01E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.0 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72071-01E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L72071-01A | 5/25/2006 | | 5/26/2006 | Aqueous | Settable Solids | | 1 | 0.30 | 0.1 | ml/L | | SS |
| Miller Outlet | L72071-01E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 15 | 10 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72071-01B | 5/25/2006 | | 6/1/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 19 | 5 | mg/L | 1 | 300.0-W |
| Miller Outlet | L72071-01A | 5/25/2006 | | 5/26/2006 | Aqueous | TDS | | 1 | 240 | 10 | mg/L | | TDS-W |
| Miller Outlet | L72071-01A | 5/25/2006 | | 5/26/2006 | Aqueous | TSS | | 1 | 170 | 3 | mg/L | | TSS-W |
| Miller Outlet | L72071-01E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L72660-01B | 6/29/2006 | | 7/3/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L72660-01B | 6/29/2006 | | 7/3/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L72660-01E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72660-01C | 6/29/2006 | 7/5/2006 | 7/7/2006 | Aqueous | Ammonia (as N) | | 1 | 0.055 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L72660-01E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L72660-01B | 6/29/2006 | | 7/3/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L72660-01E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72660-01E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L72660-01E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 67 | 10 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72660-01B | 6/29/2006 | | 7/3/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L72660-01B | 6/29/2006 | | 7/5/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 8.8 | 1 | mg/L | | 300.0-W |
| Miller Outlet | L72660-01E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L72660-01E | 6/29/2006 | | 7/11/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 260 | 10 | mg/L | | HARD |
| Miller Outlet | L72660-01D | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous | Iron | 7439-89-6 | 1 | 2.4 | 0.05 | mg/L | 2 | ICP-W |
| Miller Outlet | L72660-01E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72660-01E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L72660-01E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 16 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72660-01D | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.13 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L72660-01E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L72660-01E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72660-01B | 6/29/2006 | | 6/30/2006 | Aqueous | Nitrate (as N) | | 1 | 0.075 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L72660-01B | 6/29/2006 | | 6/30/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L72660-01F | 6/29/2006 | | 6/30/2006 | Aqueous | Oil & Grease | | 1 | 3.9 | 3 | mg/L | | OGB-W |
| Miller Outlet | L72660-01B | 6/29/2006 | | 6/30/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.077 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L72660-01E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.9 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72660-01E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L72660-01A | 6/29/2006 | | 6/30/2006 | Aqueous | Settable Solids | | 1 | 0.20 | 0.1 | ml/L | | SS |
| Miller Outlet | L72660-01E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 5.4 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L72660-01B | 6/29/2006 | | 7/5/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 20 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L72660-01A | 6/29/2006 | | 6/30/2006 | Aqueous | TDS | | 1 | 200 | 20 | mg/L | | TDS-W |
| Miller Outlet | L72660-01A | 6/29/2006 | | 6/30/2006 | Aqueous | TSS | | 1 | 150 | 3 | mg/L | | TSS-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Miller Outlet | L72660-01E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.010 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L73160-06B | 7/31/2006 | | 8/2/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L73160-06B | 7/31/2006 | | 8/2/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 210 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L73160-06E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73160-06C | 7/31/2006 | 8/2/2006 | 8/4/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L73160-06E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L73160-06B | 7/31/2006 | | 8/2/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 210 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L73160-06E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73160-06E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L73160-06E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 67 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73160-06B | 7/31/2006 | | 8/2/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L73160-06B | 7/31/2006 | | 8/5/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 9.2 | 1 | mg/L | | 300.0-W |
| Miller Outlet | L73160-06E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L73160-06E | 7/31/2006 | | 8/14/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 230 | 10 | mg/L | | HARD |
| Miller Outlet | L73160-06E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73160-06D | 7/31/2006 | 8/3/2006 | 8/8/2006 | Aqueous | Iron | 7439-89-6 | 1 | 2.4 | 0.05 | mg/L | 1 | ICP-W |
| Miller Outlet | L73160-06E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L73160-06E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 15 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73160-06E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L73160-06D | 7/31/2006 | 8/3/2006 | 8/8/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.13 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L73160-06E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73160-06B | 7/31/2006 | | 8/2/2006 | Aqueous | Nitrate (as N) | | 1 | 0.14 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L73160-06B | 7/31/2006 | | 8/2/2006 | Aqueous | Nitrite (as N) | | 1 | 0.015 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L73160-06F | 7/31/2006 | | 8/8/2006 | Aqueous | Oil & Grease | | 1 | 3.4 | 3 | mg/L | | OGB-W |
| Miller Outlet | L73160-06B | 7/31/2006 | | 8/2/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.078 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L73160-06E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.4 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73160-06E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L73160-06A | 7/31/2006 | | 8/2/2006 | Aqueous | Settable Solids | | 1 | 0.20 | 0.1 | ml/L | | SS |
| Miller Outlet | L73160-06E | 7/31/2006 | 8/3/2006 | 8/15/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 5.8 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73160-06B | 7/31/2006 | | 8/5/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 20 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L73160-06A | 7/31/2006 | | 8/3/2006 | Aqueous | TDS | | 1 | 620 | 20 | mg/L | | TDS-W |
| Miller Outlet | L73160-06A | 7/31/2006 | | 8/2/2006 | Aqueous | TSS | | 1 | 100 | 3 | mg/L | | TSS-W |
| Miller Outlet | L73160-06E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.020 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L73504-06B | 8/21/2006 | | 8/23/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L73504-06B | 8/21/2006 | | 8/23/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 210 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L73504-06E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73504-06C | 8/21/2006 | 8/23/2006 | 8/24/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L73504-06E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L73504-06B | 8/21/2006 | | 8/23/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 200 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L73504-06E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73504-06E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L73504-06E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 63 | 10 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73504-06B | 8/21/2006 | | 8/23/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 17 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L73504-06B | 8/21/2006 | | 8/24/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 9.4 | 1 | mg/L | | 300.0-W |
| Miller Outlet | L73504-06E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L73504-06E | 8/21/2006 | | 9/5/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 220 | 10 | mg/L | | HARD |
| Miller Outlet | L73504-06D | 8/21/2006 | 8/23/2006 | 9/1/2006 | Aqueous | Iron | 7439-89-6 | 1 | 3.3 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L73504-06E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73504-06E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L73504-06E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 15 | 10 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73504-06D | 8/21/2006 | 8/23/2006 | 9/1/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.15 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L73504-06E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L73504-06E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73504-06B | 8/21/2006 | | 8/23/2006 | Aqueous | Nitrate (as N) | | 1 | 0.034 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L73504-06B | 8/21/2006 | | 8/23/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L73504-06F | 8/21/2006 | | 8/23/2006 | Aqueous | Oil & Grease | | 1 | 4.8 | 3 | mg/L | | OGB-W |
| Miller Outlet | L73504-06B | 8/21/2006 | | 8/23/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L73504-06E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.3 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73504-06E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L73504-06A | 8/21/2006 | | 8/23/2006 | Aqueous | Settable Solids | | 1 | 0.30 | 0.1 | ml/L | | SS |
| Miller Outlet | L73504-06E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 6.4 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L73504-06B | 8/21/2006 | | 8/24/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 20 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L73504-06A | 8/21/2006 | | 8/25/2006 | Aqueous | TDS | | 1 | 200 | 20 | mg/L | | TDS-W |
| Miller Outlet | L73504-06A | 8/21/2006 | | 8/23/2006 | Aqueous | TSS | | 1 | 150 | 3 | mg/L | | TSS-W |
| Miller Outlet | L73504-06E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L74688-04B | 10/30/2006 | | 11/1/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L74688-04B | 10/30/2006 | | 11/1/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 260 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L74688-04F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L74688-04C | 10/30/2006 | 11/1/2006 | 11/3/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L74688-04F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L74688-04B | 10/30/2006 | | 11/1/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 250 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L74688-04F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Miller Outlet | L74688-04F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L74688-04F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 80 | 10 | mg/L | * | ICP-W-DIS |
| Miller Outlet | L74688-04B | 10/30/2006 | | 11/1/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L74688-04B | 10/30/2006 | | 11/9/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 9.7 | 1 | mg/L | | 300.0-W |
| Miller Outlet | L74688-04F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L74688-04F | 10/30/2006 | | 11/13/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 270 | 10 | mg/L | | HARD |
| Miller Outlet | L74688-04F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Miller Outlet | L74688-04E | 10/30/2006 | 11/1/2006 | 11/13/2006 | Aqueous | Iron | 7439-89-6 | 1 | 1.5 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L74688-04F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L74688-04F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 17 | 10 | mg/L | * | ICP-W-DIS |
| Miller Outlet | L74688-04E | 10/30/2006 | 11/1/2006 | 11/13/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.077 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L74688-04F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.016 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L74688-04F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L74688-04B | 10/30/2006 | | 11/1/2006 | Aqueous | Nitrate (as N) | | 1 | 0.24 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L74688-04B | 10/30/2006 | | 11/1/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L74688-04D | 10/30/2006 | | 11/1/2006 | Aqueous | Oil & Grease | | 1 | 4.1 | 3 | mg/L | | OGB-W |
| Miller Outlet | L74688-04B | 10/30/2006 | | 11/1/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Miller Outlet | L74688-04F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.1 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L74688-04F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L74688-04A | 10/30/2006 | | 11/1/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Miller Outlet | L74688-04F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 6.2 | 1 | mg/L | | ICP-W-DIS |
| Miller Outlet | L74688-04B | 10/30/2006 | | 11/9/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 25 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L74688-04A | 10/30/2006 | | 11/1/2006 | Aqueous | TDS | | 1 | 310 | 20 | mg/L | | TDS-W |
| Miller Outlet | L74688-04A | 10/30/2006 | | 11/1/2006 | Aqueous | TSS | | 1 | 51 | 3 | mg/L | | TSS-W |
| Miller Outlet | L74688-04F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L75205-01B | 11/28/2006 | | 12/4/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L75205-01B | 11/28/2006 | | 12/4/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 260 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L75205-01F | 11/28/2006 | 12/4/2006 | 12/13/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L75205-01C | 11/28/2006 | 12/1/2006 | 12/5/2006 | Aqueous | Ammonia (as N) | | 1 | 0.097 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L75205-01F | 11/28/2006 | 12/4/2006 | 12/5/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L75205-01B | 11/28/2006 | | 12/4/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 260 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L75205-01F | 11/28/2006 | 12/4/2006 | 12/13/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L75205-01F | 11/28/2006 | 12/4/2006 | 12/5/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L75205-01F | 11/28/2006 | 12/4/2006 | 12/13/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 94 | 10 | mg/L | [2] * | ICP-W-dis |
| Miller Outlet | L75205-01B | 11/28/2006 | | 12/4/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L75205-01B | 11/28/2006 | | 12/2/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 9.7 | 5 | mg/L | | 300.0-W |
| Miller Outlet | L75205-01F | 11/28/2006 | 12/4/2006 | 12/5/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L75205-01F | 11/28/2006 | | 12/13/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 310 | 10 | mg/L | | HARD |
| Miller Outlet | L75205-01F | 11/28/2006 | 12/4/2006 | 12/13/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L75205-01E | 11/28/2006 | 12/4/2006 | 12/13/2006 | Aqueous | Iron | 7439-89-6 | 1 | 1.4 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L75205-01F | 11/28/2006 | 12/4/2006 | 12/5/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L75205-01F | 11/28/2006 | 12/4/2006 | 12/13/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 18 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L75205-01F | 11/28/2006 | 12/4/2006 | 12/5/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.024 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L75205-01E | 11/28/2006 | 12/4/2006 | 12/13/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.082 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L75205-01F | 11/28/2006 | 12/4/2006 | 12/13/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L75205-01B | 11/28/2006 | | 12/1/2006 | Aqueous | Nitrate (as N) | | 1 | 0.65 | 0.01 | mg/L | H | NO3-W |
| Miller Outlet | L75205-01B | 11/28/2006 | | 12/1/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | [1]@H | NO2-W |
| Miller Outlet | L75205-01D | 11/28/2006 | | 12/4/2006 | Aqueous | Oil & Grease | | 1 | 3.1 | 3 | mg/L | | OGB-W |
| Miller Outlet | L75205-01B | 11/28/2006 | | 12/1/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | H | PO4-O |
| Miller Outlet | L75205-01F | 11/28/2006 | 12/4/2006 | 12/13/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.1 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L75205-01F | 11/28/2006 | 12/4/2006 | 12/5/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L75205-01A | 11/28/2006 | | 12/1/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Miller Outlet | L75205-01F | 11/28/2006 | 12/4/2006 | 12/14/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 6.8 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L75205-01B | 11/28/2006 | | 12/2/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 24 | 5 | mg/L | | 300.0-W |
| Miller Outlet | L75205-01A | 11/28/2006 | | 12/1/2006 | Aqueous | TDS | | 1 | 280 | 20 | mg/L | | TDS-W |
| Miller Outlet | L75205-01A | 11/28/2006 | | 12/1/2006 | Aqueous | TSS | | 1 | 47 | 3 | mg/L | | TSS-W |
| Miller Outlet | L75205-01F | 11/28/2006 | 12/4/2006 | 12/5/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.011 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L75586-03B | 12/26/2006 | | 1/2/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L75586-03B | 12/26/2006 | | 1/2/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 280 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L75586-03F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L75586-03C | 12/26/2006 | 12/28/2006 | 12/29/2006 | Aqueous | Ammonia (as N) | | 1 | 0.067 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L75586-03F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L75586-03B | 12/26/2006 | | 1/2/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 270 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L75586-03F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L75586-03F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L75586-03F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 95 | 10 | mg/L | * | ICP-W-dis |
| Miller Outlet | L75586-03B | 12/26/2006 | | 1/2/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 10 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L75586-03B | 12/26/2006 | | 1/2/2007 | Aqueous | Chloride | 16887-00-6 | 1 | 11 | 2 | mg/L | | 300.0-W |
| Miller Outlet | L75586-03F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L75586-03F | 12/26/2006 | | 1/5/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 310 | 10 | mg/L | | HARD |
| Miller Outlet | L75586-03E | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous | Iron | 7439-89-6 | 1 | 2.1 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L75586-03F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L75586-03F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L75586-03F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 17 | 10 | mg/L | * | ICP-W-dis |
| Miller Outlet | L75586-03F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 10 | 0.023 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L75586-03E | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.11 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L75586-03F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L75586-03B | 12/26/2006 | | 12/28/2006 | Aqueous | Nitrate (as N) | | 1 | 0.82 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L75586-03B | 12/26/2006 | | 12/28/2006 | Aqueous | Nitrite (as N) | | 1 | 0.011 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L75586-03D | 12/26/2006 | | 12/29/2006 | Aqueous | Oil & Grease | | 1 | 4.8 | 3 | mg/L | | OGB-W |
| Miller Outlet | L75586-03B | 12/26/2006 | | 12/28/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.05 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L75586-03F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.8 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L75586-03F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L75586-03A | 12/26/2006 | | 12/28/2006 | Aqueous | Settable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS |
| Miller Outlet | L75586-03F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 7.1 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L75586-03B | 12/26/2006 | | 1/2/2007 | Aqueous | Sulfate | 14808-79-8 | 1 | 20 | 5 | mg/L | | 300.0-W |
| Miller Outlet | L75586-03A | 12/26/2006 | | 12/29/2006 | Aqueous | TDS | | 1 | 300 | 20 | mg/L | | TDS-W |
| Miller Outlet | L75586-03A | 12/26/2006 | | 12/28/2006 | Aqueous | TSS | | 1 | 75 | 3 | mg/L | | TSS-W |
| Miller Outlet | L75586-03F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 10 | 0.029 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76053-03B | 1/31/2007 | | 2/5/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L76053-03B | 1/31/2007 | | 2/5/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 280 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L76053-03F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L76053-03C | 1/31/2007 | 2/2/2007 | 2/5/2007 | Aqueous | Ammonia (as N) | | 1 | 0.055 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L76053-03F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76053-03B | 1/31/2007 | | 2/5/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 260 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L76053-03F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L76053-03F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76053-03F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 90 | 10 | mg/L | * | ICP-W-dis |
| Miller Outlet | L76053-03B | 1/31/2007 | | 2/5/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 10 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L76053-03B | 1/31/2007 | | 2/2/2007 | Aqueous | Chloride | 16887-00-6 | 1 | 9.6 | 2 | mg/L | | 300.0-W |
| Miller Outlet | L76053-03F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76053-03F | 1/31/2007 | | 2/12/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 290 | 10 | mg/L | | HARD |
| Miller Outlet | L76053-03E | 1/31/2007 | 2/2/2007 | 2/7/2007 | Aqueous | Iron | 7439-89-6 | 1 | 3.6 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L76053-03F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L76053-03F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76053-03F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 17 | 1 | mg/L | | ICP-W-dis |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Miller Outlet | L76053-03F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 10 | 0.023 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76053-03E | 1/31/2007 | 2/2/2007 | 2/7/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.17 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L76053-03F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L76053-03B | 1/31/2007 | | 2/2/2007 | Aqueous | Nitrate (as N) | | 1 | 0.92 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L76053-03B | 1/31/2007 | | 2/2/2007 | Aqueous | Nitrite (as N) | | 1 | 0.010 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L76053-03D | 1/31/2007 | | 2/9/2007 | Aqueous | Oil & Grease | | 1 | 3.5 | 3 | mg/L | | OGB-W |
| Miller Outlet | L76053-03B | 1/31/2007 | | 2/2/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L76053-03F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.9 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L76053-03F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76053-03A | 1/31/2007 | | 2/2/2007 | Aqueous | Settable Solids | | 1 | 0.30 | 0.1 | ml/L | | SS |
| Miller Outlet | L76053-03F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 6.3 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L76053-03B | 1/31/2007 | | 2/2/2007 | Aqueous | Sulfate | 14808-79-8 | 1 | 21 | 5 | mg/L | [1] | 300.0-W |
| Miller Outlet | L76053-03A | 1/31/2007 | | 2/2/2007 | Aqueous | TDS | | 1 | 310 | 20 | mg/L | | TDS-W |
| Miller Outlet | L76053-03A | 1/31/2007 | | 2/2/2007 | Aqueous | TSS | | 1 | 200 | 3 | mg/L | | TSS-W |
| Miller Outlet | L76053-03F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 10 | 0.027 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76314-03B | 2/19/2007 | | 2/21/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L76314-03B | 2/19/2007 | | 2/21/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 280 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L76314-03F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L76314-03C | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous | Ammonia (as N) | | 1 | 0.068 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L76314-03F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76314-03B | 2/19/2007 | | 2/21/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 260 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L76314-03F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L76314-03F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76314-03F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 94 | 10 | mg/L | * | ICP-W-dis |
| Miller Outlet | L76314-03B | 2/19/2007 | | 2/21/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L76314-03B | 2/19/2007 | | 2/21/2007 | Aqueous | Chloride | 16887-00-6 | 1 | 10 | 2 | mg/L | | 300.0-W |
| Miller Outlet | L76314-03F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76314-03F | 2/19/2007 | | 2/26/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 300 | 10 | mg/L | | HARD |
| Miller Outlet | L76314-03E | 2/19/2007 | 2/21/2007 | 2/23/2007 | Aqueous | Iron | 7439-89-6 | 1 | 4.3 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L76314-03F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L76314-03F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76314-03F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 17 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L76314-03E | 2/19/2007 | 2/21/2007 | 2/23/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.23 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L76314-03F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76314-03F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L76314-03B | 2/19/2007 | | 2/21/2007 | Aqueous | Nitrate (as N) | | 1 | 0.83 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L76314-03B | 2/19/2007 | | 2/21/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L76314-03D | 2/19/2007 | | 2/27/2007 | Aqueous | Oil & Grease | | 1 | 4.3 | 3 | mg/L | | OGB-W |
| Miller Outlet | L76314-03B | 2/19/2007 | | 2/21/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L76314-03F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.7 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L76314-03F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76314-03F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 5.5 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L76314-03B | 2/19/2007 | | 2/21/2007 | Aqueous | Sulfate | 14808-79-8 | 1 | 23 | 5 | mg/L | | 300.0-W |
| Miller Outlet | L76314-03A | 2/19/2007 | | 2/22/2007 | Aqueous | TDS | | 1 | 260 | 10 | mg/L | | TDS-W |
| Miller Outlet | L76314-03A | 2/19/2007 | | 2/21/2007 | Aqueous | TSS | | 1 | 100 | 3 | mg/L | | TSS-W |
| Miller Outlet | L76314-03F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 10 | 0.021 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76981-04B | 3/29/2007 | | 4/2/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L76981-04B | 3/29/2007 | | 4/2/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 270 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L76981-04F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L76981-04C | 3/29/2007 | 3/30/2007 | 4/2/2007 | Aqueous | Ammonia (as N) | | 1 | 0.056 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L76981-04F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76981-04B | 3/29/2007 | | 4/2/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 270 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L76981-04F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L76981-04F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76981-04F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 93 | 10 | mg/L | * | ICP-W-dis |
| Miller Outlet | L76981-04B | 3/29/2007 | | 4/2/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L76981-04B | 3/29/2007 | | 3/31/2007 | Aqueous | Chloride | 16887-00-6 | 2 | 11 | 2 | mg/L | | 300.0-W |
| Miller Outlet | L76981-04F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76981-04F | 3/29/2007 | | 4/11/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 300 | 10 | mg/L | | HARD |
| Miller Outlet | L76981-04F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L76981-04E | 3/29/2007 | 4/2/2007 | 4/9/2007 | Aqueous | Iron | 7439-89-6 | 1 | 5.8 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L76981-04F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76981-04F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 17 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L76981-04E | 3/29/2007 | 4/2/2007 | 4/9/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.28 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L76981-04F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.040 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76981-04F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L76981-04B | 3/29/2007 | | 3/30/2007 | Aqueous | Nitrate (as N) | | 1 | 0.43 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L76981-04B | 3/29/2007 | | 3/30/2007 | Aqueous | Nitrite (as N) | | 1 | 0.025 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L76981-04D | 3/29/2007 | | 3/30/2007 | Aqueous | Oil & Grease | | 1 | 3.7 | 3 | mg/L | | OGB-W |
| Miller Outlet | L76981-04B | 3/29/2007 | | 3/30/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L76981-04F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.8 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L76981-04F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L76981-04F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 14 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L76981-04B | 3/29/2007 | | 3/31/2007 | Aqueous | Sulfate | 14808-79-8 | 5 | 34 | 5 | mg/L | | 300.0-W |
| Miller Outlet | L76981-04A | 3/29/2007 | | 3/30/2007 | Aqueous | TDS | | 1 | 300 | 20 | mg/L | | TDS-W |
| Miller Outlet | L76981-04A | 3/29/2007 | | 3/30/2007 | Aqueous | TSS | | 1 | 340 | 3 | mg/L | | TSS-W |
| Miller Outlet | L76981-04F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.012 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L77519-04B | 4/25/2007 | | 4/30/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Miller Outlet | L77519-04B | 4/25/2007 | | 4/30/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 240 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L77519-04F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L77519-04C | 4/25/2007 | 5/1/2007 | 5/2/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L77519-04F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L77519-04B | 4/25/2007 | | 4/30/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L77519-04F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L77519-04F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L77519-04F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 83 | 10 | mg/L | * | ICP-W-dis |
| Miller Outlet | L77519-04B | 4/25/2007 | | 4/30/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L77519-04B | 4/25/2007 | | 4/29/2007 | Aqueous | Chloride | 16887-00-6 | 10 | 11 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L77519-04F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Miller Outlet | L77519-04F | 4/25/2007 | | 5/9/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 280 | 10 | mg/L | | HARD |
| Miller Outlet | L77519-04E | 4/25/2007 | 5/4/2007 | 5/9/2007 | Aqueous | Iron | 7439-89-6 | 1 | 2.1 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L77519-04F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L77519-04F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L77519-04F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 16 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L77519-04F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.0090 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L77519-04E | 4/25/2007 | 5/4/2007 | 5/9/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.092 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L77519-04F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L77519-04B | 4/25/2007 | | 4/27/2007 | Aqueous | Nitrate (as N) | | 1 | 0.22 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L77519-04B | 4/25/2007 | | 4/27/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L77519-04D | 4/25/2007 | | 5/3/2007 | Aqueous | Oil & Grease | | 1 | 3.0 | 3 | mg/L | | OGB-W |
| Miller Outlet | L77519-04B | 4/25/2007 | | 4/27/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L77519-04F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.0 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L77519-04F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L77519-04F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 15 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L77519-04B | 4/25/2007 | | 4/29/2007 | Aqueous | Sulfate | 14808-79-8 | 10 | 30 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L77519-04A | 4/25/2007 | | 4/30/2007 | Aqueous | TDS | | 1 | 290 | 20 | mg/L | | TDS-W |
| Miller Outlet | L77519-04A | 4/25/2007 | | 4/27/2007 | Aqueous | TSS | | 1 | 72 | 3 | mg/L | | TSS-W |
| Miller Outlet | L77519-04F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L78061-01B | 5/29/2007 | | 6/4/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Miller Outlet | L78061-01B | 5/29/2007 | | 6/4/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L78061-01F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L78061-01C | 5/29/2007 | 6/1/2007 | 6/6/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L78061-01F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L78061-01B | 5/29/2007 | | 6/4/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L78061-01F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L78061-01F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L78061-01F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 75 | 10 | mg/L | * | ICP-W-dis |
| Miller Outlet | L78061-01B | 5/29/2007 | | 6/4/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L78061-01B | 5/29/2007 | | 5/30/2007 | Aqueous | Chloride | 16887-00-6 | 5 | 9.7 | 5 | mg/L | | 300.0-W |
| Miller Outlet | L78061-01F | 5/29/2007 | 5/31/2007 | 6/8/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L78061-01F | 5/29/2007 | | 6/12/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 260 | 10 | mg/L | | HARD |
| Miller Outlet | L78061-01F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L78061-01E | 5/29/2007 | 6/5/2007 | 6/12/2007 | Aqueous | Iron | 7439-89-6 | 1 | 2.8 | 0.05 | mg/L | [1] | ICP-W |
| Miller Outlet | L78061-01F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L78061-01F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 17 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L78061-01E | 5/29/2007 | 6/5/2007 | 6/12/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.12 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L78061-01F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L78061-01F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L78061-01B | 5/29/2007 | | 5/30/2007 | Aqueous | Nitrate (as N) | | 1 | 0.025 | 0.01 | mg/L | [1] | NO3-W |
| Miller Outlet | L78061-01B | 5/29/2007 | | 5/30/2007 | Aqueous | Nitrite (as N) | | 1 | 0.015 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L78061-01D | 5/29/2007 | | 6/1/2007 | Aqueous | Oil & Grease | | 1 | 3.4 | 3 | mg/L | | OGB-W |
| Miller Outlet | L78061-01B | 5/29/2007 | | 5/31/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L78061-01F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.1 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L78061-01F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L78061-01A | 5/29/2007 | | 5/30/2007 | Aqueous | Settleable Solids | | 1 | 0.20 | 0.1 | ml/L | | SS-W-2540F |
| Miller Outlet | L78061-01F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 14 | 1 | mg/L | [1] @ | ICP-W-dis |
| Miller Outlet | L78061-01B | 5/29/2007 | | 5/30/2007 | Aqueous | Sulfate | 14808-79-8 | 5 | 23 | 5 | mg/L | | 300.0-W |
| Miller Outlet | L78061-01A | 5/29/2007 | | 6/1/2007 | Aqueous | TDS | | 1 | 270 | 20 | mg/L | | TDS-W |
| Miller Outlet | L78061-01A | 5/29/2007 | | 5/30/2007 | Aqueous | TSS | | 1 | 120 | 3 | mg/L | | TSS-W-2540D |
| Miller Outlet | L78061-01F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0.016 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L78574-04B | 6/25/2007 | | 6/28/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Miller Outlet | L78574-04B | 6/25/2007 | | 6/28/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 240 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L78574-04F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L78574-04C | 6/25/2007 | 6/28/2007 | 6/29/2007 | Aqueous | Ammonia (as N) | | 1 | 0.084 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L78574-04F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L78574-04B | 6/25/2007 | | 6/28/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 230 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L78574-04F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L78574-04F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L78574-04F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 66 | 10 | mg/L | * | ICP-W-dis |
| Miller Outlet | L78574-04B | 6/25/2007 | | 6/28/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L78574-04B | 6/25/2007 | | 7/9/2007 | Aqueous | Chloride | 16887-00-6 | 5 | 12 | 5 | mg/L | | 300.0-W |
| Miller Outlet | L78574-04F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0.0068 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L78574-04F | 6/25/2007 | | 7/2/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 230 | 10 | mg/L | | HARD |
| Miller Outlet | L78574-04F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L78574-04E | 6/25/2007 | 6/27/2007 | 7/2/2007 | Aqueous | Iron | 7439-89-6 | 1 | 3.5 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L78574-04F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L78574-04F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 16 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L78574-04F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0.011 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L78574-04E | 6/25/2007 | 6/27/2007 | 7/2/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.17 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L78574-04F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L78574-04B | 6/25/2007 | | 6/28/2007 | Aqueous | Nitrate (as N) | | 1 | 0.090 | 0.01 | mg/L | H | NO3-W |
| Miller Outlet | L78574-04B | 6/25/2007 | | 6/28/2007 | Aqueous | Nitrite (as N) | | 1 | 0.028 | 0.01 | mg/L | H | NO2-W |
| Miller Outlet | L78574-04D | 6/25/2007 | | 7/5/2007 | Aqueous | Oil & Grease | | 1 | 6.2 | 3 | mg/L | | OGB-W |
| Miller Outlet | L78574-04B | 6/25/2007 | | 6/27/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.052 | 0.05 | mg/L | H | PO4-O |
| Miller Outlet | L78574-04F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.3 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L78574-04F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L78574-04A | 6/25/2007 | | 6/27/2007 | Aqueous | Settleable Solids | | 1 | 0.10 | 0.1 | mL/L | | SS-W-2540F |
| Miller Outlet | L78574-04F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 15 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L78574-04B | 6/25/2007 | | 7/7/2007 | Aqueous | Sulfate | 14808-79-8 | 10 | 27 | 10 | mg/L | | 300.0-W |
| Miller Outlet | L78574-04A | 6/25/2007 | | 6/27/2007 | Aqueous | TDS | | 1 | 280 | 20 | mg/L | | TDS-W |
| Miller Outlet | L78574-04A | 6/25/2007 | | 6/27/2007 | Aqueous | TSS | | 1 | 150 | 3 | mg/L | | TSS-W-2540D |
| Miller Outlet | L78574-04F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0.020 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L79128-01B | 7/30/2007 | | 8/2/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Miller Outlet | L79128-01B | 7/30/2007 | | 8/2/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 210 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L79128-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L79128-01C | 7/30/2007 | 8/1/2007 | 8/3/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L79128-01F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L79128-01B | 7/30/2007 | | 8/2/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 210 | 20 | mg/L | | 2320B-ALK-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Miller Outlet | L79128-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L79128-01F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L79128-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 64 | 10 | mg/L | * | ICP-W-dis |
| Miller Outlet | L79128-01B | 7/30/2007 | | 8/2/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L79128-01B | 7/30/2007 | | 8/11/2007 | Aqueous | Chloride | 16887-00-6 | 5 | 9.4 | 5 | mg/L | * | 300.0-W |
| Miller Outlet | L79128-01F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L79128-01F | 7/30/2007 | | 8/10/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 230 | 10 | mg/L | | HARD |
| Miller Outlet | L79128-01E | 7/30/2007 | 8/2/2007 | 8/7/2007 | Aqueous | Iron | 7439-89-6 | 1 | 2.6 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L79128-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L79128-01F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L79128-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 16 | 10 | mg/L | * | ICP-W-dis |
| Miller Outlet | L79128-01E | 7/30/2007 | 8/2/2007 | 8/7/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.086 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L79128-01F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L79128-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L79128-01B | 7/30/2007 | | 8/1/2007 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L79128-01B | 7/30/2007 | | 8/1/2007 | Aqueous | Nitrite (as N) | | 1 | 0.025 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L79128-01D | 7/30/2007 | | 8/2/2007 | Aqueous | Oil & Grease | | 1 | 4.3 | 3 | mg/L | | OGB-W |
| Miller Outlet | L79128-01B | 7/30/2007 | | 8/1/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.11 | 0.05 | mg/L | [1] | PO4-O |
| Miller Outlet | L79128-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.5 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L79128-01F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Miller Outlet | L79128-01A | 7/30/2007 | | 8/1/2007 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Miller Outlet | L79128-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 16 | 10 | mg/L | * | ICP-W-dis |
| Miller Outlet | L79128-01B | 7/30/2007 | | 8/11/2007 | Aqueous | Sulfate | 14808-79-8 | 5 | 19 | 5 | mg/L | * | 300.0-W |
| Miller Outlet | L79128-01A | 7/30/2007 | | 8/3/2007 | Aqueous | TDS | | 1 | 280 | 10 | mg/L | | TDS-W |
| Miller Outlet | L79128-01A | 7/30/2007 | | 8/1/2007 | Aqueous | TSS | | 1 | 110 | 3 | mg/L | | TSS-W-2540D |
| Miller Outlet | L79128-01F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Miller Outlet | L81026-04B | 11/12/2007 | | 11/15/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Miller Outlet | L81026-04B | 11/12/2007 | | 11/15/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 240 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L81026-04F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L81026-04C | 11/12/2007 | 11/15/2007 | 11/15/2007 | Aqueous | Ammonia (as N) | | 1 | 0.054 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L81026-04F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Miller Outlet | L81026-04B | 11/12/2007 | | 11/15/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 240 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L81026-04F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L81026-04F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Miller Outlet | L81026-04F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 74 | 10 | mg/L | # | ICP-W-dis |
| Miller Outlet | L81026-04B | 11/12/2007 | | 11/15/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L81026-04B | 11/12/2007 | | 11/21/2007 | Aqueous | Chloride | 16887-00-6 | 5 | 9.7 | 5 | mg/L | | 300.0-W |
| Miller Outlet | L81026-04F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0012 | 0.0008 | mg/L | | 6020-W-DISS |
| Miller Outlet | L81026-04F | 11/12/2007 | | 11/27/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 250 | 10 | mg/L | | HARD |
| Miller Outlet | L81026-04F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L81026-04E | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0.64 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L81026-04F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0001 | mg/L | | 6020-W-DISS |
| Miller Outlet | L81026-04F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 17 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L81026-04F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.0070 | 0.0012 | mg/L | | 6020-W-DISS |
| Miller Outlet | L81026-04E | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.031 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L81026-04F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L81026-04B | 11/12/2007 | | 11/14/2007 | Aqueous | Nitrate (as N) | | 1 | 0.078 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L81026-04B | 11/12/2007 | | 11/14/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L81026-04D | 11/12/2007 | | 11/18/2007 | Aqueous | Oil & Grease | | 1 | 3.2 | 3 | mg/L | | OGB-W |
| Miller Outlet | L81026-04B | 11/12/2007 | | 11/14/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | H | PO4-O |
| Miller Outlet | L81026-04F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.7 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L81026-04F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Miller Outlet | L81026-04A | 11/12/2007 | | 11/14/2007 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Miller Outlet | L81026-04F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 6.3 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L81026-04B | 11/12/2007 | | 11/21/2007 | Aqueous | Sulfate | 14808-79-8 | 5 | 25 | 5 | mg/L | | 300.0-W |
| Miller Outlet | L81026-04A | 11/12/2007 | | 11/14/2007 | Aqueous | TDS | | 1 | 320 | 20 | mg/L | | TDS-W |
| Miller Outlet | L81026-04A | 11/12/2007 | | 11/14/2007 | Aqueous | TSS | | 1 | 26 | 3 | mg/L | | TSS-W-2540D |
| Miller Outlet | L81026-04F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0 | 0.0054 | mg/L | | 6020-W-DISS |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/28/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/28/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 250 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L83169-03C | 3/25/2008 | 4/1/2008 | 4/1/2008 | Aqueous | Ammonia (as N) | | 1 | 0.095 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/28/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 250 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 82 | 10 | mg/L | # | ICP-W-dis |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/28/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/30/2008 | Aqueous | Chloride | 16887-00-6 | 10 | 9.4 | 1 | mg/L | | 300.0-W |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0017 | 0.0008 | mg/L | | 6020-W-DISS |
| Miller Outlet | L83169-03F | 3/25/2008 | | 4/2/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 270 | 10 | mg/L | | HARD |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L83169-03E | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous | Iron | 7439-89-6 | 1 | 1.6 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 15 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.043 | 0.0012 | mg/L | | 6020-W-DISS |
| Miller Outlet | L83169-03E | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.25 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrate (as N) | | 1 | 0.64 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrite (as N) | | 1 | 0.014 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L83169-03D | 3/25/2008 | | 3/31/2008 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/27/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.1 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Miller Outlet | L83169-03A | 3/25/2008 | | 3/27/2008 | Aqueous | Settleable Solids | | 1 | 0.50 | 0.1 | ml/L | | SS-W-2540F |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 6.6 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/30/2008 | Aqueous | Sulfate | 14808-79-8 | 10 | 29 | 7.5 | mg/L | | 300.0-W |
| Miller Outlet | L83169-03A | 3/25/2008 | | 3/28/2008 | Aqueous | TDS | | 1 | 330 | 20 | mg/L | | TDS-W |
| Miller Outlet | L83169-03A | 3/25/2008 | | 3/27/2008 | Aqueous | TSS | | 1 | 430 | 3 | mg/L | | TSS-W-2540D |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0 | 0.0054 | mg/L | | 6020-W-DISS |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/28/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/28/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 250 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L83169-03C | 3/25/2008 | 4/1/2008 | 4/1/2008 | Aqueous | Ammonia (as N) | | 1 | 0.095 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/28/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 250 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 82 | 10 | mg/L | # | ICP-W-dis |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/28/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/30/2008 | Aqueous | Chloride | 16887-00-6 | 10 | 9.4 | 1 | mg/L | | 300.0-W |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0017 | 0.0008 | mg/L | | 6020-W-DISS |
| Miller Outlet | L83169-03F | 3/25/2008 | | 4/2/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 270 | 10 | mg/L | | HARD |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L83169-03E | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous | Iron | 7439-89-6 | 1 | 1.6 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 15 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.043 | 0.0012 | mg/L | | 6020-W-DISS |
| Miller Outlet | L83169-03E | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.25 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrate (as N) | | 1 | 0.64 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrite (as N) | | 1 | 0.014 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L83169-03D | 3/25/2008 | | 3/31/2008 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/27/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.1 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Miller Outlet | L83169-03A | 3/25/2008 | | 3/27/2008 | Aqueous | Settleable Solids | | 1 | 0.50 | 0.1 | ml/L | | SS-W-2540F |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 6.6 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L83169-03B | 3/25/2008 | | 3/30/2008 | Aqueous | Sulfate | 14808-79-8 | 10 | 29 | 7.5 | mg/L | | 300.0-W |
| Miller Outlet | L83169-03A | 3/25/2008 | | 3/28/2008 | Aqueous | TDS | | 1 | 330 | 20 | mg/L | | TDS-W |
| Miller Outlet | L83169-03A | 3/25/2008 | | 3/27/2008 | Aqueous | TSS | | 1 | 430 | 3 | mg/L | | TSS-W-2540D |
| Miller Outlet | L83169-03F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0 | 0.0054 | mg/L | | 6020-W-DISS |
| Miller Outlet | L84608-04B | 6/16/2008 | | 6/20/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Miller Outlet | L84608-04B | 6/16/2008 | | 6/20/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L84608-04F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L84608-04C | 6/16/2008 | 6/20/2008 | 6/25/2008 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L84608-04F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Miller Outlet | L84608-04B | 6/16/2008 | | 6/20/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L84608-04F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L84608-04F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Miller Outlet | L84608-04F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Calcium | 7440-70-2 | 10 | 66 | 10 | mg/L | ~ | ICP-W-dis |
| Miller Outlet | L84608-04B | 6/16/2008 | | 6/20/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L84608-04B | 6/16/2008 | | 6/26/2008 | Aqueous | Chloride | 16887-00-6 | 5 | 8.1 | 0.5 | mg/L | | 300.0-W |
| Miller Outlet | L84608-04F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Copper | 7440-50-8 | 20 | 0.0016 | 0.0008 | mg/L | | 6020-W-DISS |
| Miller Outlet | L84608-04F | 6/16/2008 | | 6/18/2008 | Aqueous Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 220 | 10 | mg/L | | HARD |
| Miller Outlet | L84608-04F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L84608-04E | 6/16/2008 | 6/20/2008 | 6/27/2008 | Aqueous | Iron | 7439-89-6 | 1 | 1.6 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L84608-04F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L84608-04F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Magnesium | 7439-95-4 | 1 | 14 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L84608-04E | 6/16/2008 | 6/20/2008 | 6/27/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.089 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L84608-04F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Manganese | 7439-96-5 | 20 | 0 | 0.0012 | mg/L | | 6020-W-DISS |
| Miller Outlet | L84608-04F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L84608-04B | 6/16/2008 | | 6/18/2008 | Aqueous | Nitrate (as N) | | 1 | 0.14 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L84608-04B | 6/16/2008 | | 6/18/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L84608-04D | 6/16/2008 | | 6/18/2008 | Aqueous | Oil & Grease | | 1 | 460 | 3 | mg/L | * | OGB-W |
| Miller Outlet | L84608-04B | 6/16/2008 | | 6/18/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L84608-04F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Potassium | 7440-09-7 | 1 | 1.8 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L84608-04F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Miller Outlet | L84608-04A | 6/16/2008 | | 6/18/2008 | Aqueous | Settleable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS-W-2540F |
| Miller Outlet | L84608-04F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Sodium | 7440-23-5 | 1 | 17 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L84608-04B | 6/16/2008 | | 6/26/2008 | Aqueous | Sulfate | 14808-79-8 | 5 | 23 | 3.8 | mg/L | | 300.0-W |
| Miller Outlet | L84608-04A | 6/16/2008 | | 6/19/2008 | Aqueous | TDS | | 1 | 240 | 100 | mg/L | | TDS-W |
| Miller Outlet | L84608-04A | 6/16/2008 | | 6/18/2008 | Aqueous | TSS | | 1 | 85 | 3 | mg/L | | TSS-W-2540D |
| Miller Outlet | L84608-04F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Zinc | 7440-66-6 | 20 | 0 | 0.0054 | mg/L | | 6020-W-DISS |
| Miller Outlet | L85972-04B | 8/26/2008 | | 8/29/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Miller Outlet | L85972-04B | 8/26/2008 | | 8/28/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L85972-04E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L85972-04D | 8/26/2008 | 8/28/2008 | 8/29/2008 | Aqueous | Ammonia (as N) | | 1 | 0.056 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L85972-04E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0.0010 | 0.0006 | mg/L | | 6020-W-DISS |
| Miller Outlet | L85972-04B | 8/26/2008 | | 8/28/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L85972-04E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L85972-04E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Miller Outlet | L85972-04E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 63 | 10 | mg/L | ~ | ICP-W-dis |
| Miller Outlet | L85972-04B | 8/26/2008 | | 8/28/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L85972-04B | 8/26/2008 | | 8/28/2008 | Aqueous | Chloride | 16887-00-6 | 1 | 12 | 0.1 | mg/L | | 300.0-W |
| Miller Outlet | L85972-04E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0016 | 0.0008 | mg/L | | 6020-W-DISS |
| Miller Outlet | L85972-04E | 8/26/2008 | | 9/5/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 220 | 10 | mg/L | | HARD |
| Miller Outlet | L85972-04E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L85972-04F | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous | Iron | 7439-89-6 | 1 | 1.3 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L85972-04E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L85972-04E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 15 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L85972-04E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0 | 0.0012 | mg/L | | 6020-W-DISS |
| Miller Outlet | L85972-04F | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.058 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L85972-04E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L85972-04B | 8/26/2008 | | 8/28/2008 | Aqueous | Nitrate (as N) | | 1 | 0.025 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L85972-04B | 8/26/2008 | | 8/28/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L85972-04C | 8/26/2008 | | 9/5/2008 | Aqueous | Oil & Grease | | 1 | 3.0 | 3 | mg/L | | OGB-W |
| Miller Outlet | L85972-04B | 8/26/2008 | | 8/28/2008 | Aqueous | Phosphorus, Orthophosphate (as P | 7723-14-0 | 1 | 0 | 0.1 | mg/L | | 300.0-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Miller Outlet | L85972-04E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.0 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L85972-04E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Miller Outlet | L85972-04A | 8/26/2008 | | 8/28/2008 | Aqueous | Settleable Solids | | 1 | 0.20 | 0.1 | ml/L | | SS-W-2540F |
| Miller Outlet | L85972-04E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 6.6 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L85972-04B | 8/26/2008 | | 8/28/2008 | Aqueous | Sulfate | 14808-79-8 | 1 | 22 | 0.75 | mg/L | | 300.0-W |
| Miller Outlet | L85972-04A | 8/26/2008 | | 8/28/2008 | Aqueous | TDS | | 1 | 310 | 20 | mg/L | | TDS-W |
| Miller Outlet | L85972-04A | 8/26/2008 | | 8/28/2008 | Aqueous | TSS | | 1 | 88 | 3 | mg/L | | TSS-W-2540D |
| Miller Outlet | L85972-04E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0 | 0.0054 | mg/L | | 6020-W-DISS |
| Miller Outlet | L87283-04B | 10/29/2008 | | 10/31/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Miller Outlet | L87283-04B | 10/29/2008 | | 10/31/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 230 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L87283-04E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L87283-04D | 10/29/2008 | 11/6/2008 | 11/7/2008 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Miller Outlet | L87283-04E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0.00063 | 0.0006 | mg/L | | 6020-W-DISS |
| Miller Outlet | L87283-04B | 10/29/2008 | | 10/31/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L87283-04E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Outlet | L87283-04E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Miller Outlet | L87283-04E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 74 | 10 | mg/L | ~ | ICP-W-dis |
| Miller Outlet | L87283-04B | 10/29/2008 | | 10/31/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 18 | 10 | mg/L | | 2320B-ALK-W |
| Miller Outlet | L87283-04B | 10/29/2008 | | 11/11/2008 | Aqueous | Chloride | 16887-00-6 | 5 | 9.8 | 0.5 | mg/L | | 300.0-W |
| Miller Outlet | L87283-04E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Miller Outlet | L87283-04E | 10/29/2008 | | 11/5/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 250 | 10 | mg/L | | HARD |
| Miller Outlet | L87283-04E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Miller Outlet | L87283-04F | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous | Iron | 7439-89-6 | 1 | 0.67 | 0.05 | mg/L | | ICP-W |
| Miller Outlet | L87283-04E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Miller Outlet | L87283-04E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 17 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L87283-04F | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.026 | 0.005 | mg/L | | ICP-W |
| Miller Outlet | L87283-04E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.0054 | 0.0012 | mg/L | | 6020-W-DISS |
| Miller Outlet | L87283-04E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Outlet | L87283-04B | 10/29/2008 | | 10/31/2008 | Aqueous | Nitrate (as N) | | 1 | 0.15 | 0.01 | mg/L | | NO3-W |
| Miller Outlet | L87283-04B | 10/29/2008 | | 10/31/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Miller Outlet | L87283-04C | 10/29/2008 | | 11/2/2008 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Miller Outlet | L87283-04B | 10/29/2008 | | 10/31/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Miller Outlet | L87283-04E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.0 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L87283-04E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Miller Outlet | L87283-04A | 10/29/2008 | | 10/30/2008 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Miller Outlet | L87283-04E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 6.4 | 1 | mg/L | | ICP-W-dis |
| Miller Outlet | L87283-04B | 10/29/2008 | | 11/11/2008 | Aqueous | Sulfate | 14808-79-8 | 5 | 23 | 3.8 | mg/L | | 300.0-W |
| Miller Outlet | L87283-04A | 10/29/2008 | | 10/31/2008 | Aqueous | TDS | | 1 | 290 | 20 | mg/L | | TDS-W |
| Miller Outlet | L87283-04A | 10/29/2008 | | 10/30/2008 | Aqueous | TSS | | 1 | 18 | 3 | mg/L | | TSS-W-2540D |
| Miller Outlet | L87283-04E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0.010 | 0.0054 | mg/L | | 6020-W-DISS |
| Miller Outlet | 1006480-004 | 6/23/2010 | | 6/25/2010 | Aqueous | Settleable Solids | | 1 | 0.20 | 0.10 | mL/L | | SS-W-2540F |
| Miller Outlet | 1006480-004 | 6/23/2010 | | 6/25/2010 | Aqueous | Total Dissolved Solids | | 2 | 240 | 20 | mg/L | | TDS-W-2540C |
| Miller Outlet | 1006480-004 | 6/23/2010 | | 6/25/2010 | Aqueous | Total Suspended Solids | TSS | 1 | 86 | 3.0 | mg/L | | TSS-W-2540D |
| Miller Outlet | 1006480-004 | 6/23/2010 | | 6/30/2010 | Aqueous | Chloride | 16887-00-6 | 10 | 10 | 1.0 | mg/L | | 300.0-W |
| Miller Outlet | 1006480-004 | 6/23/2010 | | 6/30/2010 | Aqueous | Sulfate | 14808-79-8 | 10 | 22 | 7.5 | mg/L | | 300.0-W |
| Miller Outlet | 1006480-004 | 6/23/2010 | | 6/28/2010 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Miller Outlet | 1006480-004 | 6/23/2010 | | 6/28/2010 | Aqueous | Alkalinity (as CaCO3) | | 2 | 210 | 20 | mg/L | | ALK-W-2320B |
| Miller Outlet | 1006480-004 | 6/23/2010 | | 6/28/2010 | Aqueous | Bicarbonate (as CaCO3) | | 2 | 210 | 20 | mg/L | | ALK-W-2320B |
| Miller Outlet | 1006480-004 | 6/23/2010 | | 6/28/2010 | Aqueous | Carbonate (as CaCO3) | | 2 | 0 | 10 | mg/L | | ALK-W-2320B |
| Miller Outlet | 1006480-004 | 6/23/2010 | | 6/25/2010 | Aqueous | Nitrite (as N) | 14797-65-0 | 1 | 0 | 0.010 | mg/L | | NO2-W-353.2 |
| Miller Outlet | 1006480-004 | 6/23/2010 | | 6/25/2010 | Aqueous | Nitrate (as N) | 14797-55-8 | 1 | 0.048 | 0.010 | mg/L | | NO3-W-353.2 |
| Miller Outlet | 1006480-004 | 6/23/2010 | | 6/25/2010 | Aqueous | pH @ 25° C | | 1 | 8.29 | 1.00 | pH Units | H | PH-4500H+B |
| Miller Outlet | 1006480-004 | 6/23/2010 | | 6/25/2010 | Aqueous | Phosphate, Total Ortho (as P) | 7723-14-0 | 1 | 0 | 0.050 | mg/L | | PO4-O-365.1 |
| Miller Outlet | 1006480-004 | 6/23/2010 | | 6/30/2010 | Aqueous | Oil & Grease | | 1 | 0 | 3.0 | mg/L | | OGB-W-1664A |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/28/2010 | 6/29/2010 | Aqueous | Ammonia (as N) | 7664-41-7 | 1 | 0.084 | 0.050 | mg/L | | NH3-W-350.1 |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Aluminum | 7429-90-5 | 1 | 0 | 0.10 | mg/L | | 6010C-DIS |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Boron | 7440-42-8 | 1 | 0 | 0.50 | mg/L | | 6010C-DIS |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Calcium | 7440-70-2 | 10 | 66 | 10 | mg/L | | 6010C-DIS |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.10 | mg/L | | 6010C-DIS |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Magnesium | 7439-95-4 | 1 | 16 | 1.0 | mg/L | | 6010C-DIS |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Molybdenum | 7439-98-7 | 1 | 0 | 0.020 | mg/L | | 6010C-DIS |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Potassium | 7440-09-7 | 1 | 2.3 | 1.0 | mg/L | | 6010C-DIS |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Sodium | 7440-23-5 | 1 | 6.5 | 1.0 | mg/L | | 6010C-DIS |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Arsenic | 7440-38-2 | 20 | 0.00071 | 0.00060 | mg/L | | 6020-DIS |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-DIS |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Copper | 7440-50-8 | 20 | 0.0014 | 0.00080 | mg/L | | 6020-DIS |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Lead | 7439-92-1 | 20 | 0 | 0.00040 | mg/L | | 6020-DIS |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.0013 | 0.0012 | mg/L | | 6020-DIS |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Selenium | 7782-49-2 | 20 | 0 | 0.00080 | mg/L | | 6020-DIS |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Zinc | 7440-66-6 | 20 | 0 | 0.0050 | mg/L | | 6020-DIS |
| Miller Outlet | 1006480-004 | 6/23/2010 | | 6/28/2010 | Aqueous | Hardness (as CaCO3) | | 10 | 230 | 100 | mg/L | | HARD-2340B |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Iron | 7439-89-6 | 1 | 1.4 | 0.10 | mg/L | | 6010C-W |
| Miller Outlet | 1006480-004 | 6/23/2010 | 6/25/2010 | 6/25/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.075 | 0.0012 | mg/L | | 6020-W |
| Miller Spring | L84608-05B | 6/16/2008 | | 6/20/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Miller Spring | L84608-05B | 6/16/2008 | | 6/20/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 36 | 20 | mg/L | | 2320B-ALK-W |
| Miller Spring | L84608-05F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Aluminum | 7429-90-5 | 1 | 3.9 | 0.1 | mg/L | | ICP-W-dis |
| Miller Spring | L84608-05C | 6/16/2008 | 6/20/2008 | 6/25/2008 | Aqueous | Ammonia (as N) | | 1 | 0.070 | 0.05 | mg/L | | NH3-W |
| Miller Spring | L84608-05F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Arsenic | 7440-38-2 | 20 | 0.0014 | 0.0006 | mg/L | | 6020-W-DISS |
| Miller Spring | L84608-05B | 6/16/2008 | | 6/20/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 36 | 20 | mg/L | | 2320B-ALK-W |
| Miller Spring | L84608-05F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Miller Spring | L84608-05F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Miller Spring | L84608-05F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Calcium | 7440-70-2 | 1 | 11 | 1 | mg/L | | ICP-W-dis |
| Miller Spring | L84608-05B | 6/16/2008 | | 6/20/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Miller Spring | L84608-05B | 6/16/2008 | | 6/26/2008 | Aqueous | Chloride | 16887-00-6 | 5 | 4.7 | 0.5 | mg/L | | 300.0-W |
| Miller Spring | L84608-05F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Copper | 7440-50-8 | 20 | 0.0062 | 0.0008 | mg/L | | 6020-W-DISS |
| Miller Spring | L84608-05F | 6/16/2008 | | 6/18/2008 | Aqueous Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 38 | 10 | mg/L | | HARD |
| Miller Spring | L84608-05F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Iron | 7439-89-6 | 1 | 1.3 | 0.05 | mg/L | | ICP-W-dis |
| Miller Spring | L84608-05E | 6/16/2008 | 6/20/2008 | 6/27/2008 | Aqueous | Iron | 7439-89-6 | 1 | 2.7 | 0.05 | mg/L | | ICP-W |
| Miller Spring | L84608-05F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Lead | 7439-92-1 | 20 | 0.0021 | 0.0004 | mg/L | | 6020-W-DISS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Miller Spring | L84608-05F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Magnesium | 7439-95-4 | 1 | 2.7 | 1 | mg/L | | ICP-W-dis |
| Miller Spring | L84608-05F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Manganese | 7439-96-5 | 20 | 0.0060 | 0.0012 | mg/L | | 6020-W-DISS |
| Miller Spring | L84608-05E | 6/16/2008 | 6/20/2008 | 6/27/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.012 | 0.005 | mg/L | | ICP-W |
| Miller Spring | L84608-05F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Miller Spring | L84608-05B | 6/16/2008 | | 6/18/2008 | Aqueous | Nitrate (as N) | | 1 | 0.011 | 0.01 | mg/L | | NO3-W |
| Miller Spring | L84608-05B | 6/16/2008 | | 6/18/2008 | Aqueous | Nitrite (as N) | | 1 | 0.039 | 0.01 | mg/L | | NO2-W |
| Miller Spring | L84608-05D | 6/16/2008 | | 6/18/2008 | Aqueous | Oil & Grease | | 1 | 5.4 | 3 | mg/L | * | OGB-W |
| Miller Spring | L84608-05B | 6/16/2008 | | 6/18/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.055 | 0.05 | mg/L | | PO4-O |
| Miller Spring | L84608-05F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Potassium | 7440-09-7 | 1 | 1.7 | 1 | mg/L | | ICP-W-dis |
| Miller Spring | L84608-05F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Selenium | 7782-49-2 | 20 | 0.00089 | 0.0008 | mg/L | | 6020-W-DISS |
| Miller Spring | L84608-05A | 6/16/2008 | | 6/18/2008 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Miller Spring | L84608-05F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Sodium | 7440-23-5 | 1 | 15 | 1 | mg/L | | ICP-W-dis |
| Miller Spring | L84608-05B | 6/16/2008 | | 6/26/2008 | Aqueous | Sulfate | 14808-79-8 | 5 | 5.9 | 3.8 | mg/L | | 300.0-W |
| Miller Spring | L84608-05A | 6/16/2008 | | 6/19/2008 | Aqueous | TDS | | 1 | 200 | 100 | mg/L | | TDS-W |
| Miller Spring | L84608-05A | 6/16/2008 | | 6/18/2008 | Aqueous | TSS | | 1 | 13 | 3 | mg/L | | TSS-W-2540D |
| Miller Spring | L84608-05F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Zinc | 7440-66-6 | 20 | 0.032 | 0.0054 | mg/L | | 6020-W-DISS |
| Mud Creek | L65736-04B | 5/9/2005 | | 5/11/2005 | Aqueous | Acidity | | 1 | 68 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L65736-04B | 5/9/2005 | | 5/11/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 230 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L65736-04D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L65736-04F | 5/9/2005 | 5/11/2005 | 5/12/2005 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L65736-04D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L65736-04B | 5/9/2005 | | 5/11/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L65736-04D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0.1 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L65736-04D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L65736-04D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 81 | 10 | mg/L | | ICP-W-dis |
| Mud Creek | L65736-04B | 5/9/2005 | | 5/11/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 11 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L65736-04B | 5/9/2005 | | 5/18/2005 | Aqueous | Chloride | 16887-00-6 | 1 | 27 | 10 | mg/L | | 300.0-W |
| Mud Creek | L65736-04D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.002 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L65736-04D | 5/9/2005 | | 5/20/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 350 | 10 | mg/L | | HARD |
| Mud Creek | L65736-04C | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0.84 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L65736-04D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L65736-04D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L65736-04D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 35 | 10 | mg/L | | ICP-W-dis |
| Mud Creek | L65736-04C | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.094 | 0.005 | mg/L | | 6020-W |
| Mud Creek | L65736-04D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.089 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L65736-04D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L65736-04B | 5/9/2005 | | 5/11/2005 | Aqueous | Nitrate (as N) | | 1 | 0.70 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L65736-04B | 5/9/2005 | | 5/11/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L65736-04E | 5/9/2005 | | 5/11/2005 | Aqueous | Oil & Grease | | 1 | 3.9 | 3 | mg/L | | OGB-W |
| Mud Creek | L65736-04B | 5/9/2005 | | 5/11/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L65736-04D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.2 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L65736-04D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0.002 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L65736-04A | 5/9/2005 | | 5/10/2005 | Aqueous | Settable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS |
| Mud Creek | L65736-04D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 37 | 10 | mg/L | | ICP-W-dis |
| Mud Creek | L65736-04B | 5/9/2005 | | 5/17/2005 | Aqueous | Sulfate | 14808-79-8 | 1 | 120 | 100 | mg/L | | 300.0-W |
| Mud Creek | L65736-04A | 5/9/2005 | | 5/10/2005 | Aqueous | TDS | | 1 | 500 | 10 | mg/L | | TDS-W |
| Mud Creek | L65736-04A | 5/9/2005 | | 5/10/2005 | Aqueous | TSS | | 1 | 52 | 3 | mg/L | | TSS-W |
| Mud Creek | L65736-04D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L67580-04B | 9/6/2005 | | 9/9/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L67580-04B | 9/6/2005 | | 9/8/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 230 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L67580-04F | 9/6/2005 | 9/7/2005 | 9/8/2005 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L67580-04B | 9/6/2005 | | 9/8/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 230 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 83 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L67580-04B | 9/6/2005 | | 9/8/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L67580-04B | 9/6/2005 | | 9/14/2005 | Aqueous | Chloride | 16887-00-6 | 10 | 17 | 10 | mg/L | | 300.0-W |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 410 | 10 | mg/L | | HARD |
| Mud Creek | L67580-04C | 9/6/2005 | 9/8/2005 | 9/13/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0.15 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0.066 | 0.05 | mg/L | | ICP-W-DIS |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 49 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L67580-04C | 9/6/2005 | 9/8/2005 | 9/15/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.023 | 0.005 | mg/L | | 6020-W |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.020 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L67580-04B | 9/6/2005 | | 8/7/2005 | Aqueous | Nitrate (as N) | | 1 | 0.22 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L67580-04B | 9/6/2005 | | 9/7/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L67580-04E | 9/6/2005 | | 9/7/2005 | Aqueous | Oil & Grease | | 1 | 4.8 | 3 | mg/L | | OGB-W |
| Mud Creek | L67580-04B | 9/6/2005 | | 9/8/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.06 | mg/L | | PO4-O |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 7.3 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L67580-04A | 9/6/2005 | | 9/7/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 34 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L67580-04B | 9/6/2005 | | 9/14/2005 | Aqueous | Sulfate | 14808-79-8 | 10 | 250 | 100 | mg/L | | 300.0-W |
| Mud Creek | L67580-04A | 9/6/2005 | | 9/7/2005 | Aqueous | TSS | | 1 | 8.0 | 3 | mg/L | | TSS-W |
| Mud Creek | L67580-04D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/2/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/1/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04F | 10/31/2005 | 11/7/2005 | 11/9/2005 | Aqueous | Ammonia (as N) | | 1 | 0.077 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/1/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 260 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 5 | 92 | 5 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/1/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 33 | 10 | mg/L | | 2320B-ALK-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/9/2005 | Aqueous | Chloride | 16887-00-6 | 1 | 15 | 5 | mg/L | | CL-W-LAT |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 460 | 10 | mg/L | | HARD |
| Mud Creek | L68520-04C | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0.24 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 56 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.024 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L68520-04C | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.033 | 0.005 | mg/L | | 6020-W |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrate (as N) | | 1 | 0.35 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L68520-04E | 10/31/2005 | | 11/2/2005 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/1/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 9.4 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L68520-04A | 10/31/2005 | | 11/1/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 5 | 51 | 5 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/10/2005 | Aqueous | Sulfate | 14808-79-8 | 1 | 250 | 5 | mg/L | | SO4-W |
| Mud Creek | L68520-04A | 10/31/2005 | | 11/1/2005 | Aqueous | TDS | | 1 | 720 | 10 | mg/L | | TDS-W |
| Mud Creek | L68520-04A | 10/31/2005 | | 11/1/2005 | Aqueous | TSS | | 1 | 10 | 3 | mg/L | | TSS-W |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.024 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/2/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/1/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 300 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04F | 10/31/2005 | 11/7/2005 | 11/9/2005 | Aqueous | Ammonia (as N) | | 1 | 0.077 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/1/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 260 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 5 | 92 | 5 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/1/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 33 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/9/2005 | Aqueous | Chloride | 16887-00-6 | 1 | 15 | 5 | mg/L | | CL-W-LAT |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 460 | 10 | mg/L | | HARD |
| Mud Creek | L68520-04C | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0.24 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 56 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.024 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L68520-04C | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.033 | 0.005 | mg/L | | 6020-W |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrate (as N) | | 1 | 0.35 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L68520-04E | 10/31/2005 | | 11/2/2005 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/1/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 9.4 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L68520-04A | 10/31/2005 | | 11/1/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 5 | 51 | 5 | mg/L | | ICP-W-DIS |
| Mud Creek | L68520-04B | 10/31/2005 | | 11/10/2005 | Aqueous | Sulfate | 14808-79-8 | 1 | 250 | 5 | mg/L | | SO4-W |
| Mud Creek | L68520-04A | 10/31/2005 | | 11/1/2005 | Aqueous | TDS | | 1 | 720 | 10 | mg/L | | TDS-W |
| Mud Creek | L68520-04A | 10/31/2005 | | 11/1/2005 | Aqueous | TSS | | 1 | 10 | 3 | mg/L | | TSS-W |
| Mud Creek | L68520-04D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.024 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L68977-03C | 11/28/2005 | | 12/1/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L68977-03C | 11/28/2005 | | 11/29/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 270 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L68977-03F | 11/28/2005 | 12/6/2005 | 12/7/2005 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L68977-03C | 11/28/2005 | | 11/29/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 250 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 5 | 98 | 5 | mg/L | | ICP-W-DIS |
| Mud Creek | L68977-03C | 11/28/2005 | | 11/29/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 24 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L68977-03C | 11/28/2005 | | 12/3/2005 | Aqueous | Chloride | 16887-00-6 | 10 | 15 | 10 | mg/L | | 300.0-W |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 490 | 10 | mg/L | | HARD |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Mud Creek | L68977-03E | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0.25 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 59 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.022 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L68977-03E | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.030 | 0.005 | mg/L | | 6020-W |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L68977-03C | 11/28/2005 | | 11/29/2005 | Aqueous | Nitrate (as N) | | 1 | 0.40 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L68977-03C | 11/28/2005 | | 11/29/2005 | Aqueous | Nitrite (as N) | | 1 | 0.013 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L68977-03G | 11/28/2005 | | 11/30/2005 | Aqueous | Oil & Grease | | 1 | 4.1 | 3 | mg/L | | OGB-W |
| Mud Creek | L68977-03C | 11/28/2005 | | 11/29/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 9.2 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L68977-03A | 11/28/2005 | | 11/29/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 5 | 53 | 5 | mg/L | | ICP-W-DIS |
| Mud Creek | L68977-03C | 11/28/2005 | | 12/3/2005 | Aqueous | Sulfate | 14808-79-8 | 100 | 260 | 100 | mg/L | | 300.0-W |
| Mud Creek | L68977-03B | 11/28/2005 | | 12/2/2005 | Aqueous | TDS | | 1 | 700 | 10 | mg/L | | TDS-W |
| Mud Creek | L68977-03A | 11/28/2005 | | 11/29/2005 | Aqueous | TSS | | 1 | 23 | 3 | mg/L | | TSS-W |
| Mud Creek | L68977-03D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.015 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L69428-01B | 12/22/2005 | | 12/23/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L69428-01B | 12/22/2005 | | 12/23/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 250 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Mud Creek | L69428-01E | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | 1 | NH3-W |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 2 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L69428-01B | 12/22/2005 | | 12/23/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 250 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 2 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 91 | 10 | mg/L | 2 | ICP-W-DIS |
| Mud Creek | L69428-01B | 12/22/2005 | | 12/23/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L69428-01B | 12/22/2005 | | 12/28/2005 | Aqueous | Chloride | 16887-00-6 | 10 | 17 | 10 | mg/L | | 300.0-W |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 2 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 430 | 10 | mg/L | | HARD |
| Mud Creek | L69428-01D | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0.28 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 2 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 50 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 2 | 0.021 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L69428-01D | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.028 | 0.005 | mg/L | | 6020-W |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L69428-01B | 12/22/2005 | | 12/23/2005 | Aqueous | Nitrate (as N) | | 1 | 0.28 | 0.01 | mg/L | 1 | NO3-W |
| Mud Creek | L69428-01B | 12/22/2005 | | 12/23/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | 1 | NO2-W |
| Mud Creek | L69428-01F | 12/22/2005 | | 12/28/2005 | Aqueous | Oil & Grease | | 1 | 3.1 | 3 | mg/L | | OGB-W |
| Mud Creek | L69428-01B | 12/22/2005 | | 12/23/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | 1@ | PO4-O |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 7.6 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 2 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L69428-01A | 12/22/2005 | | 12/23/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 35 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L69428-01B | 12/22/2005 | | 12/28/2005 | Aqueous | Sulfate | 14808-79-8 | 100 | 190 | 100 | mg/L | | 300.0-W |
| Mud Creek | L69428-01A | 12/22/2005 | | 12/23/2005 | Aqueous | TDS | | 1 | 600 | 10 | mg/L | | TDS-W |
| Mud Creek | L69428-01A | 12/22/2005 | | 12/23/2005 | Aqueous | TSS | | 1 | 13 | 3 | mg/L | | TSS-W |
| Mud Creek | L69428-01C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 2 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L69847-04B | 1/23/2006 | | 1/24/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L69847-04B | 1/23/2006 | | 1/24/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 280 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L69847-04F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L69847-04C | 1/23/2006 | 1/31/2006 | 2/1/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L69847-04F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L69847-04B | 1/23/2006 | | 1/24/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 280 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L69847-04F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Mud Creek | L69847-04F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0.053 | 0.004 | mg/L | 1 | 6020-W-DISS |
| Mud Creek | L69847-04F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 100 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L69847-04B | 1/23/2006 | | 1/24/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L69847-04B | 1/23/2006 | | 1/27/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 16 | 5 | mg/L | | 300.0-W |
| Mud Creek | L69847-04F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.0070 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L69847-04F | 1/23/2006 | | 1/27/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 480 | 10 | mg/L | | HARD |
| Mud Creek | L69847-04E | 1/23/2006 | 1/24/2006 | 1/27/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.11 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L69847-04F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Mud Creek | L69847-04F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L69847-04F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 58 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L69847-04F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.037 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L69847-04E | 1/23/2006 | 1/24/2006 | 1/30/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.030 | 0.005 | mg/L | | 6020-W |
| Mud Creek | L69847-04F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L69847-04B | 1/23/2006 | | 1/24/2006 | Aqueous | Nitrate (as N) | | 1 | 0.44 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L69847-04B | 1/23/2006 | | 1/24/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L69847-04D | 1/23/2006 | | 1/24/2006 | Aqueous | Oil & Grease | | 1 | 4.8 | 3 | mg/L | | OGB-W |
| Mud Creek | L69847-04B | 1/23/2006 | | 1/24/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L69847-04F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 9.1 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L69847-04F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0.033 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L69847-04A | 1/23/2006 | | 1/24/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Mud Creek | L69847-04F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 50 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L69847-04B | 1/23/2006 | | 1/27/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 290 | 50 | mg/L | | 300.0-W |
| Mud Creek | L69847-04A | 1/23/2006 | | 1/24/2006 | Aqueous | TDS | | 1 | 720 | 10 | mg/L | | TDS-W |
| Mud Creek | L69847-04A | 1/23/2006 | | 1/24/2006 | Aqueous | TSS | | 1 | 4.0 | 3 | mg/L | * | TSS-W |
| Mud Creek | L69847-04F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.063 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L70355-02A | 2/26/2006 | | 2/28/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L70355-02A | 2/26/2006 | | 2/28/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 260 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L70355-02F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L70355-02C | 2/26/2006 | 3/2/2006 | 3/2/2006 | Aqueous | Ammonia (as N) | | 1 | 0.57 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L70355-02F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L70355-02A | 2/26/2006 | | 2/28/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 260 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L70355-02F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Mud Creek | L70355-02F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L70355-02F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 97 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L70355-02A | 2/26/2006 | | 2/28/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L70355-02A | 2/26/2006 | | 3/1/2006 | Aqueous | Chloride | 16887-00-6 | 5 | 22 | 5 | mg/L | | 300.0-W |
| Mud Creek | L70355-02F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L70355-02F | 2/26/2006 | | 3/7/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 470 | 10 | mg/L | | HARD |
| Mud Creek | L70355-02E | 2/26/2006 | 2/28/2006 | 2/28/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.25 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L70355-02F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Mud Creek | L70355-02F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L70355-02F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 55 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L70355-02E | 2/26/2006 | 2/28/2006 | 2/28/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.031 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L70355-02F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.028 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L70355-02F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L70355-02A | 2/26/2006 | | 2/27/2006 | Aqueous | Nitrate (as N) | | 1 | 0.38 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L70355-02A | 2/26/2006 | | 2/27/2006 | Aqueous | Nitrite (as N) | | 1 | 0.018 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L70355-02D | 2/26/2006 | | 2/27/2006 | Aqueous | Oil & Grease | | 1 | 5.1 | 3 | mg/L | | OGB-W |
| Mud Creek | L70355-02A | 2/26/2006 | | 2/27/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L70355-02F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 9.3 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L70355-02F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L70355-02B | 2/26/2006 | | 2/27/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Mud Creek | L70355-02F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 56 | 1 | mg/L | | ICP-W-DIS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Mud Creek | L70355-02A | 2/26/2006 | | 3/1/2006 | Aqueous | Sulfate | 14808-79-8 | 50 | 250 | 50 | mg/L | | 300.0-W |
| Mud Creek | L70355-02B | 2/26/2006 | | 3/3/2006 | Aqueous | TDS | | 1 | 570 | 10 | mg/L | | TDS-W |
| Mud Creek | L70355-02B | 2/26/2006 | | 2/28/2006 | Aqueous | TSS | | 1 | 10 | 3 | mg/L | | TSS-W |
| Mud Creek | L70355-02F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.16 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L70885-02E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Mud Creek | L70885-02E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L70885-02E | 3/27/2006 | 4/3/2006 | 4/11/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 88 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L70885-02B | 3/27/2006 | | 3/30/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L70885-02B | 3/27/2006 | | 3/29/2006 | Aqueous | Chloride | 16887-00-6 | 10 | 34 | 10 | mg/L | | 300.0-W |
| Mud Creek | L70885-02B | 3/27/2006 | | 3/30/2006 | Aqueous | Conductivity | | 1 | 1000 | 2 | umhos/cm | | COND-W |
| Mud Creek | L70885-02E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L70885-02E | 3/27/2006 | | 4/11/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 440 | 10 | mg/L | | HARD |
| Mud Creek | L70885-02D | 3/27/2006 | 4/6/2006 | 4/9/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.47 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L70885-02E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Mud Creek | L70885-02E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L70885-02E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 54 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L70885-02D | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.042 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L70885-02E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.025 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L70885-02E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L70885-02B | 3/27/2006 | | 3/29/2006 | Aqueous | Nitrate (as N) | | 1 | 0.44 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L70885-02B | 3/27/2006 | | 3/29/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L70885-02F | 3/27/2006 | | 3/28/2006 | Aqueous | Oil & Grease | | 1 | 4.1 | 3 | mg/L | | OGB-W |
| Mud Creek | L70885-02B | 3/27/2006 | | 3/28/2006 | Aqueous | pH @ 25° C | | 1 | 8.18 | 0 | pH Units | | PH-W |
| Mud Creek | L70885-02B | 3/27/2006 | | 3/29/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L70885-02E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 9.7 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L70885-02E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L70885-02A | 3/27/2006 | | 3/28/2006 | Aqueous | Settable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS |
| Mud Creek | L70885-02E | 3/27/2006 | 4/3/2006 | 4/11/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 57 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L70885-02B | 3/27/2006 | | 3/29/2006 | Aqueous | Sulfate | 14808-79-8 | 100 | 250 | 100 | mg/L | | 300.0-W |
| Mud Creek | L70885-02A | 3/27/2006 | | 3/31/2006 | Aqueous | TDS | | 1 | 510 | 10 | mg/L | | TDS-W |
| Mud Creek | L70885-02A | 3/27/2006 | | 3/28/2006 | Aqueous | TSS | | 1 | 28 | 3 | mg/L | | TSS-W |
| Mud Creek | L70885-02E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.026 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L71507-04B | 4/26/2006 | | 5/2/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L71507-04B | 4/26/2006 | | 5/2/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 280 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L71507-04E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L71507-04C | 4/26/2006 | 5/3/2006 | 5/3/2006 | Aqueous | Ammonia (as N) | | 1 | 0.11 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L71507-04E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L71507-04B | 4/26/2006 | | 5/2/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 280 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L71507-04E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L71507-04E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L71507-04E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 76 | 10 | mg/L | | ICP-W-dis |
| Mud Creek | L71507-04B | 4/26/2006 | | 5/2/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 7 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L71507-04B | 4/26/2006 | | 5/12/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 30 | 10 | mg/L | | 300.0-W |
| Mud Creek | L71507-04E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L71507-04E | 4/26/2006 | | 5/15/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 310 | 10 | mg/L | | HARD |
| Mud Creek | L71507-04D | 4/26/2006 | 5/3/2006 | 5/11/2006 | Aqueous | Iron | 7439-89-6 | 1 | 2.7 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L71507-04E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L71507-04E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L71507-04E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 30 | 10 | mg/L | | ICP-W-dis |
| Mud Creek | L71507-04D | 4/26/2006 | 5/3/2006 | 5/11/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.15 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L71507-04E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.022 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L71507-04E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L71507-04C | 4/26/2006 | | 5/4/2006 | Aqueous | Nitrate/Nitrite (as N) | | 1 | 0.36 | 0.01 | mg/L | | NO2/NO3-W |
| Mud Creek | L71507-04F | 4/26/2006 | | 5/5/2006 | Aqueous | Oil & Grease | | 1 | 3.8 | 3 | mg/L | | OGB-W |
| Mud Creek | L71507-04B | 4/26/2006 | | 4/28/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.04 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L71507-04E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 3.8 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L71507-04E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L71507-04A | 4/26/2006 | | 4/28/2006 | Aqueous | Settable Solids | | 1 | 0.60 | 0.1 | ml/L | | SS |
| Mud Creek | L71507-04E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 48 | 10 | mg/L | | ICP-W-dis |
| Mud Creek | L71507-04B | 4/26/2006 | | 5/12/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 88 | 10 | mg/L | | 300.0-W |
| Mud Creek | L71507-04A | 4/26/2006 | | 4/28/2006 | Aqueous | TDS | | 1 | 410 | 10 | mg/L | | TDS-W |
| Mud Creek | L71507-04A | 4/26/2006 | | 4/28/2006 | Aqueous | TSS | | 1 | 270 | 3 | mg/L | | TSS-W |
| Mud Creek | L71507-04E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.023 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L72071-04B | 5/25/2006 | | 5/30/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L72071-04B | 5/25/2006 | | 5/30/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 160 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L72071-04E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L72071-04C | 5/25/2006 | 5/30/2006 | 5/31/2006 | Aqueous | Ammonia (as N) | | 1 | 0.061 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L72071-04E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L72071-04B | 5/25/2006 | | 5/30/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 150 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L72071-04E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Mud Creek | L72071-04E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L72071-04E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 48 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L72071-04B | 5/25/2006 | | 5/30/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L72071-04B | 5/25/2006 | | 6/1/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 10 | 10 | mg/L | | 300.0-W |
| Mud Creek | L72071-04E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L72071-04E | 5/25/2006 | | 6/9/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 120 | 10 | mg/L | | HARD |
| Mud Creek | L72071-04D | 5/25/2006 | 5/29/2006 | 6/8/2006 | Aqueous | Iron | 7439-89-6 | 1 | 2.5 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L72071-04E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0.052 | 0.05 | mg/L | | ICP-W-DIS |
| Mud Creek | L72071-04E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L72071-04E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 14 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L72071-04D | 5/25/2006 | 5/29/2006 | 6/8/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.096 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L72071-04E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.012 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L72071-04E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L72071-04B | 5/25/2006 | | 5/26/2006 | Aqueous | Nitrate (as N) | | 1 | 0.74 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L72071-04B | 5/25/2006 | | 5/26/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L72071-04F | 5/25/2006 | | 5/30/2006 | Aqueous | Oil & Grease | | 1 | 3.2 | 3 | mg/L | | OGB-W |
| Mud Creek | L72071-04B | 5/25/2006 | | 5/26/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L72071-04E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.9 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L72071-04E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Mud Creek | L72071-04A | 5/25/2006 | | 5/26/2006 | Aqueous | Settable Solids | | 1 | 0.50 | 0.1 | ml/L | | SS |
| Mud Creek | L72071-04E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 18 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L72071-04B | 5/25/2006 | | 6/1/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 42 | 10 | mg/L | | 300.0-W |
| Mud Creek | L72071-04A | 5/25/2006 | | 5/26/2006 | Aqueous | TDS | | 1 | 230 | 10 | mg/L | | TDS-W |
| Mud Creek | L72071-04A | 5/25/2006 | | 5/26/2006 | Aqueous | TSS | | 1 | 320 | 3 | mg/L | | TSS-W |
| Mud Creek | L72071-04E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.014 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L72660-04B | 6/29/2006 | | 7/3/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L72660-04B | 6/29/2006 | | 7/3/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 230 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L72660-04E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L72660-04C | 6/29/2006 | 7/5/2006 | 7/7/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L72660-04E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L72660-04B | 6/29/2006 | | 7/3/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 180 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L72660-04E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Mud Creek | L72660-04E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L72660-04E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 71 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L72660-04B | 6/29/2006 | | 7/3/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 55 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L72660-04B | 6/29/2006 | | 7/5/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 14 | 10 | mg/L | | 300.0-W |
| Mud Creek | L72660-04E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L72660-04E | 6/29/2006 | | 7/11/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 380 | 10 | mg/L | | HARD |
| Mud Creek | L72660-04D | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.25 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L72660-04E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Mud Creek | L72660-04E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L72660-04E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 39 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L72660-04E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.019 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L72660-04D | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.030 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L72660-04E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L72660-04B | 6/29/2006 | | 6/30/2006 | Aqueous | Nitrate (as N) | | 1 | 0.22 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L72660-04B | 6/29/2006 | | 6/30/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L72660-04F | 6/29/2006 | | 6/30/2006 | Aqueous | Oil & Grease | | 1 | 4.4 | 3 | mg/L | | OGB-W |
| Mud Creek | L72660-04B | 6/29/2006 | | 6/30/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L72660-04E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 6.0 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L72660-04E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L72660-04A | 6/29/2006 | | 6/30/2006 | Aqueous | Settable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS |
| Mud Creek | L72660-04E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 28 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L72660-04B | 6/29/2006 | | 7/5/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 160 | 100 | mg/L | | 300.0-W |
| Mud Creek | L72660-04A | 6/29/2006 | | 6/30/2006 | Aqueous | TDS | | 1 | 380 | 20 | mg/L | | TDS-W |
| Mud Creek | L72660-04A | 6/29/2006 | | 6/30/2006 | Aqueous | TSS | | 1 | 21 | 3 | mg/L | | TSS-W |
| Mud Creek | L72660-04E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L73160-03B | 7/31/2006 | | 8/2/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L73160-03B | 7/31/2006 | | 8/2/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 230 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L73160-03E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L73160-03C | 7/31/2006 | 8/2/2006 | 8/4/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L73160-03E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L73160-03B | 7/31/2006 | | 8/2/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L73160-03E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Mud Creek | L73160-03E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L73160-03E | 7/31/2006 | 8/3/2006 | 8/15/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 70 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L73160-03B | 7/31/2006 | | 8/2/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 10 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L73160-03B | 7/31/2006 | | 8/8/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 63 | 10 | mg/L | | 300.0-W |
| Mud Creek | L73160-03E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L73160-03E | 7/31/2006 | | 8/15/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 330 | 10 | mg/L | | HARD |
| Mud Creek | L73160-03E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Mud Creek | L73160-03D | 7/31/2006 | 8/3/2006 | 8/8/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.24 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L73160-03E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L73160-03E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 38 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L73160-03D | 7/31/2006 | 8/3/2006 | 8/8/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.033 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L73160-03E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.019 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L73160-03E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L73160-03B | 7/31/2006 | | 8/2/2006 | Aqueous | Nitrate (as N) | | 1 | 0.14 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L73160-03B | 7/31/2006 | | 8/2/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L73160-03F | 7/31/2006 | | 8/8/2006 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Mud Creek | L73160-03B | 7/31/2006 | | 8/2/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L73160-03E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 6.1 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L73160-03E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L73160-03A | 7/31/2006 | | 8/2/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Mud Creek | L73160-03E | 7/31/2006 | 8/3/2006 | 8/15/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 27 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L73160-03B | 7/31/2006 | | 8/8/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 160 | 100 | mg/L | | 300.0-W |
| Mud Creek | L73160-03A | 7/31/2006 | | 8/3/2006 | Aqueous | TDS | | 1 | 380 | 20 | mg/L | | TDS-W |
| Mud Creek | L73160-03A | 7/31/2006 | | 8/2/2006 | Aqueous | TSS | | 1 | 11 | 3 | mg/L | | TSS-W |
| Mud Creek | L73160-03E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.019 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L73504-03B | 8/21/2006 | | 8/23/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L73504-03B | 8/21/2006 | | 8/23/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 230 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L73504-03E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L73504-03C | 8/21/2006 | 8/23/2006 | 8/24/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L73504-03E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L73504-03B | 8/21/2006 | | 8/23/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L73504-03E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Mud Creek | L73504-03E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L73504-03E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 74 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L73504-03B | 8/21/2006 | | 8/23/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 14 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L73504-03B | 8/21/2006 | | 8/24/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 22 | 10 | mg/L | | 300.0-W |
| Mud Creek | L73504-03E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L73504-03E | 8/21/2006 | | 9/5/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 360 | 10 | mg/L | | HARD |
| Mud Creek | L73504-03E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Mud Creek | L73504-03D | 8/21/2006 | 8/23/2006 | 9/1/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.24 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L73504-03E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L73504-03E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 42 | 10 | mg/L | | ICP-W-DIS |
| Mud Creek | L73504-03D | 8/21/2006 | 8/23/2006 | 9/1/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.028 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L73504-03E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0.016 | 0.005 | mg/L | | 6020-W-DISS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Mud Creek | L73504-03E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L73504-03B | 8/21/2006 | | 8/23/2006 | Aqueous | Nitrate (as N) | | 1 | 0.16 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L73504-03B | 8/21/2006 | | 8/23/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L73504-03F | 8/21/2006 | | 8/23/2006 | Aqueous | Oil & Grease | | 1 | 3.8 | 3 | mg/L | | OGB-W |
| Mud Creek | L73504-03B | 8/21/2006 | | 8/23/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L73504-03E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 7.6 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L73504-03E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L73504-03A | 8/21/2006 | | 8/23/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Mud Creek | L73504-03E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 37 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L73504-03B | 8/21/2006 | | 8/28/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 130 | 1 | mg/L | | 300.0-W |
| Mud Creek | L73504-03A | 8/21/2006 | | 8/25/2006 | Aqueous | TDS | | 1 | 420 | 20 | mg/L | | TDS-W |
| Mud Creek | L73504-03A | 8/21/2006 | | 8/23/2006 | Aqueous | TSS | | 1 | 9.0 | 3 | mg/L | | TSS-W |
| Mud Creek | L73504-03E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L74688-01B | 10/30/2006 | | 11/1/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L74688-01B | 10/30/2006 | | 11/1/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 230 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L74688-01F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L74688-01C | 10/30/2006 | 11/1/2006 | 11/3/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | [1] | NH3-W |
| Mud Creek | L74688-01F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L74688-01B | 10/30/2006 | | 11/1/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 210 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L74688-01F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Mud Creek | L74688-01F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L74688-01F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 67 | 10 | mg/L | [2] * | ICP-W-DIS |
| Mud Creek | L74688-01B | 10/30/2006 | | 11/1/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 28 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L74688-01B | 10/30/2006 | | 11/9/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 17 | 10 | mg/L | | 300.0-W |
| Mud Creek | L74688-01F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L74688-01F | 10/30/2006 | | 11/13/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 340 | 10 | mg/L | | HARD |
| Mud Creek | L74688-01F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Mud Creek | L74688-01E | 10/30/2006 | 11/1/2006 | 11/13/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.34 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L74688-01F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L74688-01F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 42 | 10 | mg/L | * | ICP-W-DIS |
| Mud Creek | L74688-01F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.019 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L74688-01E | 10/30/2006 | 11/1/2006 | 11/13/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.031 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L74688-01F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Mud Creek | L74688-01B | 10/30/2006 | | 11/1/2006 | Aqueous | Nitrate (as N) | | 1 | 0.13 | 0.01 | mg/L | [1] | NO3-W |
| Mud Creek | L74688-01B | 10/30/2006 | | 11/1/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L74688-01D | 10/30/2006 | | 11/1/2006 | Aqueous | Oil & Grease | | 1 | 3.3 | 3 | mg/L | | OGB-W |
| Mud Creek | L74688-01B | 10/30/2006 | | 11/1/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L74688-01F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 6.9 | 1 | mg/L | | ICP-W-DIS |
| Mud Creek | L74688-01F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L74688-01A | 10/30/2006 | | 11/1/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Mud Creek | L74688-01F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 36 | 1 | mg/L | [1] | ICP-W-DIS |
| Mud Creek | L74688-01B | 10/30/2006 | | 11/9/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 160 | 100 | mg/L | | 300.0-W |
| Mud Creek | L74688-01A | 10/30/2006 | | 11/1/2006 | Aqueous | TDS | | 1 | 460 | 20 | mg/L | | TDS-W |
| Mud Creek | L74688-01A | 10/30/2006 | | 11/1/2006 | Aqueous | TSS | | 1 | 14 | 3 | mg/L | | TSS-W |
| Mud Creek | L74688-01F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.020 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L75142-01B | 11/27/2006 | | 11/29/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L75142-01B | 11/27/2006 | | 11/29/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 250 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L75142-01F | 11/27/2006 | 11/29/2006 | 12/13/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L75142-01C | 11/27/2006 | 11/30/2006 | 12/1/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L75142-01F | 11/27/2006 | 11/29/2006 | 11/30/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L75142-01B | 11/27/2006 | | 11/29/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L75142-01F | 11/27/2006 | 11/29/2006 | 12/11/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L75142-01F | 11/27/2006 | 11/29/2006 | 11/30/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L75142-01F | 11/27/2006 | 11/29/2006 | 12/13/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 89 | 10 | mg/L | * | ICP-W-DIS |
| Mud Creek | L75142-01B | 11/27/2006 | | 11/29/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 31 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L75142-01B | 11/27/2006 | | 11/29/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 15 | 10 | mg/L | | 300.0-W |
| Mud Creek | L75142-01F | 11/27/2006 | 11/29/2006 | 11/30/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L75142-01F | 11/27/2006 | | 12/13/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 400 | 10 | mg/L | | HARD |
| Mud Creek | L75142-01F | 11/27/2006 | 11/29/2006 | 12/11/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L75142-01E | 11/27/2006 | 11/29/2006 | 12/11/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.30 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L75142-01F | 11/27/2006 | 11/29/2006 | 11/30/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L75142-01F | 11/27/2006 | 11/29/2006 | 12/11/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 44 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L75142-01F | 11/27/2006 | 11/29/2006 | 11/30/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.023 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L75142-01E | 11/27/2006 | 11/29/2006 | 12/11/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.026 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L75142-01F | 11/27/2006 | 11/29/2006 | 12/11/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L75142-01B | 11/27/2006 | | 11/29/2006 | Aqueous | Nitrate (as N) | | 1 | 0.26 | 0.01 | mg/L | [1]@ | NO3-W |
| Mud Creek | L75142-01B | 11/27/2006 | | 11/29/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | [1]@ | NO2-W |
| Mud Creek | L75142-01D | 11/27/2006 | | 11/29/2006 | Aqueous | Oil & Grease | | 1 | 3.4 | 3 | mg/L | | OGB-W |
| Mud Creek | L75142-01B | 11/27/2006 | | 11/29/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L75142-01F | 11/27/2006 | 11/29/2006 | 12/11/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 7.6 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L75142-01F | 11/27/2006 | 11/29/2006 | 11/30/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L75142-01F | 11/27/2006 | 11/29/2006 | 12/13/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 42 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L75142-01B | 11/27/2006 | | 11/29/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 160 | 100 | mg/L | | 300.0-W |
| Mud Creek | L75142-01A | 11/27/2006 | | 12/1/2006 | Aqueous | TDS | | 1 | 490 | 20 | mg/L | | TDS-W |
| Mud Creek | L75142-01A | 11/27/2006 | | 11/29/2006 | Aqueous | TSS | | 1 | 13 | 3 | mg/L | | TSS-W |
| Mud Creek | L75142-01F | 11/27/2006 | 11/29/2006 | 11/30/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L75586-01B | 12/26/2006 | | 1/2/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L75586-01B | 12/26/2006 | | 1/2/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 240 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L75586-01F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L75586-01C | 12/26/2006 | 12/28/2006 | 12/29/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L75586-01F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L75586-01B | 12/26/2006 | | 1/2/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L75586-01F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L75586-01F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L75586-01F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 76 | 10 | mg/L | * | ICP-W-dis |
| Mud Creek | L75586-01B | 12/26/2006 | | 1/2/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 21 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L75586-01B | 12/26/2006 | | 1/2/2007 | Aqueous | Chloride | 16887-00-6 | 1 | 16 | 5 | mg/L | | 300.0-W |
| Mud Creek | L75586-01F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L75586-01F | 12/26/2006 | | 1/5/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 370 | 10 | mg/L | | HARD |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Mud Creek | L75586-01E | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0.58 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L75586-01F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L75586-01F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L75586-01F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 44 | 10 | mg/L | * | ICP-W-dis |
| Mud Creek | L75586-01F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 10 | 0.016 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L75586-01E | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.040 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L75586-01F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L75586-01B | 12/26/2006 | | 12/28/2006 | Aqueous | Nitrate (as N) | | 1 | 0.30 | 0.01 | mg/L | [1] | NO3-W |
| Mud Creek | L75586-01B | 12/26/2006 | | 12/28/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | [1] | NO2-W |
| Mud Creek | L75586-01D | 12/26/2006 | | 12/29/2006 | Aqueous | Oil & Grease | | 1 | 3.5 | 3 | mg/L | | OGB-W |
| Mud Creek | L75586-01B | 12/26/2006 | | 12/28/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | [1] | PO4-O |
| Mud Creek | L75586-01F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 7.6 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L75586-01F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L75586-01A | 12/26/2006 | | 12/28/2006 | Aqueous | Settable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS |
| Mud Creek | L75586-01F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 45 | 10 | mg/L | * | ICP-W-dis |
| Mud Creek | L75586-01B | 12/26/2006 | | 1/2/2007 | Aqueous | Sulfate | 14808-79-8 | 1 | 150 | 50 | mg/L | [1] | 300.0-W |
| Mud Creek | L75586-01A | 12/26/2006 | | 12/29/2006 | Aqueous | TDS | | 1 | 490 | 20 | mg/L | | TDS-W |
| Mud Creek | L75586-01A | 12/26/2006 | | 12/28/2006 | Aqueous | TSS | | 1 | 33 | 3 | mg/L | | TSS-W |
| Mud Creek | L75586-01F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 10 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L76053-01B | 1/31/2007 | | 2/5/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L76053-01B | 1/31/2007 | | 2/5/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 240 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L76053-01F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L76053-01C | 1/31/2007 | 2/2/2007 | 2/5/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L76053-01F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L76053-01B | 1/31/2007 | | 2/5/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 240 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L76053-01F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L76053-01F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L76053-01F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 72 | 10 | mg/L | * | ICP-W-dis |
| Mud Creek | L76053-01B | 1/31/2007 | | 2/5/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L76053-01B | 1/31/2007 | | 2/2/2007 | Aqueous | Chloride | 16887-00-6 | 1 | 15 | 5 | mg/L | | 300.0-W |
| Mud Creek | L76053-01F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L76053-01F | 1/31/2007 | | 2/12/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 350 | 10 | mg/L | | HARD |
| Mud Creek | L76053-01F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L76053-01E | 1/31/2007 | 2/2/2007 | 2/7/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0.43 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L76053-01F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L76053-01F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 41 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L76053-01F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 10 | 0.013 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L76053-01E | 1/31/2007 | 2/2/2007 | 2/7/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.030 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L76053-01F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L76053-01B | 1/31/2007 | | 2/2/2007 | Aqueous | Nitrate (as N) | | 1 | 0.27 | 0.01 | mg/L | [1] @ | NO3-W |
| Mud Creek | L76053-01B | 1/31/2007 | | 2/2/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L76053-01D | 1/31/2007 | | 2/9/2007 | Aqueous | Oil & Grease | | 1 | 3.4 | 3 | mg/L | | OGB-W |
| Mud Creek | L76053-01B | 1/31/2007 | | 2/2/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | [1] | PO4-O |
| Mud Creek | L76053-01F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 7.1 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L76053-01F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L76053-01A | 1/31/2007 | | 2/2/2007 | Aqueous | Settable Solids | | 1 | 0.15 | 0.1 | ml/L | | SS |
| Mud Creek | L76053-01F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 28 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L76053-01B | 1/31/2007 | | 2/2/2007 | Aqueous | Sulfate | 14808-79-8 | 1 | 120 | 50 | mg/L | | 300.0-W |
| Mud Creek | L76053-01A | 1/31/2007 | | 2/2/2007 | Aqueous | TDS | | 1 | 420 | 20 | mg/L | | TDS-W |
| Mud Creek | L76053-01A | 1/31/2007 | | 2/2/2007 | Aqueous | TSS | | 1 | 30 | 3 | mg/L | | TSS-W |
| Mud Creek | L76053-01F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 10 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L76314-01B | 2/19/2007 | | 2/21/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L76314-01B | 2/19/2007 | | 2/21/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 240 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L76314-01F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L76314-01C | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L76314-01F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L76314-01B | 2/19/2007 | | 2/21/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 240 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L76314-01F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L76314-01F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L76314-01F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 77 | 10 | mg/L | * | ICP-W-dis |
| Mud Creek | L76314-01B | 2/19/2007 | | 2/21/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L76314-01B | 2/19/2007 | | 2/21/2007 | Aqueous | Chloride | 16887-00-6 | 1 | 18 | 5 | mg/L | | 300.0-W |
| Mud Creek | L76314-01F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L76314-01F | 2/19/2007 | | 2/26/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 360 | 10 | mg/L | | HARD |
| Mud Creek | L76314-01E | 2/19/2007 | 2/21/2007 | 2/23/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0.29 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L76314-01F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L76314-01F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L76314-01F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 40 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L76314-01F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L76314-01E | 2/19/2007 | 2/21/2007 | 2/23/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.026 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L76314-01F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L76314-01B | 2/19/2007 | | 2/21/2007 | Aqueous | Nitrate (as N) | | 1 | 0.30 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L76314-01B | 2/19/2007 | | 2/21/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L76314-01D | 2/19/2007 | | 2/27/2007 | Aqueous | Oil & Grease | | 1 | 3.7 | 3 | mg/L | | OGB-W |
| Mud Creek | L76314-01B | 2/19/2007 | | 2/21/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L76314-01F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 6.9 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L76314-01F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L76314-01F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 38 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L76314-01B | 2/19/2007 | | 2/21/2007 | Aqueous | Sulfate | 14808-79-8 | 1 | 150 | 50 | mg/L | | 300.0-W |
| Mud Creek | L76314-01A | 2/19/2007 | | 2/22/2007 | Aqueous | TDS | | 1 | 440 | 10 | mg/L | | TDS-W |
| Mud Creek | L76314-01A | 2/19/2007 | | 2/21/2007 | Aqueous | TSS | | 1 | 14 | 3 | mg/L | | TSS-W |
| Mud Creek | L76314-01F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 10 | 0.015 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L76981-01B | 3/29/2007 | | 4/2/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L76981-01B | 3/29/2007 | | 4/2/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 240 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L76981-01F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L76981-01C | 3/29/2007 | 3/30/2007 | 4/2/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L76981-01F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L76981-01B | 3/29/2007 | | 4/2/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 240 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L76981-01F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Mud Creek | L76981-01F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L76981-01F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 69 | 10 | mg/L | 2 * | ICP-W-dis |
| Mud Creek | L76981-01B | 3/29/2007 | | 4/2/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L76981-01B | 3/29/2007 | | 3/31/2007 | Aqueous | Chloride | 16887-00-6 | 20 | 24 | 20 | mg/L | | 300.0-W |
| Mud Creek | L76981-01F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L76981-01F | 3/29/2007 | | 4/11/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 320 | 10 | mg/L | | HARD |
| Mud Creek | L76981-01E | 3/29/2007 | 4/2/2007 | 4/9/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0.80 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L76981-01F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L76981-01F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L76981-01F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 35 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L76981-01E | 3/29/2007 | 4/2/2007 | 4/9/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.068 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L76981-01F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.039 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L76981-01F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L76981-01B | 3/29/2007 | | 3/30/2007 | Aqueous | Nitrate (as N) | | 1 | 0.34 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L76981-01B | 3/29/2007 | | 3/30/2007 | Aqueous | Nitrate/Nitrite (as N) | | 1 | 0.34 | 0.01 | mg/L | | NO2/NO3-W |
| Mud Creek | L76981-01B | 3/29/2007 | | 3/30/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | 1@ | NO2-W |
| Mud Creek | L76981-01D | 3/29/2007 | | 3/30/2007 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Mud Creek | L76981-01B | 3/29/2007 | | 3/30/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.069 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L76981-01F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 6.3 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L76981-01F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L76981-01F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 32 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L76981-01B | 3/29/2007 | | 3/31/2007 | Aqueous | Sulfate | 14808-79-8 | 20 | 120 | 20 | mg/L | | 300.0-W |
| Mud Creek | L76981-01A | 3/29/2007 | | 3/30/2007 | Aqueous | TDS | | 1 | 380 | 20 | mg/L | | TDS-W |
| Mud Creek | L76981-01A | 3/29/2007 | | 3/30/2007 | Aqueous | TSS | | 1 | 36 | 3 | mg/L | | TSS-W |
| Mud Creek | L76981-01F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L77519-01B | 4/25/2007 | | 4/30/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Mud Creek | L77519-01B | 4/25/2007 | | 4/30/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L77519-01F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L77519-01C | 4/25/2007 | 5/1/2007 | 5/2/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L77519-01F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L77519-01B | 4/25/2007 | | 4/30/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 210 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L77519-01F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L77519-01F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L77519-01F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 63 | 10 | mg/L | * | ICP-W-dis |
| Mud Creek | L77519-01B | 4/25/2007 | | 4/30/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L77519-01B | 4/25/2007 | | 4/29/2007 | Aqueous | Chloride | 16887-00-6 | 5 | 24 | 5 | mg/L | | 300.0-W |
| Mud Creek | L77519-01F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L77519-01F | 4/25/2007 | | 5/9/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 300 | 10 | mg/L | | HARD |
| Mud Creek | L77519-01E | 4/25/2007 | 5/4/2007 | 5/9/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0.53 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L77519-01F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L77519-01F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L77519-01F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 33 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L77519-01E | 4/25/2007 | 5/4/2007 | 5/9/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.043 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L77519-01F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.016 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L77519-01F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L77519-01B | 4/25/2007 | | 4/27/2007 | Aqueous | Nitrate (as N) | | 1 | 0.19 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L77519-01B | 4/25/2007 | | 4/27/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L77519-01D | 4/25/2007 | | 5/3/2007 | Aqueous | Oil & Grease | | 1 | 3.4 | 3 | mg/L | | OGB-W |
| Mud Creek | L77519-01B | 4/25/2007 | | 4/27/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L77519-01F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.3 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L77519-01F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L77519-01F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 40 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L77519-01B | 4/25/2007 | | 4/29/2007 | Aqueous | Sulfate | 14808-79-8 | 50 | 120 | 50 | mg/L | | 300.0-W |
| Mud Creek | L77519-01A | 4/25/2007 | | 4/30/2007 | Aqueous | TDS | | 1 | 360 | 20 | mg/L | | TDS-W |
| Mud Creek | L77519-01A | 4/25/2007 | | 4/27/2007 | Aqueous | TSS | | 1 | 30 | 3 | mg/L | | TSS-W |
| Mud Creek | L77519-01F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L78061-03B | 5/29/2007 | | 6/4/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Mud Creek | L78061-03B | 5/29/2007 | | 6/4/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L78061-03F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L78061-03C | 5/29/2007 | 6/1/2007 | 6/6/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L78061-03F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L78061-03B | 5/29/2007 | | 6/4/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 210 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L78061-03F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L78061-03F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L78061-03F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 69 | 10 | mg/L | * | ICP-W-dis |
| Mud Creek | L78061-03B | 5/29/2007 | | 6/4/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L78061-03B | 5/29/2007 | | 5/31/2007 | Aqueous | Chloride | 16887-00-6 | 5 | 13 | 5 | mg/L | | 300.0-W |
| Mud Creek | L78061-03F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L78061-03F | 5/29/2007 | | 6/12/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 290 | 10 | mg/L | | HARD |
| Mud Creek | L78061-03E | 5/29/2007 | 6/5/2007 | 6/12/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0.47 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L78061-03F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L78061-03F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L78061-03F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 29 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L78061-03F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0.012 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L78061-03E | 5/29/2007 | 6/5/2007 | 6/12/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.032 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L78061-03F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L78061-03B | 5/29/2007 | | 5/30/2007 | Aqueous | Nitrate (as N) | | 1 | 0.57 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L78061-03B | 5/29/2007 | | 5/30/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L78061-03D | 5/29/2007 | | 6/1/2007 | Aqueous | Oil & Grease | | 1 | 3.4 | 3 | mg/L | | OGB-W |
| Mud Creek | L78061-03B | 5/29/2007 | | 5/31/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L78061-03F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 3.8 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L78061-03F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L78061-03A | 5/29/2007 | | 5/30/2007 | Aqueous | Settleable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS-W-2540F |
| Mud Creek | L78061-03F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 27 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L78061-03B | 5/29/2007 | | 5/31/2007 | Aqueous | Sulfate | 14808-79-8 | 50 | 87 | 50 | mg/L | | 300.0-W |
| Mud Creek | L78061-03A | 5/29/2007 | | 6/1/2007 | Aqueous | TDS | | 1 | 360 | 20 | mg/L | | TDS-W |
| Mud Creek | L78061-03A | 5/29/2007 | | 5/30/2007 | Aqueous | TSS | | 1 | 48 | 3 | mg/L | | TSS-W-2540D |
| Mud Creek | L78061-03F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0.012 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L78574-01B | 6/25/2007 | | 6/28/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Mud Creek | L78574-01B | 6/25/2007 | | 6/28/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 250 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L78574-01F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L78574-01C | 6/25/2007 | 6/28/2007 | 6/29/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L78574-01F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L78574-01B | 6/25/2007 | | 6/28/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 250 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L78574-01F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L78574-01F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L78574-01F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 62 | 10 | mg/L | * | ICP-W-dis |
| Mud Creek | L78574-01B | 6/25/2007 | | 6/28/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L78574-01B | 6/25/2007 | | 7/9/2007 | Aqueous | Chloride | 16887-00-6 | 5 | 14 | 5 | mg/L | | 300.0-W |
| Mud Creek | L78574-01F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0.0061 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L78574-01F | 6/25/2007 | | 7/2/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 290 | 10 | mg/L | | HARD |
| Mud Creek | L78574-01E | 6/25/2007 | 6/27/2007 | 7/2/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0.19 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L78574-01F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L78574-01F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L78574-01F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 33 | 10 | mg/L | * | ICP-W-dis |
| Mud Creek | L78574-01F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0.022 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L78574-01E | 6/25/2007 | 6/27/2007 | 7/2/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.020 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L78574-01F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L78574-01B | 6/25/2007 | | 6/28/2007 | Aqueous | Nitrate (as N) | | 1 | 0.10 | 0.01 | mg/L | H | NO3-W |
| Mud Creek | L78574-01B | 6/25/2007 | | 6/28/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | H | NO2-W |
| Mud Creek | L78574-01D | 6/25/2007 | | 7/5/2007 | Aqueous | Oil & Grease | | 1 | 4.5 | 3 | mg/L | | OGB-W |
| Mud Creek | L78574-01B | 6/25/2007 | | 6/27/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | H | PO4-O |
| Mud Creek | L78574-01F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.8 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L78574-01F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L78574-01A | 6/25/2007 | | 6/27/2007 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | mL/L | | SS-W-2540F |
| Mud Creek | L78574-01F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 55 | 10 | mg/L | 2 * | ICP-W-dis |
| Mud Creek | L78574-01B | 6/25/2007 | | 7/7/2007 | Aqueous | Sulfate | 14808-79-8 | 50 | 140 | 50 | mg/L | | 300.0-W |
| Mud Creek | L78574-01A | 6/25/2007 | | 6/27/2007 | Aqueous | TDS | | 1 | 440 | 20 | mg/L | | TDS-W |
| Mud Creek | L78574-01A | 6/25/2007 | | 6/27/2007 | Aqueous | TSS | | 1 | 10 | 3 | mg/L | | TSS-W-2540D |
| Mud Creek | L78574-01F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0.027 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L79156-02B | 7/30/2007 | | 8/6/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Mud Creek | L79156-02B | 7/30/2007 | | 8/3/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 230 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L79156-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L79156-02C | 7/30/2007 | 8/2/2007 | 8/3/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L79156-02F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L79156-02B | 7/30/2007 | | 8/3/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 230 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L79156-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L79156-02F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L79156-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 63 | 10 | mg/L | * | ICP-W-dis |
| Mud Creek | L79156-02B | 7/30/2007 | | 8/3/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L79156-02B | 7/30/2007 | | 8/11/2007 | Aqueous | Chloride | 16887-00-6 | 10 | 12 | 10 | mg/L | | 300.0-W |
| Mud Creek | L79156-02F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Mud Creek | L79156-02F | 7/30/2007 | | 8/10/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 310 | 10 | mg/L | | HARD |
| Mud Creek | L79156-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L79156-02E | 7/30/2007 | 8/2/2007 | 8/7/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0.34 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L79156-02F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L79156-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 38 | 10 | mg/L | * | ICP-W-dis |
| Mud Creek | L79156-02E | 7/30/2007 | 8/2/2007 | 8/7/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.028 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L79156-02F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0.0090 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L79156-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L79156-02B | 7/30/2007 | | 8/2/2007 | Aqueous | Nitrate (as N) | | 1 | 0.15 | 0.01 | mg/L | H | NO3-W |
| Mud Creek | L79156-02B | 7/30/2007 | | 8/2/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | H | NO2-W |
| Mud Creek | L79156-02D | 7/30/2007 | | 8/6/2007 | Aqueous | Oil & Grease | | 1 | 4.9 | 3 | mg/L | | OGB-W |
| Mud Creek | L79156-02B | 7/30/2007 | | 8/2/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | H | PO4-O |
| Mud Creek | L79156-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 6.8 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L79156-02F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Mud Creek | L79156-02A | 7/30/2007 | | 8/2/2007 | Aqueous | Settleable Solids | | 1 | 0.10 | 0.1 | ml/L | H | SS-W-2540F |
| Mud Creek | L79156-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 34 | 10 | mg/L | * | ICP-W-dis |
| Mud Creek | L79156-02B | 7/30/2007 | | 8/11/2007 | Aqueous | Sulfate | 14808-79-8 | 20 | 140 | 20 | mg/L | | 300.0-W |
| Mud Creek | L79156-02A | 7/30/2007 | | 8/3/2007 | Aqueous | TDS | | 1 | 440 | 10 | mg/L | | TDS-W |
| Mud Creek | L79156-02A | 7/30/2007 | | 8/2/2007 | Aqueous | TSS | | 1 | 28 | 3 | mg/L | | TSS-W-2540D |
| Mud Creek | L79156-02F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Mud Creek | L81026-01B | 11/12/2007 | | 11/15/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Mud Creek | L81026-01B | 11/12/2007 | | 11/15/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 230 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L81026-01F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | 1 | ICP-W-dis |
| Mud Creek | L81026-01C | 11/12/2007 | 11/15/2007 | 11/15/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L81026-01F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Mud Creek | L81026-01B | 11/12/2007 | | 11/15/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 230 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L81026-01F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L81026-01F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Mud Creek | L81026-01F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 62 | 10 | mg/L | # | ICP-W-dis |
| Mud Creek | L81026-01B | 11/12/2007 | | 11/15/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L81026-01B | 11/12/2007 | | 11/21/2007 | Aqueous | Chloride | 16887-00-6 | 5 | 6.9 | 5 | mg/L | | 300.0-W |
| Mud Creek | L81026-01F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0020 | 0.0008 | mg/L | | 6020-W-DISS |
| Mud Creek | L81026-01F | 11/12/2007 | | 11/27/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 320 | 10 | mg/L | | HARD |
| Mud Creek | L81026-01F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L81026-01E | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0.24 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L81026-01F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0.00025 | 0.0001 | mg/L | | 6020-W-DISS |
| Mud Creek | L81026-01F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 40 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L81026-01F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.011 | 0.0012 | mg/L | | 6020-W-DISS |
| Mud Creek | L81026-01E | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.022 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L81026-01F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L81026-01B | 11/12/2007 | | 11/14/2007 | Aqueous | Nitrate (as N) | | 1 | 0.16 | 0.01 | mg/L | 1 | NO3-W |
| Mud Creek | L81026-01B | 11/12/2007 | | 11/14/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | 1@ | NO2-W |
| Mud Creek | L81026-01D | 11/12/2007 | | 11/18/2007 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Mud Creek | L81026-01B | 11/12/2007 | | 11/14/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | 1H | PO4-O |
| Mud Creek | L81026-01F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.2 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L81026-01F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Mud Creek | L81026-01A | 11/12/2007 | | 11/14/2007 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Mud Creek | L81026-01F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 31 | 10 | mg/L | # | ICP-W-dis |
| Mud Creek | L81026-01B | 11/12/2007 | | 11/21/2007 | Aqueous | Sulfate | 14808-79-8 | 5 | 64 | 5 | mg/L | | 300.0-W |
| Mud Creek | L81026-01A | 11/12/2007 | | 11/14/2007 | Aqueous | TDS | | 1 | 450 | 20 | mg/L | | TDS-W |
| Mud Creek | L81026-01A | 11/12/2007 | | 11/14/2007 | Aqueous | TSS | | 1 | 12 | 3 | mg/L | | TSS-W-2540D |
| Mud Creek | L81026-01F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0.0055 | 0.0054 | mg/L | | 6020-W-DISS |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/28/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/28/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 230 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L83169-01C | 3/25/2008 | 4/1/2008 | 4/1/2008 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/28/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 230 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 68 | 10 | mg/L | # | ICP-W-dis |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/28/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/29/2008 | Aqueous | Chloride | 16887-00-6 | 10 | 45 | 1 | mg/L | | 300.0-W |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0034 | 0.0008 | mg/L | | 6020-W-DISS |
| Mud Creek | L83169-01F | 3/25/2008 | | 4/2/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 320 | 10 | mg/L | | HARD |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L83169-01E | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous | Iron | 7439-89-6 | 1 | 2.4 | 0.05 | mg/L | [1] | ICP-W |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 35 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L83169-01E | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.024 | 0.005 | mg/L | [1] @ | ICP-W |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.030 | 0.0012 | mg/L | | 6020-W-DISS |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrate (as N) | | 1 | 0.12 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | [1] | NO2-W |
| Mud Creek | L83169-01D | 3/25/2008 | | 3/31/2008 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/27/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 6.4 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Mud Creek | L83169-01A | 3/25/2008 | | 3/27/2008 | Aqueous | Settleable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS-W-2540F |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 49 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/29/2008 | Aqueous | Sulfate | 14808-79-8 | 10 | 130 | 7.5 | mg/L | [1] | 300.0-W |
| Mud Creek | L83169-01A | 3/25/2008 | | 3/28/2008 | Aqueous | TDS | | 1 | 490 | 20 | mg/L | | TDS-W |
| Mud Creek | L83169-01A | 3/25/2008 | | 3/27/2008 | Aqueous | TSS | | 1 | 26 | 3 | mg/L | | TSS-W-2540D |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0.0076 | 0.0054 | mg/L | | 6020-W-DISS |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/28/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/28/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 230 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L83169-01C | 3/25/2008 | 4/1/2008 | 4/1/2008 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/28/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 230 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 68 | 10 | mg/L | # | ICP-W-dis |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/28/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/29/2008 | Aqueous | Chloride | 16887-00-6 | 10 | 45 | 1 | mg/L | | 300.0-W |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0034 | 0.0008 | mg/L | | 6020-W-DISS |
| Mud Creek | L83169-01F | 3/25/2008 | | 4/2/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 320 | 10 | mg/L | | HARD |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L83169-01E | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous | Iron | 7439-89-6 | 1 | 2.4 | 0.05 | mg/L | [1] | ICP-W |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 35 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L83169-01E | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.024 | 0.005 | mg/L | [1] @ | ICP-W |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.030 | 0.0012 | mg/L | | 6020-W-DISS |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrate (as N) | | 1 | 0.12 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | [1] | NO2-W |
| Mud Creek | L83169-01D | 3/25/2008 | | 3/31/2008 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/27/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 6.4 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Mud Creek | L83169-01A | 3/25/2008 | | 3/27/2008 | Aqueous | Settleable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS-W-2540F |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 49 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L83169-01B | 3/25/2008 | | 3/29/2008 | Aqueous | Sulfate | 14808-79-8 | 10 | 130 | 7.5 | mg/L | [1] | 300.0-W |
| Mud Creek | L83169-01A | 3/25/2008 | | 3/28/2008 | Aqueous | TDS | | 1 | 490 | 20 | mg/L | | TDS-W |
| Mud Creek | L83169-01A | 3/25/2008 | | 3/27/2008 | Aqueous | TSS | | 1 | 26 | 3 | mg/L | | TSS-W-2540D |
| Mud Creek | L83169-01F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0.0076 | 0.0054 | mg/L | | 6020-W-DISS |
| Mud Creek | L84608-01B | 6/16/2008 | | 6/20/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Mud Creek | L84608-01B | 6/16/2008 | | 6/20/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 160 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L84608-01F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L84608-01C | 6/16/2008 | 6/20/2008 | 6/25/2008 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L84608-01F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Mud Creek | L84608-01B | 6/16/2008 | | 6/20/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 160 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L84608-01F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L84608-01F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Mud Creek | L84608-01F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Calcium | 7440-70-2 | 10 | 49 | 10 | mg/L | ~ | ICP-W-dis |
| Mud Creek | L84608-01B | 6/16/2008 | | 6/20/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L84608-01B | 6/16/2008 | | 6/26/2008 | Aqueous | Chloride | 16887-00-6 | 5 | 8.1 | 0.5 | mg/L | | 300.0-W |
| Mud Creek | L84608-01F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Copper | 7440-50-8 | 20 | 0.0026 | 0.0008 | mg/L | | 6020-W-DISS |
| Mud Creek | L84608-01F | 6/16/2008 | | 6/18/2008 | Aqueous Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 180 | 10 | mg/L | | HARD |
| Mud Creek | L84608-01E | 6/16/2008 | 6/20/2008 | 6/27/2008 | Aqueous | Iron | 7439-89-6 | 1 | 1.9 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L84608-01F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L84608-01F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Mud Creek | L84608-01F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Magnesium | 7439-95-4 | 1 | 14 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L84608-01F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Manganese | 7439-96-5 | 20 | 0.0069 | 0.0012 | mg/L | | 6020-W-DISS |
| Mud Creek | L84608-01E | 6/16/2008 | 6/20/2008 | 6/27/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.073 | 0.005 | mg/L | | ICP-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Mud Creek | L84608-01F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L84608-01B | 6/16/2008 | | 6/18/2008 | Aqueous | Nitrate (as N) | | 1 | 1.5 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L84608-01B | 6/16/2008 | | 6/18/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L84608-01D | 6/16/2008 | | 6/18/2008 | Aqueous | Oil & Grease | | 1 | 360 | 3 | mg/L | * | OGB-W |
| Mud Creek | L84608-01B | 6/16/2008 | | 6/18/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Mud Creek | L84608-01F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Potassium | 7440-09-7 | 1 | 2.0 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L84608-01F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Mud Creek | L84608-01A | 6/16/2008 | | 6/18/2008 | Aqueous | Settleable Solids | | 1 | 0.20 | 0.1 | ml/L | | SS-W-2540F |
| Mud Creek | L84608-01F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Sodium | 7440-23-5 | 10 | 21 | 10 | mg/L | ~ | ICP-W-dis |
| Mud Creek | L84608-01B | 6/16/2008 | | 6/26/2008 | Aqueous | Sulfate | 14808-79-8 | 5 | 38 | 3.8 | mg/L | | 300.0-W |
| Mud Creek | L84608-01A | 6/16/2008 | | 6/19/2008 | Aqueous | TDS | | 1 | 300 | 100 | mg/L | | TDS-W |
| Mud Creek | L84608-01A | 6/16/2008 | | 6/18/2008 | Aqueous | TSS | | 1 | 190 | 3 | mg/L | | TSS-W-2540D |
| Mud Creek | L84608-01F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Zinc | 7440-66-6 | 20 | 0.0084 | 0.0054 | mg/L | | 6020-W-DISS |
| Mud Creek | L85972-05B | 8/26/2008 | | 8/29/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Mud Creek | L85972-05B | 8/26/2008 | | 8/28/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 250 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L85972-05E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L85972-05D | 8/26/2008 | 8/28/2008 | 8/29/2008 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Mud Creek | L85972-05E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Mud Creek | L85972-05B | 8/26/2008 | | 8/28/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 250 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L85972-05E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L85972-05E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Mud Creek | L85972-05E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 63 | 10 | mg/L | ~ | ICP-W-dis |
| Mud Creek | L85972-05B | 8/26/2008 | | 8/28/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L85972-05B | 8/26/2008 | | 8/28/2008 | Aqueous | Chloride | 16887-00-6 | 20 | 16 | 2 | mg/L | | 300.0-W |
| Mud Creek | L85972-05E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0019 | 0.0008 | mg/L | | 6020-W-DISS |
| Mud Creek | L85972-05E | 8/26/2008 | | 9/5/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 300 | 10 | mg/L | | HARD |
| Mud Creek | L85972-05F | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous | Iron | 7439-89-6 | 1 | 0.11 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L85972-05E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L85972-05E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Mud Creek | L85972-05E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 34 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L85972-05F | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.016 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L85972-05E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.011 | 0.0012 | mg/L | | 6020-W-DISS |
| Mud Creek | L85972-05E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L85972-05B | 8/26/2008 | | 8/28/2008 | Aqueous | Nitrate (as N) | | 1 | 0.066 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L85972-05B | 8/26/2008 | | 8/28/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L85972-05C | 8/26/2008 | | 9/5/2008 | Aqueous | Oil & Grease | | 1 | 3.1 | 3 | mg/L | | OGB-W |
| Mud Creek | L85972-05B | 8/26/2008 | | 8/28/2008 | Aqueous | Phosphorus, Orthophosphate (as I | 7723-14-0 | 1 | 0 | 0.1 | mg/L | | 300.0-W |
| Mud Creek | L85972-05E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 6.1 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L85972-05E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Mud Creek | L85972-05A | 8/26/2008 | | 8/28/2008 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Mud Creek | L85972-05E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 33 | 10 | mg/L | ~ | ICP-W-dis |
| Mud Creek | L85972-05B | 8/26/2008 | | 8/28/2008 | Aqueous | Sulfate | 14808-79-8 | 20 | 120 | 15 | mg/L | | 300.0-W |
| Mud Creek | L85972-05A | 8/26/2008 | | 8/28/2008 | Aqueous | TDS | | 1 | 490 | 20 | mg/L | | TDS-W |
| Mud Creek | L85972-05A | 8/26/2008 | | 8/28/2008 | Aqueous | TSS | | 1 | 5.0 | 3 | mg/L | | TSS-W-2540D |
| Mud Creek | L85972-05E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0.020 | 0.0054 | mg/L | | 6020-W-DISS |
| Mud Creek | L87283-01B | 10/29/2008 | | 10/31/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Mud Creek | L87283-01B | 10/29/2008 | | 10/31/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 250 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L87283-01E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L87283-01D | 10/29/2008 | 11/6/2008 | 11/7/2008 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | 1 | NH3-W |
| Mud Creek | L87283-01E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Mud Creek | L87283-01B | 10/29/2008 | | 10/31/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 250 | 20 | mg/L | | 2320B-ALK-W |
| Mud Creek | L87283-01E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Mud Creek | L87283-01E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Mud Creek | L87283-01E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 66 | 10 | mg/L | ~ | ICP-W-dis |
| Mud Creek | L87283-01B | 10/29/2008 | | 10/31/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Mud Creek | L87283-01B | 10/29/2008 | | 11/11/2008 | Aqueous | Chloride | 16887-00-6 | 5 | 14 | 0.5 | mg/L | | 300.0-W |
| Mud Creek | L87283-01E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Mud Creek | L87283-01E | 10/29/2008 | | 11/5/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 320 | 10 | mg/L | | HARD |
| Mud Creek | L87283-01F | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous | Iron | 7439-89-6 | 1 | 0.25 | 0.05 | mg/L | | ICP-W |
| Mud Creek | L87283-01E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Mud Creek | L87283-01E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Mud Creek | L87283-01E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 38 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L87283-01E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.012 | 0.0012 | mg/L | | 6020-W-DISS |
| Mud Creek | L87283-01F | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.020 | 0.005 | mg/L | | ICP-W |
| Mud Creek | L87283-01E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Mud Creek | L87283-01B | 10/29/2008 | | 10/31/2008 | Aqueous | Nitrate (as N) | | 1 | 0.20 | 0.01 | mg/L | | NO3-W |
| Mud Creek | L87283-01B | 10/29/2008 | | 10/31/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Mud Creek | L87283-01C | 10/29/2008 | | 11/2/2008 | Aqueous | Oil & Grease | | 1 | 6.2 | 3 | mg/L | | OGB-W |
| Mud Creek | L87283-01B | 10/29/2008 | | 10/30/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | 1 | PO4-O |
| Mud Creek | L87283-01E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 6.9 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L87283-01E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Mud Creek | L87283-01A | 10/29/2008 | | 10/30/2008 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Mud Creek | L87283-01E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 37 | 1 | mg/L | | ICP-W-dis |
| Mud Creek | L87283-01B | 10/29/2008 | | 11/11/2008 | Aqueous | Sulfate | 14808-79-8 | 100 | 130 | 75 | mg/L | | 300.0-W |
| Mud Creek | L87283-01A | 10/29/2008 | | 10/31/2008 | Aqueous | TDS | | 1 | 460 | 20 | mg/L | | TDS-W |
| Mud Creek | L87283-01A | 10/29/2008 | | 10/30/2008 | Aqueous | TSS | | 1 | 15 | 3 | mg/L | | TSS-W-2540D |
| Mud Creek | L87283-01E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0 | 0.0054 | mg/L | | 6020-W-DISS |
| Mud Creek | 1006480-005 | 6/23/2010 | | 6/25/2010 | Aqueous | Settleable Solids | | 1 | 0 | 0.10 | mL/L | | SS-W-2540F |
| Mud Creek | 1006480-005 | 6/23/2010 | | 6/25/2010 | Aqueous | Total Dissolved Solids | | 2 | 300 | 20 | mg/L | | TDS-W-2540C |
| Mud Creek | 1006480-005 | 6/23/2010 | | 6/25/2010 | Aqueous | Total Suspended Solids | TSS | 1 | 29 | 3.0 | mg/L | | TSS-W-2540D |
| Mud Creek | 1006480-005 | 6/23/2010 | | 6/30/2010 | Aqueous | Chloride | 16887-00-6 | 10 | 13 | 1.0 | mg/L | | 300.0-W |
| Mud Creek | 1006480-005 | 6/23/2010 | | 6/30/2010 | Aqueous | Sulfate | 14808-79-8 | 10 | 69 | 7.5 | mg/L | | 300.0-W |
| Mud Creek | 1006480-005 | 6/23/2010 | | 6/28/2010 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Mud Creek | 1006480-005 | 6/23/2010 | | 6/28/2010 | Aqueous | Alkalinity (as CaCO3) | | 2 | 200 | 20 | mg/L | | ALK-W-2320B |
| Mud Creek | 1006480-005 | 6/23/2010 | | 6/28/2010 | Aqueous | Bicarbonate (as CaCO3) | | 2 | 190 | 20 | mg/L | | ALK-W-2320B |
| Mud Creek | 1006480-005 | 6/23/2010 | | 6/28/2010 | Aqueous | Carbonate (as CaCO3) | | 2 | 0 | 20 | mg/L | | ALK-W-2320B |
| Mud Creek | 1006480-005 | 6/23/2010 | | 6/25/2010 | Aqueous | Nitrite (as N) | 14797-65-0 | 1 | 0 | 0.010 | mg/L | | NO2-W-353.2 |
| Mud Creek | 1006480-005 | 6/23/2010 | | 6/25/2010 | Aqueous | Nitrate (as N) | 14797-55-8 | 1 | 0.17 | 0.010 | mg/L | | NO3-W-353.2 |
| Mud Creek | 1006480-005 | 6/23/2010 | | 6/25/2010 | Aqueous | pH @ 25° C | | 1 | 8.49 | 1.00 | pH Units | H | PH-4500H+B |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Mud Creek | 1006480-005 | 6/23/2010 | | 6/25/2010 | Aqueous | Phosphate, Total Ortho (as P) | 7723-14-0 | 1 | 0 | 0.050 | mg/L | | PO4-O-365.1 |
| Mud Creek | 1006480-005 | 6/23/2010 | | 6/30/2010 | Aqueous | Oil & Grease | | 1 | 0 | 3.0 | mg/L | | OGB-W-1664A |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/28/2010 | 6/29/2010 | Aqueous | Ammonia (as N) | 7664-41-7 | 1 | 0.12 | 0.050 | mg/L | | NH3-W-350.1 |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Aluminum | 7429-90-5 | 1 | 0 | 0.10 | mg/L | | 6010C-DIS |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Boron | 7440-42-8 | 1 | 0 | 0.50 | mg/L | | 6010C-DIS |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Calcium | 7440-70-2 | 1 | 50 | 1.0 | mg/L | | 6010C-DIS |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.10 | mg/L | | 6010C-DIS |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Magnesium | 7439-95-4 | 1 | 23 | 1.0 | mg/L | | 6010C-DIS |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Molybdenum | 7439-98-7 | 1 | 0 | 0.020 | mg/L | | 6010C-DIS |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Potassium | 7440-09-7 | 1 | 4.2 | 1.0 | mg/L | | 6010C-DIS |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Sodium | 7440-23-5 | 1 | 24 | 1.0 | mg/L | | 6010C-DIS |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Arsenic | 7440-38-2 | 20 | 0 | 0.00060 | mg/L | | 6020-DIS |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-DIS |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Copper | 7440-50-8 | 20 | 0.0011 | 0.00080 | mg/L | | 6020-DIS |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Lead | 7439-92-1 | 20 | 0 | 0.00040 | mg/L | | 6020-DIS |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.010 | 0.0012 | mg/L | | 6020-DIS |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Selenium | 7782-49-2 | 20 | 0 | 0.00080 | mg/L | | 6020-DIS |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Zinc | 7440-66-6 | 20 | 0 | 0.0050 | mg/L | | 6020-DIS |
| Mud Creek | 1006480-005 | 6/23/2010 | | 6/28/2010 | Aqueous | Hardness (as CaCO3) | | 1 | 220 | 10 | mg/L | | HARD-2340B |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Iron | 7439-89-6 | 1 | 0.28 | 0.10 | mg/L | | 6010C-W |
| Mud Creek | 1006480-005 | 6/23/2010 | 6/25/2010 | 6/25/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.023 | 0.0012 | mg/L | | 6020-W |
| RES. 1 | L72109-01B | 5/30/2006 | | 6/1/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| RES. 1 | L72109-01B | 5/30/2006 | | 6/1/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 170 | 10 | mg/L | | 2320B-ALK-W |
| RES. 1 | L72109-01E | 5/30/2006 | 6/2/2006 | 6/12/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | @ | ICP-W-DIS |
| RES. 1 | L72109-01C | 5/30/2006 | 5/31/2006 | 6/5/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| RES. 1 | L72109-01E | 5/30/2006 | 6/2/2006 | 6/12/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L72109-01B | 5/30/2006 | | 6/1/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 170 | 10 | mg/L | | 2320B-ALK-W |
| RES. 1 | L72109-01E | 5/30/2006 | 6/2/2006 | 6/12/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| RES. 1 | L72109-01E | 5/30/2006 | 6/2/2006 | 6/12/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L72109-01E | 5/30/2006 | 6/2/2006 | 6/12/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 53 | 1 | mg/L | | ICP-W-DIS |
| RES. 1 | L72109-01B | 5/30/2006 | | 6/1/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| RES. 1 | L72109-01B | 5/30/2006 | | 6/2/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 3.6 | 1 | mg/L | | 300.0-W |
| RES. 1 | L72109-01E | 5/30/2006 | 6/2/2006 | 6/12/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L72109-01E | 5/30/2006 | | 6/12/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 200 | 10 | mg/L | | HARD |
| RES. 1 | L72109-01D | 5/30/2006 | 6/2/2006 | 6/8/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.35 | 0.05 | mg/L | | ICP-W |
| RES. 1 | L72109-01E | 5/30/2006 | 6/2/2006 | 6/12/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| RES. 1 | L72109-01E | 5/30/2006 | 6/2/2006 | 6/12/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L72109-01E | 5/30/2006 | 6/2/2006 | 6/12/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 16 | 1 | mg/L | | ICP-W-DIS |
| RES. 1 | L72109-01E | 5/30/2006 | 6/2/2006 | 6/13/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L72109-01D | 5/30/2006 | 6/2/2006 | 6/7/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.092 | 0.005 | mg/L | | ICP-W |
| RES. 1 | L72109-01E | 5/30/2006 | 6/2/2006 | 6/12/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| RES. 1 | L72109-01B | 5/30/2006 | | 5/31/2006 | Aqueous | Nitrate (as N) | | 1 | 0.056 | 0.01 | mg/L | | NO3-W |
| RES. 1 | L72109-01B | 5/30/2006 | | 5/31/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| RES. 1 | L72109-01F | 5/30/2006 | | 6/6/2006 | Aqueous | Oil & Grease | | 1 | 4.3 | 3 | mg/L | * # | OGB-W |
| RES. 1 | L72109-01B | 5/30/2006 | | 6/1/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | [1]@ | PO4-O |
| RES. 1 | L72109-01E | 5/30/2006 | 6/2/2006 | 6/12/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.1 | 1 | mg/L | | ICP-W-DIS |
| RES. 1 | L72109-01E | 5/30/2006 | 6/2/2006 | 6/12/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L72109-01A | 5/30/2006 | | 5/31/2006 | Aqueous | Settable Solids | | 1 | 0.10 | 0.1 | ml/L | | SS |
| RES. 1 | L72109-01E | 5/30/2006 | 6/2/2006 | 6/12/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.1 | 1 | mg/L | | ICP-W-DIS |
| RES. 1 | L72109-01B | 5/30/2006 | | 6/2/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 34 | 10 | mg/L | [1] | 300.0-W |
| RES. 1 | L72109-01A | 5/30/2006 | | 5/31/2006 | Aqueous | TDS | | 1 | 230 | 10 | mg/L | | TDS-W |
| RES. 1 | L72109-01A | 5/30/2006 | | 5/31/2006 | Aqueous | TSS | | 1 | 14 | 3 | mg/L | | TSS-W |
| RES. 1 | L72109-01E | 5/30/2006 | 6/2/2006 | 6/12/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.013 | 0.01 | mg/L | | 6020-W-DISS |
| RES. 1 | L72660-07B | 6/29/2006 | | 7/3/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| RES. 1 | L72660-07B | 6/29/2006 | | 7/3/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 160 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L72660-07E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| RES. 1 | L72660-07C | 6/29/2006 | 7/5/2006 | 7/7/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| RES. 1 | L72660-07E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L72660-07B | 6/29/2006 | | 7/3/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 120 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L72660-07E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| RES. 1 | L72660-07E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L72660-07E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 32 | 10 | mg/L | | ICP-W-DIS |
| RES. 1 | L72660-07B | 6/29/2006 | | 7/3/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 31 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L72660-07B | 6/29/2006 | | 7/5/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 6.9 | 1 | mg/L | | 300.0-W |
| RES. 1 | L72660-07E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L72660-07E | 6/29/2006 | | 7/11/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 170 | 10 | mg/L | | HARD |
| RES. 1 | L72660-07E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| RES. 1 | L72660-07D | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.37 | 0.05 | mg/L | | ICP-W |
| RES. 1 | L72660-07E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L72660-07E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 16 | 1 | mg/L | | ICP-W-DIS |
| RES. 1 | L72660-07D | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.058 | 0.005 | mg/L | | ICP-W |
| RES. 1 | L72660-07E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L72660-07E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| RES. 1 | L72660-07B | 6/29/2006 | | 6/30/2006 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| RES. 1 | L72660-07B | 6/29/2006 | | 6/30/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| RES. 1 | L72660-07F | 6/29/2006 | | 6/30/2006 | Aqueous | Oil & Grease | | 1 | 3.2 | 3 | mg/L | | OGB-W |
| RES. 1 | L72660-07B | 6/29/2006 | | 6/30/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| RES. 1 | L72660-07E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 1.3 | 1 | mg/L | | ICP-W-DIS |
| RES. 1 | L72660-07E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L72660-07A | 6/29/2006 | | 6/30/2006 | Aqueous | Settable Solids | | 1 | 0.70 | 0.1 | ml/L | | SS |
| RES. 1 | L72660-07E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.4 | 1 | mg/L | | ICP-W-DIS |
| RES. 1 | L72660-07B | 6/29/2006 | | 7/5/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 34 | 10 | mg/L | | 300.0-W |
| RES. 1 | L72660-07A | 6/29/2006 | | 6/30/2006 | Aqueous | TDS | | 1 | 96 | 20 | mg/L | | TDS-W |
| RES. 1 | L72660-07A | 6/29/2006 | | 6/30/2006 | Aqueous | TSS | | 1 | 34 | 3 | mg/L | | TSS-W |
| RES. 1 | L72660-07E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| RES. 1 | L73160-05B | 7/31/2006 | | 8/2/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| RES. 1 | L73160-05B | 7/31/2006 | | 8/2/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 170 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L73160-05E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| RES. 1 | L73160-05C | 7/31/2006 | 8/2/2006 | 8/4/2006 | Aqueous | Ammonia (as N) | | 1 | 0.055 | 0.05 | mg/L | | NH3-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| RES. 1 | L73160-05E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L73160-05B | 7/31/2006 | | 8/2/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 26 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L73160-05E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| RES. 1 | L73160-05E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L73160-05E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 28 | 1 | mg/L | | ICP-W-DIS |
| RES. 1 | L73160-05B | 7/31/2006 | | 8/2/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 140 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L73160-05B | 7/31/2006 | | 8/5/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 9.9 | 1 | mg/L | | 300.0-W |
| RES. 1 | L73160-05E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L73160-05E | 7/31/2006 | | 8/14/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 150 | 10 | mg/L | | HARD |
| RES. 1 | L73160-05D | 7/31/2006 | 8/3/2006 | 8/8/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.096 | 0.05 | mg/L | | ICP-W |
| RES. 1 | L73160-05E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| RES. 1 | L73160-05E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L73160-05E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 20 | 1 | mg/L | | ICP-W-DIS |
| RES. 1 | L73160-05D | 7/31/2006 | 8/3/2006 | 8/8/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.068 | 0.005 | mg/L | | ICP-W |
| RES. 1 | L73160-05E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.014 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L73160-05E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| RES. 1 | L73160-05B | 7/31/2006 | | 8/2/2006 | Aqueous | Nitrate (as N) | | 1 | 0.081 | 0.01 | mg/L | | NO3-W |
| RES. 1 | L73160-05B | 7/31/2006 | | 8/2/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| RES. 1 | L73160-05F | 7/31/2006 | | 8/8/2006 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| RES. 1 | L73160-05B | 7/31/2006 | | 8/2/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.12 | 0.05 | mg/L | | PO4-O |
| RES. 1 | L73160-05E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.8 | 1 | mg/L | | ICP-W-DIS |
| RES. 1 | L73160-05E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0.0056 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L73160-05A | 7/31/2006 | | 8/2/2006 | Aqueous | Settable Solids | | 1 | 0.50 | 0.1 | ml/L | | SS |
| RES. 1 | L73160-05E | 7/31/2006 | 8/3/2006 | 8/15/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 11 | 1 | mg/L | | ICP-W-DIS |
| RES. 1 | L73160-05B | 7/31/2006 | | 8/5/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 24 | 10 | mg/L | | 300.0-W |
| RES. 1 | L73160-05A | 7/31/2006 | | 8/3/2006 | Aqueous | TDS | | 1 | 170 | 20 | mg/L | | TDS-W |
| RES. 1 | L73160-05A | 7/31/2006 | | 8/2/2006 | Aqueous | TSS | | 1 | 26 | 3 | mg/L | | TSS-W |
| RES. 1 | L73160-05E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.018 | 0.01 | mg/L | | 6020-W-DISS |
| RES. 1 | L73504-05B | 8/21/2006 | | 8/23/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| RES. 1 | L73504-05B | 8/21/2006 | | 8/23/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 130 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L73504-05E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| RES. 1 | L73504-05C | 8/21/2006 | 8/23/2006 | 8/24/2006 | Aqueous | Ammonia (as N) | | 1 | 0.080 | 0.05 | mg/L | | NH3-W |
| RES. 1 | L73504-05E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L73504-05B | 8/21/2006 | | 8/23/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 14 | 10 | mg/L | | 2320B-ALK-W |
| RES. 1 | L73504-05E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| RES. 1 | L73504-05E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L73504-05E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 29 | 10 | mg/L | | ICP-W-DIS |
| RES. 1 | L73504-05B | 8/21/2006 | | 8/23/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 120 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L73504-05B | 8/21/2006 | | 8/24/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 32 | 10 | mg/L | | 300.0-W |
| RES. 1 | L73504-05E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L73504-05E | 8/21/2006 | | 9/5/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 170 | 10 | mg/L | | HARD |
| RES. 1 | L73504-05D | 8/21/2006 | 8/23/2006 | 9/1/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0.67 | 0.05 | mg/L | | ICP-W |
| RES. 1 | L73504-05E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0.14 | 0.05 | mg/L | | ICP-W-DIS |
| RES. 1 | L73504-05E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L73504-05E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 24 | 10 | mg/L | | ICP-W-DIS |
| RES. 1 | L73504-05D | 8/21/2006 | 8/23/2006 | 9/1/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.17 | 0.005 | mg/L | | ICP-W |
| RES. 1 | L73504-05E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0.045 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L73504-05E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| RES. 1 | L73504-05B | 8/21/2006 | | 8/23/2006 | Aqueous | Nitrate (as N) | | 1 | 0.070 | 0.01 | mg/L | | NO3-W |
| RES. 1 | L73504-05B | 8/21/2006 | | 8/23/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| RES. 1 | L73504-05F | 8/21/2006 | | 8/23/2006 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| RES. 1 | L73504-05B | 8/21/2006 | | 8/23/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.060 | 0.05 | mg/L | | PO4-O |
| RES. 1 | L73504-05E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 7.8 | 1 | mg/L | | ICP-W-DIS |
| RES. 1 | L73504-05E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L73504-05A | 8/21/2006 | | 8/23/2006 | Aqueous | Settable Solids | | 1 | 0.60 | 0.1 | ml/L | | SS |
| RES. 1 | L73504-05E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 22 | 1 | mg/L | | ICP-W-DIS |
| RES. 1 | L73504-05B | 8/21/2006 | | 8/24/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 24 | 10 | mg/L | | 300.0-W |
| RES. 1 | L73504-05A | 8/21/2006 | | 8/25/2006 | Aqueous | TDS | | 1 | 200 | 20 | mg/L | | TDS-W |
| RES. 1 | L73504-05A | 8/21/2006 | | 8/23/2006 | Aqueous | TSS | | 1 | 40 | 3 | mg/L | | TSS-W |
| RES. 1 | L73504-05E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| RES. 1 | L74688-03B | 10/30/2006 | | 11/1/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| RES. 1 | L74688-03B | 10/30/2006 | | 11/1/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 260 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L74688-03F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| RES. 1 | L74688-03C | 10/30/2006 | 11/1/2006 | 11/3/2006 | Aqueous | Ammonia (as N) | | 1 | 0.073 | 0.05 | mg/L | | NH3-W |
| RES. 1 | L74688-03F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L74688-03B | 10/30/2006 | | 11/1/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 260 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L74688-03F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| RES. 1 | L74688-03F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L74688-03F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 71 | 10 | mg/L | * | ICP-W-DIS |
| RES. 1 | L74688-03B | 10/30/2006 | | 11/1/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| RES. 1 | L74688-03B | 10/30/2006 | | 11/9/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 20 | 10 | mg/L | | 300.0-W |
| RES. 1 | L74688-03F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L74688-03F | 10/30/2006 | | 11/13/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 310 | 10 | mg/L | | HARD |
| RES. 1 | L74688-03E | 10/30/2006 | 11/1/2006 | 11/13/2006 | Aqueous | Iron | 7439-89-6 | 1 | 10 | 0.05 | mg/L | | ICP-W |
| RES. 1 | L74688-03F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| RES. 1 | L74688-03F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L74688-03F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 33 | 10 | mg/L | * | ICP-W-DIS |
| RES. 1 | L74688-03E | 10/30/2006 | 11/1/2006 | 11/13/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 1.1 | 0.005 | mg/L | | ICP-W |
| RES. 1 | L74688-03F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.29 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L74688-03F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| RES. 1 | L74688-03B | 10/30/2006 | | 11/1/2006 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| RES. 1 | L74688-03B | 10/30/2006 | | 11/1/2006 | Aqueous | Nitrite (as N) | | 1 | 0.024 | 0.01 | mg/L | | NO2-W |
| RES. 1 | L74688-03D | 10/30/2006 | | 11/1/2006 | Aqueous | Oil & Grease | | 1 | 3.9 | 3 | mg/L | | OGB-W |
| RES. 1 | L74688-03B | 10/30/2006 | | 11/1/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.059 | 0.05 | mg/L | | PO4-O |
| RES. 1 | L74688-03F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.8 | 1 | mg/L | | ICP-W-DIS |
| RES. 1 | L74688-03F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L74688-03A | 10/30/2006 | | 11/1/2006 | Aqueous | Settable Solids | | 1 | 1.5 | 0.1 | ml/L | | SS |
| RES. 1 | L74688-03F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 26 | 1 | mg/L | | ICP-W-DIS |
| RES. 1 | L74688-03B | 10/30/2006 | | 11/9/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 74 | 10 | mg/L | | 300.0-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| RES. 1 | L74688-03A | 10/30/2006 | | 11/1/2006 | Aqueous | TDS | | 1 | 400 | 20 | mg/L | | TDS-W |
| RES. 1 | L74688-03A | 10/30/2006 | | 11/1/2006 | Aqueous | TSS | | 1 | 430 | 3 | mg/L | | TSS-W |
| RES. 1 | L74688-03F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| RES. 1 | L76981-03B | 3/29/2007 | | 4/2/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| RES. 1 | L76981-03B | 3/29/2007 | | 4/2/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 250 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L76981-03F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES. 1 | L76981-03C | 3/29/2007 | 3/30/2007 | 4/2/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| RES. 1 | L76981-03F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L76981-03B | 3/29/2007 | | 4/2/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 250 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L76981-03F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| RES. 1 | L76981-03F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L76981-03F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 70 | 10 | mg/L | * | ICP-W-dis |
| RES. 1 | L76981-03B | 3/29/2007 | | 4/2/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| RES. 1 | L76981-03B | 3/29/2007 | | 3/31/2007 | Aqueous | Chloride | 16887-00-6 | 10 | 20 | 10 | mg/L | | 300.0-W |
| RES. 1 | L76981-03F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L76981-03F | 3/29/2007 | | 4/11/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 260 | 10 | mg/L | | HARD |
| RES. 1 | L76981-03E | 3/29/2007 | 4/2/2007 | 4/9/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0.50 | 0.05 | mg/L | | ICP-W |
| RES. 1 | L76981-03F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| RES. 1 | L76981-03F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L76981-03F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 20 | 1 | mg/L | | ICP-W-dis |
| RES. 1 | L76981-03E | 3/29/2007 | 4/2/2007 | 4/9/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.17 | 0.005 | mg/L | | ICP-W |
| RES. 1 | L76981-03F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.033 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L76981-03F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES. 1 | L76981-03B | 3/29/2007 | | 3/30/2007 | Aqueous | Nitrate (as N) | | 1 | 0.017 | 0.01 | mg/L | | NO3-W |
| RES. 1 | L76981-03B | 3/29/2007 | | 3/30/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| RES. 1 | L76981-03D | 3/29/2007 | | 3/30/2007 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| RES. 1 | L76981-03B | 3/29/2007 | | 3/30/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| RES. 1 | L76981-03F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.2 | 1 | mg/L | | ICP-W-dis |
| RES. 1 | L76981-03F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L76981-03F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 13 | 1 | mg/L | | ICP-W-dis |
| RES. 1 | L76981-03B | 3/29/2007 | | 3/31/2007 | Aqueous | Sulfate | 14808-79-8 | 50 | 97 | 50 | mg/L | | 300.0-W |
| RES. 1 | L76981-03A | 3/29/2007 | | 3/30/2007 | Aqueous | TDS | | 1 | 290 | 20 | mg/L | | TDS-W |
| RES. 1 | L76981-03A | 3/29/2007 | | 3/30/2007 | Aqueous | TSS | | 1 | 27 | 3 | mg/L | | TSS-W |
| RES. 1 | L76981-03F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| RES. 1 | L77519-03B | 4/25/2007 | | 4/30/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| RES. 1 | L77519-03B | 4/25/2007 | | 4/30/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 180 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L77519-03F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES. 1 | L77519-03C | 4/25/2007 | 5/1/2007 | 5/2/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| RES. 1 | L77519-03F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L77519-03B | 4/25/2007 | | 4/30/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 180 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L77519-03F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| RES. 1 | L77519-03F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L77519-03F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 54 | 10 | mg/L | * | ICP-W-dis |
| RES. 1 | L77519-03B | 4/25/2007 | | 4/30/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L77519-03B | 4/25/2007 | | 4/29/2007 | Aqueous | Chloride | 16887-00-6 | 5 | 12 | 5 | mg/L | | 300.0-W |
| RES. 1 | L77519-03F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L77519-03F | 4/25/2007 | | 5/9/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 220 | 10 | mg/L | | HARD |
| RES. 1 | L77519-03E | 4/25/2007 | 5/4/2007 | 5/9/2007 | Aqueous | Iron | 7439-89-6 | 1 | 4.6 | 0.05 | mg/L | | ICP-W |
| RES. 1 | L77519-03F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| RES. 1 | L77519-03F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L77519-03F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 21 | 1 | mg/L | | ICP-W-dis |
| RES. 1 | L77519-03F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.013 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L77519-03E | 4/25/2007 | 5/4/2007 | 5/9/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.18 | 0.005 | mg/L | | ICP-W |
| RES. 1 | L77519-03F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES. 1 | L77519-03B | 4/25/2007 | | 4/27/2007 | Aqueous | Nitrate (as N) | | 1 | 0.032 | 0.01 | mg/L | | NO3-W |
| RES. 1 | L77519-03B | 4/25/2007 | | 4/27/2007 | Aqueous | Nitrite (as N) | | 1 | 0.039 | 0.01 | mg/L | | NO2-W |
| RES. 1 | L77519-03D | 4/25/2007 | | 5/3/2007 | Aqueous | Oil & Grease | | 1 | 3.4 | 3 | mg/L | | OGB-W |
| RES. 1 | L77519-03B | 4/25/2007 | | 4/27/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.092 | 0.05 | mg/L | | PO4-O |
| RES. 1 | L77519-03F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.8 | 1 | mg/L | | ICP-W-dis |
| RES. 1 | L77519-03F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L77519-03F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 22 | 1 | mg/L | | ICP-W-dis |
| RES. 1 | L77519-03B | 4/25/2007 | | 4/29/2007 | Aqueous | Sulfate | 14808-79-8 | 50 | 60 | 50 | mg/L | | 300.0-W |
| RES. 1 | L77519-03A | 4/25/2007 | | 4/30/2007 | Aqueous | TDS | | 1 | 210 | 20 | mg/L | | TDS-W |
| RES. 1 | L77519-03A | 4/25/2007 | | 4/27/2007 | Aqueous | TSS | | 1 | 200 | 8 | mg/L | | TSS-W |
| RES. 1 | L77519-03F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| RES. 1 | L78061-04B | 5/29/2007 | | 6/4/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| RES. 1 | L78061-04B | 5/29/2007 | | 6/4/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 190 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L78061-04F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES. 1 | L78061-04C | 5/29/2007 | 6/1/2007 | 6/6/2007 | Aqueous | Ammonia (as N) | | 1 | 0.077 | 0.05 | mg/L | | NH3-W |
| RES. 1 | L78061-04F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L78061-04B | 5/29/2007 | | 6/4/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 190 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L78061-04F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| RES. 1 | L78061-04F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L78061-04F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 47 | 10 | mg/L | * | ICP-W-dis |
| RES. 1 | L78061-04B | 5/29/2007 | | 6/4/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| RES. 1 | L78061-04B | 5/29/2007 | | 5/31/2007 | Aqueous | Chloride | 16887-00-6 | 5 | 10 | 5 | mg/L | | 300.0-W |
| RES. 1 | L78061-04F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L78061-04F | 5/29/2007 | | 6/12/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 210 | 10 | mg/L | | HARD |
| RES. 1 | L78061-04F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| RES. 1 | L78061-04E | 5/29/2007 | 6/5/2007 | 6/12/2007 | Aqueous | Iron | 7439-89-6 | 1 | 7.1 | 0.05 | mg/L | | ICP-W |
| RES. 1 | L78061-04F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L78061-04F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 22 | 1 | mg/L | | ICP-W-dis |
| RES. 1 | L78061-04E | 5/29/2007 | 6/5/2007 | 6/12/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.46 | 0.005 | mg/L | | ICP-W |
| RES. 1 | L78061-04F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0.042 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L78061-04F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES. 1 | L78061-04B | 5/29/2007 | | 5/30/2007 | Aqueous | Nitrate (as N) | | 1 | 0.37 | 0.01 | mg/L | | NO3-W |
| RES. 1 | L78061-04B | 5/29/2007 | | 5/30/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| RES. 1 | L78061-04D | 5/29/2007 | | 6/1/2007 | Aqueous | Oil & Grease | | 1 | 3.8 | 3 | mg/L | | OGB-W |
| RES. 1 | L78061-04B | 5/29/2007 | | 5/31/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| RES. 1 | L78061-04F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.0 | 1 | mg/L | | ICP-W-dis |
| RES. 1 | L78061-04F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L78061-04A | 5/29/2007 | | 5/30/2007 | Aqueous | Settleable Solids | | 1 | 5.5 | 0.1 | ml/L | | SS-W-2540F |
| RES. 1 | L78061-04F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 18 | 1 | mg/L | | ICP-W-dis |
| RES. 1 | L78061-04B | 5/29/2007 | | 5/31/2007 | Aqueous | Sulfate | 14808-79-8 | 10 | 56 | 10 | mg/L | | 300.0-W |
| RES. 1 | L78061-04A | 5/29/2007 | | 6/1/2007 | Aqueous | TDS | | 1 | 250 | 20 | mg/L | | TDS-W |
| RES. 1 | L78061-04A | 5/29/2007 | | 5/30/2007 | Aqueous | TSS | | 1 | 1600 | 8 | mg/L | | TSS-W-2540D |
| RES. 1 | L78061-04F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0.010 | 0.01 | mg/L | | 6020-W-DISS |
| RES. 1 | L78574-03B | 6/25/2007 | | 6/28/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| RES. 1 | L78574-03B | 6/25/2007 | | 6/28/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 120 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L78574-03F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES. 1 | L78574-03C | 6/25/2007 | 6/28/2007 | 6/29/2007 | Aqueous | Ammonia (as N) | | 1 | 0.050 | 0.05 | mg/L | | NH3-W |
| RES. 1 | L78574-03F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L78574-03B | 6/25/2007 | | 6/28/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L78574-03F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| RES. 1 | L78574-03F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L78574-03F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 21 | 1 | mg/L | | ICP-W-dis |
| RES. 1 | L78574-03B | 6/25/2007 | | 6/28/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 110 | 20 | mg/L | | 2320B-ALK-W |
| RES. 1 | L78574-03B | 6/25/2007 | | 7/9/2007 | Aqueous | Chloride | 16887-00-6 | 10 | 41 | 10 | mg/L | | 300.0-W |
| RES. 1 | L78574-03F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0.0082 | 0.004 | mg/L | | 6020-W-DISS |
| RES. 1 | L78574-03F | 6/25/2007 | | 7/2/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 130 | 10 | mg/L | | HARD |
| RES. 1 | L78574-03F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| RES. 1 | L78574-03E | 6/25/2007 | 6/27/2007 | 7/2/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0.63 | 0.05 | mg/L | | ICP-W |
| RES. 1 | L78574-03F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L78574-03F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 19 | 1 | mg/L | | ICP-W-dis |
| RES. 1 | L78574-03E | 6/25/2007 | 6/27/2007 | 7/2/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.12 | 0.005 | mg/L | | ICP-W |
| RES. 1 | L78574-03F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0.019 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L78574-03F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES. 1 | L78574-03B | 6/25/2007 | | 6/28/2007 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | H | NO3-W |
| RES. 1 | L78574-03B | 6/25/2007 | | 6/28/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | H | NO2-W |
| RES. 1 | L78574-03D | 6/25/2007 | | 7/5/2007 | Aqueous | Oil & Grease | | 1 | 4.7 | 3 | mg/L | | OGB-W |
| RES. 1 | L78574-03B | 6/25/2007 | | 6/27/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| RES. 1 | L78574-03F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.2 | 1 | mg/L | | ICP-W-dis |
| RES. 1 | L78574-03F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES. 1 | L78574-03A | 6/25/2007 | | 6/27/2007 | Aqueous | Settleable Solids | | 1 | 0.50 | 0.1 | mL/L | | SS-W-2540F |
| RES. 1 | L78574-03F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 30 | 10 | mg/L | * | ICP-W-dis |
| RES. 1 | L78574-03B | 6/25/2007 | | 7/7/2007 | Aqueous | Sulfate | 14808-79-8 | 5 | 25 | 5 | mg/L | | 300.0-W |
| RES. 1 | L78574-03A | 6/25/2007 | | 6/27/2007 | Aqueous | TDS | | 1 | 190 | 20 | mg/L | | TDS-W |
| RES. 1 | L78574-03A | 6/25/2007 | | 6/27/2007 | Aqueous | TSS | | 1 | 40 | 3 | mg/L | | TSS-W-2540D |
| RES. 1 | L78574-03F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0.037 | 0.01 | mg/L | | 6020-W-DISS |
| RES-1 | L79128-02B | 7/30/2007 | | 8/2/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| RES-1 | L79128-02B | 7/30/2007 | | 8/2/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 330 | 20 | mg/L | | 2320B-ALK-W |
| RES-1 | L79128-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES-1 | L79128-02C | 7/30/2007 | 8/1/2007 | 8/3/2007 | Aqueous | Ammonia (as N) | | 1 | 0.11 | 0.05 | mg/L | | NH3-W |
| RES-1 | L79128-02F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES-1 | L79128-02B | 7/30/2007 | | 8/2/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 330 | 20 | mg/L | | 2320B-ALK-W |
| RES-1 | L79128-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| RES-1 | L79128-02F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES-1 | L79128-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 71 | 10 | mg/L | * | ICP-W-dis |
| RES-1 | L79128-02B | 7/30/2007 | | 8/2/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| RES-1 | L79128-02B | 7/30/2007 | | 8/11/2007 | Aqueous | Chloride | 16887-00-6 | 10 | 86 | 10 | mg/L | | 300.0-W |
| RES-1 | L79128-02F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| RES-1 | L79128-02F | 7/30/2007 | | 8/10/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 420 | 10 | mg/L | | HARD |
| RES-1 | L79128-02E | 7/30/2007 | 8/2/2007 | 8/7/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0.40 | 0.05 | mg/L | | ICP-W |
| RES-1 | L79128-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0.15 | 0.05 | mg/L | | ICP-W-dis |
| RES-1 | L79128-02F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES-1 | L79128-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 58 | 10 | mg/L | * | ICP-W-dis |
| RES-1 | L79128-02E | 7/30/2007 | 8/2/2007 | 8/7/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.38 | 0.005 | mg/L | | ICP-W |
| RES-1 | L79128-02F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0.43 | 0.005 | mg/L | | 6020-W-DISS |
| RES-1 | L79128-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES-1 | L79128-02B | 7/30/2007 | | 8/1/2007 | Aqueous | Nitrate (as N) | | 1 | 0.017 | 0.01 | mg/L | | NO3-W |
| RES-1 | L79128-02B | 7/30/2007 | | 8/1/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| RES-1 | L79128-02D | 7/30/2007 | | 8/2/2007 | Aqueous | Oil & Grease | | 1 | 4.0 | 3 | mg/L | | OGB-W |
| RES-1 | L79128-02B | 7/30/2007 | | 8/1/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.098 | 0.05 | mg/L | | PO4-O |
| RES-1 | L79128-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 15 | 1 | mg/L | | ICP-W-dis |
| RES-1 | L79128-02F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| RES-1 | L79128-02A | 7/30/2007 | | 8/1/2007 | Aqueous | Settleable Solids | | 1 | 0.50 | 0.1 | ml/L | | SS-W-2540F |
| RES-1 | L79128-02F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 42 | 10 | mg/L | * | ICP-W-dis |
| RES-1 | L79128-02B | 7/30/2007 | | 8/11/2007 | Aqueous | Sulfate | 14808-79-8 | 10 | 48 | 10 | mg/L | | 300.0-W |
| RES-1 | L79128-02A | 7/30/2007 | | 8/3/2007 | Aqueous | TDS | | 1 | 590 | 10 | mg/L | | TDS-W |
| RES-1 | L79128-02A | 7/30/2007 | | 8/1/2007 | Aqueous | TSS | | 1 | 38 | 3 | mg/L | | TSS-W-2540D |
| RES-1 | L79128-02F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| RES-1 | L81026-03B | 11/12/2007 | | 11/15/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| RES-1 | L81026-03B | 11/12/2007 | | 11/15/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| RES-1 | L81026-03F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES-1 | L81026-03C | 11/12/2007 | 11/15/2007 | 11/15/2007 | Aqueous | Ammonia (as N) | | 1 | 0.055 | 0.05 | mg/L | | NH3-W |
| RES-1 | L81026-03F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| RES-1 | L81026-03B | 11/12/2007 | | 11/15/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| RES-1 | L81026-03F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| RES-1 | L81026-03F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| RES-1 | L81026-03F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 63 | 10 | mg/L | # | ICP-W-dis |
| RES-1 | L81026-03B | 11/12/2007 | | 11/15/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| RES-1 | L81026-03B | 11/12/2007 | | 11/21/2007 | Aqueous | Chloride | 16887-00-6 | 5 | 19 | 5 | mg/L | | 300.0-W |
| RES-1 | L81026-03F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0018 | 0.0008 | mg/L | | 6020-W-DISS |
| RES-1 | L81026-03F | 11/12/2007 | | 11/27/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 310 | 10 | mg/L | | HARD |
| RES-1 | L81026-03F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| RES-1 | L81026-03E | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0.77 | 0.05 | mg/L | | ICP-W |
| RES-1 | L81026-03F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0001 | mg/L | | 6020-W-DISS |
| RES-1 | L81026-03F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 38 | 1 | mg/L | | ICP-W-dis |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| RES-1 | L81026-03E | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.11 | 0.005 | mg/L | | ICP-W |
| RES-1 | L81026-03F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.052 | 0.0012 | mg/L | | 6020-W-DISS |
| RES-1 | L81026-03F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES-1 | L81026-03B | 11/12/2007 | | 11/14/2007 | Aqueous | Nitrate (as N) | | 1 | 0.011 | 0.01 | mg/L | | NO3-W |
| RES-1 | L81026-03B | 11/12/2007 | | 11/14/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| RES-1 | L81026-03D | 11/12/2007 | | 11/18/2007 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| RES-1 | L81026-03B | 11/12/2007 | | 11/14/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| RES-1 | L81026-03F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 6.4 | 1 | mg/L | | ICP-W-dis |
| RES-1 | L81026-03F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| RES-1 | L81026-03A | 11/12/2007 | | 11/14/2007 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| RES-1 | L81026-03F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 32 | 10 | mg/L | # | ICP-W-dis |
| RES-1 | L81026-03B | 11/12/2007 | | 11/21/2007 | Aqueous | Sulfate | 14808-79-8 | 5 | 120 | 5 | mg/L | | 300.0-W |
| RES-1 | L81026-03A | 11/12/2007 | | 11/14/2007 | Aqueous | TDS | | 1 | 470 | 20 | mg/L | | TDS-W |
| RES-1 | L81026-03A | 11/12/2007 | | 11/14/2007 | Aqueous | TSS | | 1 | 18 | 3 | mg/L | | TSS-W-2540D |
| RES-1 | L81026-03F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0 | 0.0054 | mg/L | | 6020-W-DISS |
| Res-1 | L83169-04B | 3/25/2008 | | 3/28/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Res-1 | L83169-04B | 3/25/2008 | | 3/28/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Res-1 | L83169-04C | 3/25/2008 | 4/1/2008 | 4/1/2008 | Aqueous | Ammonia (as N) | | 1 | 0.20 | 0.05 | mg/L | | NH3-W |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0.00072 | 0.0006 | mg/L | | 6020-W-DISS |
| Res-1 | L83169-04B | 3/25/2008 | | 3/28/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 70 | 10 | mg/L | # | ICP-W-dis |
| Res-1 | L83169-04B | 3/25/2008 | | 3/28/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Res-1 | L83169-04B | 3/25/2008 | | 3/30/2008 | Aqueous | Chloride | 16887-00-6 | 10 | 40 | 1 | mg/L | | 300.0-W |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0029 | 0.0008 | mg/L | | 6020-W-DISS |
| Res-1 | L83169-04F | 3/25/2008 | | 4/2/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 320 | 10 | mg/L | | HARD |
| Res-1 | L83169-04E | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0.072 | 0.05 | mg/L | | ICP-W-dis |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 36 | 1 | mg/L | | ICP-W-dis |
| Res-1 | L83169-04E | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.033 | 0.005 | mg/L | | ICP-W |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.14 | 0.0012 | mg/L | | 6020-W-DISS |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Res-1 | L83169-04B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrate (as N) | | 1 | 0.15 | 0.01 | mg/L | | NO3-W |
| Res-1 | L83169-04B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrite (as N) | | 1 | 0.011 | 0.01 | mg/L | | NO2-W |
| Res-1 | L83169-04D | 3/25/2008 | | 3/31/2008 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Res-1 | L83169-04B | 3/25/2008 | | 3/27/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 6.0 | 1 | mg/L | | ICP-W-dis |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Res-1 | L83169-04A | 3/25/2008 | | 3/27/2008 | Aqueous | Settleable Solids | | 1 | 0.30 | 0.1 | ml/L | | SS-W-2540F |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 41 | 1 | mg/L | | ICP-W-dis |
| Res-1 | L83169-04B | 3/25/2008 | | 3/30/2008 | Aqueous | Sulfate | 14808-79-8 | 10 | 110 | 7.5 | mg/L | | 300.0-W |
| Res-1 | L83169-04A | 3/25/2008 | | 3/28/2008 | Aqueous | TDS | | 1 | 470 | 20 | mg/L | | TDS-W |
| Res-1 | L83169-04A | 3/25/2008 | | 3/27/2008 | Aqueous | TSS | | 1 | 180 | 3 | mg/L | | TSS-W-2540D |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0.0065 | 0.0054 | mg/L | | 6020-W-DISS |
| Res-1 | L83169-04B | 3/25/2008 | | 3/28/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Res-1 | L83169-04B | 3/25/2008 | | 3/28/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Res-1 | L83169-04C | 3/25/2008 | 4/1/2008 | 4/1/2008 | Aqueous | Ammonia (as N) | | 1 | 0.20 | 0.05 | mg/L | | NH3-W |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0.00072 | 0.0006 | mg/L | | 6020-W-DISS |
| Res-1 | L83169-04B | 3/25/2008 | | 3/28/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 220 | 20 | mg/L | | 2320B-ALK-W |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 70 | 10 | mg/L | # | ICP-W-dis |
| Res-1 | L83169-04B | 3/25/2008 | | 3/28/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Res-1 | L83169-04B | 3/25/2008 | | 3/30/2008 | Aqueous | Chloride | 16887-00-6 | 10 | 40 | 1 | mg/L | | 300.0-W |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0029 | 0.0008 | mg/L | | 6020-W-DISS |
| Res-1 | L83169-04F | 3/25/2008 | | 4/2/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 320 | 10 | mg/L | | HARD |
| Res-1 | L83169-04E | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0.072 | 0.05 | mg/L | | ICP-W-dis |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 36 | 1 | mg/L | | ICP-W-dis |
| Res-1 | L83169-04E | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.033 | 0.005 | mg/L | | ICP-W |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.14 | 0.0012 | mg/L | | 6020-W-DISS |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Res-1 | L83169-04B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrate (as N) | | 1 | 0.15 | 0.01 | mg/L | | NO3-W |
| Res-1 | L83169-04B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrite (as N) | | 1 | 0.011 | 0.01 | mg/L | | NO2-W |
| Res-1 | L83169-04D | 3/25/2008 | | 3/31/2008 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Res-1 | L83169-04B | 3/25/2008 | | 3/27/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 6.0 | 1 | mg/L | | ICP-W-dis |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Res-1 | L83169-04A | 3/25/2008 | | 3/27/2008 | Aqueous | Settleable Solids | | 1 | 0.30 | 0.1 | ml/L | | SS-W-2540F |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 41 | 1 | mg/L | | ICP-W-dis |
| Res-1 | L83169-04B | 3/25/2008 | | 3/30/2008 | Aqueous | Sulfate | 14808-79-8 | 10 | 110 | 7.5 | mg/L | | 300.0-W |
| Res-1 | L83169-04A | 3/25/2008 | | 3/28/2008 | Aqueous | TDS | | 1 | 470 | 20 | mg/L | | TDS-W |
| Res-1 | L83169-04A | 3/25/2008 | | 3/27/2008 | Aqueous | TSS | | 1 | 180 | 3 | mg/L | | TSS-W-2540D |
| Res-1 | L83169-04F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0.0065 | 0.0054 | mg/L | | 6020-W-DISS |
| Res-1 | L84608-03B | 6/16/2008 | | 6/20/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Res-1 | L84608-03B | 6/16/2008 | | 6/20/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 160 | 20 | mg/L | | 2320B-ALK-W |
| Res-1 | L84608-03F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Res-1 | L84608-03C | 6/16/2008 | 6/20/2008 | 6/25/2008 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Res-1 | L84608-03F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Res-1 | L84608-03B | 6/16/2008 | | 6/20/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 160 | 20 | mg/L | | 2320B-ALK-W |
| Res-1 | L84608-03F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Res-1 | L84608-03F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Res-1 | L84608-03F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Calcium | 7440-70-2 | 10 | 42 | 10 | mg/L | ~ | ICP-W-dis |
| Res-1 | L84608-03B | 6/16/2008 | | 6/20/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Res-1 | L84608-03B | 6/16/2008 | | 6/26/2008 | Aqueous | Chloride | 16887-00-6 | 5 | 7.5 | 0.5 | mg/L | | 300.0-W |
| Res-1 | L84608-03F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Copper | 7440-50-8 | 20 | 0.0014 | 0.0008 | mg/L | | 6020-W-DISS |
| Res-1 | L84608-03F | 6/16/2008 | | 6/18/2008 | Aqueous Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 160 | 10 | mg/L | | HARD |
| Res-1 | L84608-03F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Res-1 | L84608-03E | 6/16/2008 | 6/20/2008 | 6/27/2008 | Aqueous | Iron | 7439-89-6 | 1 | 0.11 | 0.05 | mg/L | | ICP-W |
| Res-1 | L84608-03F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Lead | 7439-92-1 | 20 | 0.00040 | 0.0004 | mg/L | | 6020-W-DISS |
| Res-1 | L84608-03F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Magnesium | 7439-95-4 | 1 | 14 | 1 | mg/L | | ICP-W-dis |
| Res-1 | L84608-03F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Manganese | 7439-96-5 | 20 | 0.0015 | 0.0012 | mg/L | | 6020-W-DISS |
| Res-1 | L84608-03E | 6/16/2008 | 6/20/2008 | 6/27/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.024 | 0.005 | mg/L | | ICP-W |
| Res-1 | L84608-03F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Res-1 | L84608-03B | 6/16/2008 | | 6/18/2008 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Res-1 | L84608-03B | 6/16/2008 | | 6/18/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Res-1 | L84608-03D | 6/16/2008 | | 6/18/2008 | Aqueous | Oil & Grease | | 1 | 340 | 3 | mg/L | * | OGB-W |
| Res-1 | L84608-03B | 6/16/2008 | | 6/18/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Res-1 | L84608-03F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Potassium | 7440-09-7 | 1 | 1.9 | 1 | mg/L | | ICP-W-dis |
| Res-1 | L84608-03F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Res-1 | L84608-03A | 6/16/2008 | | 6/18/2008 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Res-1 | L84608-03F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Sodium | 7440-23-5 | 1 | 8.3 | 1 | mg/L | | ICP-W-dis |
| Res-1 | L84608-03B | 6/16/2008 | | 6/26/2008 | Aqueous | Sulfate | 14808-79-8 | 5 | 29 | 3.8 | mg/L | | 300.0-W |
| Res-1 | L84608-03A | 6/16/2008 | | 6/19/2008 | Aqueous | TDS | | 1 | 200 | 50 | mg/L | | TDS-W |
| Res-1 | L84608-03A | 6/16/2008 | | 6/18/2008 | Aqueous | TSS | | 1 | 24 | 3 | mg/L | | TSS-W-2540D |
| Res-1 | L84608-03F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Zinc | 7440-66-6 | 20 | 0.020 | 0.0054 | mg/L | | 6020-W-DISS |
| RES-1 | L85972-03B | 8/26/2008 | | 8/29/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| RES-1 | L85972-03B | 8/26/2008 | | 8/28/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 240 | 20 | mg/L | | 2320B-ALK-W |
| RES-1 | L85972-03E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES-1 | L85972-03D | 8/26/2008 | 8/28/2008 | 8/29/2008 | Aqueous | Ammonia (as N) | | 1 | 0.11 | 0.05 | mg/L | | NH3-W |
| RES-1 | L85972-03E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0.0023 | 0.0006 | mg/L | | 6020-W-DISS |
| RES-1 | L85972-03B | 8/26/2008 | | 8/28/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 240 | 20 | mg/L | | 2320B-ALK-W |
| RES-1 | L85972-03E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| RES-1 | L85972-03E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| RES-1 | L85972-03E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 81 | 10 | mg/L | ~ | ICP-W-dis |
| RES-1 | L85972-03B | 8/26/2008 | | 8/28/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| RES-1 | L85972-03B | 8/26/2008 | | 8/28/2008 | Aqueous | Chloride | 16887-00-6 | 20 | 61 | 2 | mg/L | | 300.0-W |
| RES-1 | L85972-03E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0031 | 0.0008 | mg/L | | 6020-W-DISS |
| RES-1 | L85972-03E | 8/26/2008 | | 9/5/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 430 | 10 | mg/L | | HARD |
| RES-1 | L85972-03F | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous | Iron | 7439-89-6 | 1 | 1.1 | 0.05 | mg/L | | ICP-W |
| RES-1 | L85972-03E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| RES-1 | L85972-03E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| RES-1 | L85972-03E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 56 | 10 | mg/L | ~ | ICP-W-dis |
| RES-1 | L85972-03F | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.55 | 0.005 | mg/L | | ICP-W |
| RES-1 | L85972-03E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.11 | 0.0012 | mg/L | | 6020-W-DISS |
| RES-1 | L85972-03E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES-1 | L85972-03B | 8/26/2008 | | 8/28/2008 | Aqueous | Nitrate (as N) | | 1 | 0.054 | 0.01 | mg/L | | NO3-W |
| RES-1 | L85972-03B | 8/26/2008 | | 8/28/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| RES-1 | L85972-03C | 8/26/2008 | | 9/5/2008 | Aqueous | Oil & Grease | | 1 | 3.2 | 3 | mg/L | | OGB-W |
| RES-1 | L85972-03B | 8/26/2008 | | 8/28/2008 | Aqueous | Phosphorus, Orthophosphate (as I | 7723-14-0 | 1 | 0 | 0.1 | mg/L | | 300.0-W |
| RES-1 | L85972-03E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 2.5 | 1 | mg/L | | ICP-W-dis |
| RES-1 | L85972-03E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| RES-1 | L85972-03A | 8/26/2008 | | 8/28/2008 | Aqueous | Settleable Solids | | 1 | 2.5 | 0.1 | ml/L | | SS-W-2540F |
| RES-1 | L85972-03E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 41 | 10 | mg/L | ~ | ICP-W-dis |
| RES-1 | L85972-03B | 8/26/2008 | | 8/28/2008 | Aqueous | Sulfate | 14808-79-8 | 20 | 140 | 15 | mg/L | | 300.0-W |
| RES-1 | L85972-03A | 8/26/2008 | | 8/28/2008 | Aqueous | TDS | | 1 | 620 | 20 | mg/L | | TDS-W |
| RES-1 | L85972-03A | 8/26/2008 | | 8/28/2008 | Aqueous | TSS | | 1 | 200 | 3 | mg/L | | TSS-W-2540D |
| RES-1 | L85972-03E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0.0066 | 0.0054 | mg/L | | 6020-W-DISS |
| RES-1 | L87283-03B | 10/29/2008 | | 10/31/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| RES-1 | L87283-03B | 10/29/2008 | | 10/31/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 300 | 20 | mg/L | | 2320B-ALK-W |
| RES-1 | L87283-03E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES-1 | L87283-03D | 10/29/2008 | 11/6/2008 | 11/7/2008 | Aqueous | Ammonia (as N) | | 1 | 0.12 | 0.05 | mg/L | | NH3-W |
| RES-1 | L87283-03E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0.0013 | 0.0006 | mg/L | | 6020-W-DISS |
| RES-1 | L87283-03B | 10/29/2008 | | 10/31/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 300 | 20 | mg/L | | 2320B-ALK-W |
| RES-1 | L87283-03E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| RES-1 | L87283-03E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| RES-1 | L87283-03E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 79 | 10 | mg/L | ~ | ICP-W-dis |
| RES-1 | L87283-03B | 10/29/2008 | | 10/31/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| RES-1 | L87283-03B | 10/29/2008 | | 11/11/2008 | Aqueous | Chloride | 16887-00-6 | 20 | 31 | 2 | mg/L | | 300.0-W |
| RES-1 | L87283-03E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| RES-1 | L87283-03E | 10/29/2008 | | 11/5/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 330 | 10 | mg/L | | HARD |
| RES-1 | L87283-03E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| RES-1 | L87283-03F | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous | Iron | 7439-89-6 | 1 | 3.3 | 0.05 | mg/L | | ICP-W |
| RES-1 | L87283-03E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| RES-1 | L87283-03E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 33 | 1 | mg/L | | ICP-W-dis |
| RES-1 | L87283-03E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.47 | 0.0012 | mg/L | | 6020-W-DISS |
| RES-1 | L87283-03F | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.65 | 0.005 | mg/L | | ICP-W |
| RES-1 | L87283-03E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| RES-1 | L87283-03B | 10/29/2008 | | 10/31/2008 | Aqueous | Nitrate (as N) | | 1 | 0.015 | 0.01 | mg/L | | NO3-W |
| RES-1 | L87283-03B | 10/29/2008 | | 10/31/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| RES-1 | L87283-03C | 10/29/2008 | | 11/2/2008 | Aqueous | Oil & Grease | | 1 | 4.3 | 3 | mg/L | | OGB-W |
| RES-1 | L87283-03B | 10/29/2008 | | 10/31/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| RES-1 | L87283-03E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 7.2 | 1 | mg/L | | ICP-W-dis |
| RES-1 | L87283-03E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| RES-1 | L87283-03A | 10/29/2008 | | 10/30/2008 | Aqueous | Settleable Solids | | 1 | 0.20 | 0.1 | ml/L | | SS-W-2540F |
| RES-1 | L87283-03E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 22 | 1 | mg/L | | ICP-W-dis |
| RES-1 | L87283-03B | 10/29/2008 | | 11/11/2008 | Aqueous | Sulfate | 14808-79-8 | 20 | 57 | 15 | mg/L | | 300.0-W |
| RES-1 | L87283-03A | 10/29/2008 | | 10/31/2008 | Aqueous | TDS | | 1 | 420 | 20 | mg/L | | TDS-W |
| RES-1 | L87283-03A | 10/29/2008 | | 10/30/2008 | Aqueous | TSS | | 1 | 99 | 3 | mg/L | | TSS-W-2540D |
| RES-1 | L87283-03E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0 | 0.0054 | mg/L | | 6020-W-DISS |
| RES-1 | 1006480-003 | 6/23/2010 | | 6/25/2010 | Aqueous | Settleable Solids | | 1 | 0 | 0.10 | mL/L | | SS-W-2540F |
| RES-1 | 1006480-003 | 6/23/2010 | | 6/25/2010 | Aqueous | Total Dissolved Solids | | 2 | 200 | 20 | mg/L | | TDS-W-2540C |
| RES-1 | 1006480-003 | 6/23/2010 | | 6/25/2010 | Aqueous | Total Suspended Solids | TSS | 1 | 11 | 3.0 | mg/L | | TSS-W-2540D |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| RES-1 | 1006480-003 | 6/23/2010 | | 6/29/2010 | Aqueous | Chloride | 16887-00-6 | 10 | 8.3 | 1.0 | mg/L | | 300.0-W |
| RES-1 | 1006480-003 | 6/23/2010 | | 6/29/2010 | Aqueous | Sulfate | 14808-79-8 | 10 | 30 | 7.5 | mg/L | | 300.0-W |
| RES-1 | 1006480-003 | 6/23/2010 | | 6/28/2010 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| RES-1 | 1006480-003 | 6/23/2010 | | 6/28/2010 | Aqueous | Alkalinity (as CaCO3) | | 2 | 170 | 20 | mg/L | | ALK-W-2320B |
| RES-1 | 1006480-003 | 6/23/2010 | | 6/28/2010 | Aqueous | Bicarbonate (as CaCO3) | | 2 | 160 | 20 | mg/L | | ALK-W-2320B |
| RES-1 | 1006480-003 | 6/23/2010 | | 6/28/2010 | Aqueous | Carbonate (as CaCO3) | | 2 | 0 | 20 | mg/L | | ALK-W-2320B |
| RES-1 | 1006480-003 | 6/23/2010 | | 6/25/2010 | Aqueous | Nitrite (as N) | 14797-65-0 | 1 | 0 | 0.010 | mg/L | | NO2-W-353.2 |
| RES-1 | 1006480-003 | 6/23/2010 | | 6/25/2010 | Aqueous | Nitrate (as N) | 14797-55-8 | 1 | 0 | 0.010 | mg/L | | NO3-W-353.2 |
| RES-1 | 1006480-003 | 6/23/2010 | | 6/25/2010 | Aqueous | pH @ 25° C | | 1 | 8.50 | 1.00 | pH Units | H | PH-4500H+B |
| RES-1 | 1006480-003 | 6/23/2010 | | 6/25/2010 | Aqueous | Phosphate, Total Ortho (as P) | 7723-14-0 | 1 | 0 | 0.050 | mg/L | | PO4-O-365.1 |
| RES-1 | 1006480-003 | 6/23/2010 | | 6/30/2010 | Aqueous | Oil & Grease | | 1 | 0 | 3.0 | mg/L | | OGB-W-1664A |
| RES-1 | 1006480-003 | 6/23/2010 | 6/28/2010 | 6/29/2010 | Aqueous | Ammonia (as N) | 7664-41-7 | 1 | 0.089 | 0.050 | mg/L | | NH3-W-350.1 |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Aluminum | 7429-90-5 | 1 | 0 | 0.10 | mg/L | | 6010C-DIS |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Boron | 7440-42-8 | 1 | 0 | 0.50 | mg/L | | 6010C-DIS |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Calcium | 7440-70-2 | 1 | 44 | 1.0 | mg/L | | 6010C-DIS |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.10 | mg/L | | 6010C-DIS |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Magnesium | 7439-95-4 | 1 | 16 | 1.0 | mg/L | | 6010C-DIS |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Molybdenum | 7439-98-7 | 1 | 0 | 0.020 | mg/L | | 6010C-DIS |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Potassium | 7440-09-7 | 1 | 2.0 | 1.0 | mg/L | | 6010C-DIS |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Sodium | 7440-23-5 | 1 | 11 | 1.0 | mg/L | | 6010C-DIS |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Arsenic | 7440-38-2 | 20 | 0.00071 | 0.00060 | mg/L | | 6020-DIS |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-DIS |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Copper | 7440-50-8 | 20 | 0.0039 | 0.00080 | mg/L | | 6020-DIS |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Lead | 7439-92-1 | 20 | 0 | 0.00040 | mg/L | | 6020-DIS |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.0069 | 0.0012 | mg/L | | 6020-DIS |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Selenium | 7782-49-2 | 20 | 0 | 0.00080 | mg/L | | 6020-DIS |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Zinc | 7440-66-6 | 20 | 0.019 | 0.0050 | mg/L | | 6020-DIS |
| RES-1 | 1006480-003 | 6/23/2010 | | 6/28/2010 | Aqueous | Hardness (as CaCO3) | | 1 | 180 | 10 | mg/L | | HARD-2340B |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.10 | mg/L | | 6010C-W |
| RES-1 | 1006480-003 | 6/23/2010 | 6/25/2010 | 6/25/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.027 | 0.0012 | mg/L | | 6020-W |
| Sulfur Spring | L65736-03B | 5/9/2005 | | 5/11/2005 | Aqueous | Acidity | | 1 | 80 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L65736-03B | 5/9/2005 | | 5/11/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 350 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L65736-03D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L65736-03F | 5/9/2005 | 5/11/2005 | 5/12/2005 | Aqueous | Ammonia (as N) | | 1 | 0.10 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L65736-03D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0.001 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L65736-03B | 5/9/2005 | | 5/11/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 350 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L65736-03D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0.07 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L65736-03D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L65736-03D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 87 | 10 | mg/L | | ICP-W-dis |
| Sulfur Spring | L65736-03B | 5/9/2005 | | 5/11/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L65736-03B | 5/9/2005 | | 5/18/2005 | Aqueous | Chloride | 16887-00-6 | 1 | 6.6 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L65736-03D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.0077 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L65736-03D | 5/9/2005 | | 5/20/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 350 | 10 | mg/L | | HARD |
| Sulfur Spring | L65736-03C | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L65736-03D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L65736-03D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0.0057 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L65736-03D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 35 | 10 | mg/L | | ICP-W-dis |
| Sulfur Spring | L65736-03D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.16 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L65736-03C | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.17 | 0.005 | mg/L | | 6020-W |
| Sulfur Spring | L65736-03D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L65736-03B | 5/9/2005 | | 5/11/2005 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L65736-03B | 5/9/2005 | | 5/11/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L65736-03E | 5/9/2005 | | 5/11/2005 | Aqueous | Oil & Grease | | 1 | 3.8 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L65736-03B | 5/9/2005 | | 5/11/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L65736-03D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.0 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L65736-03D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0.0075 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L65736-03A | 5/9/2005 | | 5/10/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L65736-03D | 5/9/2005 | 5/11/2005 | 5/19/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.6 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L65736-03B | 5/9/2005 | | 5/18/2005 | Aqueous | Sulfate | 14808-79-8 | 1 | 43 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L65736-03A | 5/9/2005 | | 5/10/2005 | Aqueous | TDS | | 1 | 390 | 10 | mg/L | | TDS-W |
| Sulfur Spring | L65736-03A | 5/9/2005 | | 5/10/2005 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L65736-03D | 5/9/2005 | 5/11/2005 | 5/17/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.012 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L67580-02B | 9/6/2005 | | 9/9/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L67580-02B | 9/6/2005 | | 9/8/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 350 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L67580-02F | 9/6/2005 | 9/7/2005 | 9/8/2005 | Aqueous | Ammonia (as N) | | 1 | 0.44 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L67580-02B | 9/6/2005 | | 9/8/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 350 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 82 | 10 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L67580-02B | 9/6/2005 | | 9/8/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L67580-02B | 9/6/2005 | | 9/13/2005 | Aqueous | Chloride | 16887-00-6 | 10 | 6.8 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 340 | 10 | mg/L | | HARD |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0.15 | 0.05 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L67580-02C | 9/6/2005 | 9/8/2005 | 9/13/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0.30 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0.0070 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 31 | 10 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.055 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L67580-02C | 9/6/2005 | 9/8/2005 | 9/15/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.048 | 0.005 | mg/L | | 6020-W |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L67580-02B | 9/6/2005 | | 8/7/2005 | Aqueous | Nitrate (as N) | | 1 | 0.012 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L67580-02B | 9/6/2005 | | 9/7/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L67580-02E | 9/6/2005 | | 9/7/2005 | Aqueous | Oil & Grease | | 1 | 4.7 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L67580-02B | 9/6/2005 | | 9/8/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.06 | mg/L | | PO4-O |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.2 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L67580-02A | 9/6/2005 | | 9/7/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 7.6 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L67580-02B | 9/6/2005 | | 9/13/2005 | Aqueous | Sulfate | 14808-79-8 | 10 | 45 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L67580-02A | 9/6/2005 | | 9/7/2005 | Aqueous | TSS | | 1 | 15 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L67580-02D | 9/6/2005 | 9/9/2005 | 9/15/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.038 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/2/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/1/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 370 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02F | 10/31/2005 | 11/7/2005 | 11/9/2005 | Aqueous | Ammonia (as N) | | 1 | 0.15 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/1/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 370 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 5 | 88 | 5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/1/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/9/2005 | Aqueous | Chloride | 16887-00-6 | 1 | 5.1 | 5 | mg/L | | CL-W-LAT |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 370 | 10 | mg/L | | HARD |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02C | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 36 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.029 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68520-02C | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.030 | 0.005 | mg/L | | 6020-W |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrate (as N) | | 1 | 0.010 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L68520-02E | 10/31/2005 | | 11/2/2005 | Aqueous | Oil & Grease | | 1 | 3.1 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/1/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.0 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68520-02A | 10/31/2005 | | 11/1/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 5 | 8.9 | 5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/10/2005 | Aqueous | Sulfate | 14808-79-8 | 1 | 46 | 5 | mg/L | | SO4-W |
| Sulfur Spring | L68520-02A | 10/31/2005 | | 11/1/2005 | Aqueous | TDS | | 1 | 390 | 10 | mg/L | | TDS-W |
| Sulfur Spring | L68520-02A | 10/31/2005 | | 11/1/2005 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.014 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/2/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/1/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 370 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02F | 10/31/2005 | 11/7/2005 | 11/9/2005 | Aqueous | Ammonia (as N) | | 1 | 0.15 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/1/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 370 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 5 | 88 | 5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/1/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/9/2005 | Aqueous | Chloride | 16887-00-6 | 1 | 5.1 | 5 | mg/L | | CL-W-LAT |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 370 | 10 | mg/L | | HARD |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02C | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 36 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.029 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68520-02C | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.030 | 0.005 | mg/L | | 6020-W |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrate (as N) | | 1 | 0.010 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/1/2005 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L68520-02E | 10/31/2005 | | 11/2/2005 | Aqueous | Oil & Grease | | 1 | 3.1 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/1/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/9/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.0 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68520-02A | 10/31/2005 | | 11/1/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 5 | 8.9 | 5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68520-02B | 10/31/2005 | | 11/10/2005 | Aqueous | Sulfate | 14808-79-8 | 1 | 46 | 5 | mg/L | | SO4-W |
| Sulfur Spring | L68520-02A | 10/31/2005 | | 11/1/2005 | Aqueous | TDS | | 1 | 390 | 10 | mg/L | | TDS-W |
| Sulfur Spring | L68520-02A | 10/31/2005 | | 11/1/2005 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L68520-02D | 10/31/2005 | 11/1/2005 | 11/10/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.014 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68977-02C | 11/28/2005 | | 12/1/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L68977-02C | 11/28/2005 | | 11/29/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68977-02F | 11/28/2005 | 12/6/2005 | 12/7/2005 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68977-02C | 11/28/2005 | | 11/29/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 5 | 91 | 5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68977-02C | 11/28/2005 | | 11/29/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L68977-02C | 11/28/2005 | | 12/3/2005 | Aqueous | Chloride | 16887-00-6 | 1 | 6.2 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 380 | 10 | mg/L | | HARD |
| Sulfur Spring | L68977-02E | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 37 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.031 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68977-02E | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.028 | 0.005 | mg/L | | 6020-W |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68977-02C | 11/28/2005 | | 11/29/2005 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Sulfur Spring | L68977-02C | 11/28/2005 | | 11/29/2005 | Aqueous | Nitrite (as N) | | 1 | 0.010 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L68977-02G | 11/28/2005 | | 11/30/2005 | Aqueous | Oil & Grease | | 1 | 3.6 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L68977-02C | 11/28/2005 | | 11/29/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/5/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.6 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L68977-02A | 11/28/2005 | | 11/29/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/6/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 5 | 8.8 | 5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L68977-02C | 11/28/2005 | | 12/3/2005 | Aqueous | Sulfate | 14808-79-8 | 10 | 45 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L68977-02B | 11/28/2005 | | 12/2/2005 | Aqueous | TDS | | 1 | 330 | 10 | mg/L | | TDS-W |
| Sulfur Spring | L68977-02A | 11/28/2005 | | 11/29/2005 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L68977-02D | 11/28/2005 | 11/30/2005 | 12/2/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.035 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L69428-02B | 12/22/2005 | | 12/23/2005 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L69428-02B | 12/22/2005 | | 12/23/2005 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69428-02E | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous | Ammonia (as N) | | 1 | 0.13 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 2 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L69428-02B | 12/22/2005 | | 12/23/2005 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 2 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 93 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69428-02B | 12/22/2005 | | 12/23/2005 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L69428-02B | 12/22/2005 | | 12/28/2005 | Aqueous | Chloride | 16887-00-6 | 1 | 6.3 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Copper | 7440-50-8 | 2 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 380 | 10 | mg/L | | HARD |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69428-02D | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Lead | 7439-92-1 | 2 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 36 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69428-02D | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous | Manganese | 7439-96-5 | 1 | 0.033 | 0.005 | mg/L | | 6020-W |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Manganese | 7439-96-5 | 2 | 0.035 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69428-02B | 12/22/2005 | | 12/23/2005 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L69428-02B | 12/22/2005 | | 12/23/2005 | Aqueous | Nitrite (as N) | | 1 | 0.010 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L69428-02F | 12/22/2005 | | 12/28/2005 | Aqueous | Oil & Grease | | 1 | 4.2 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L69428-02B | 12/22/2005 | | 12/23/2005 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.0 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Selenium | 7782-49-2 | 2 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L69428-02A | 12/22/2005 | | 12/23/2005 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/27/2005 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.1 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69428-02B | 12/22/2005 | | 12/28/2005 | Aqueous | Sulfate | 14808-79-8 | 10 | 46 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L69428-02A | 12/22/2005 | | 12/23/2005 | Aqueous | TDS | | 1 | 420 | 10 | mg/L | | TDS-W |
| Sulfur Spring | L69428-02A | 12/22/2005 | | 12/23/2005 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L69428-02C | 12/22/2005 | 12/23/2005 | 12/28/2005 | Aqueous-Dissolved | Zinc | 7440-66-6 | 2 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L69847-03B | 1/23/2006 | | 1/24/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L69847-03B | 1/23/2006 | | 1/24/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 350 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L69847-03F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69847-03C | 1/23/2006 | 1/31/2006 | 2/1/2006 | Aqueous | Ammonia (as N) | | 1 | 0.059 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L69847-03F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L69847-03B | 1/23/2006 | | 1/24/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 350 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L69847-03F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69847-03F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L69847-03F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 89 | 10 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69847-03B | 1/23/2006 | | 1/24/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L69847-03B | 1/23/2006 | | 1/27/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 6.4 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L69847-03F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L69847-03F | 1/23/2006 | | 1/27/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 360 | 10 | mg/L | | HARD |
| Sulfur Spring | L69847-03E | 1/23/2006 | 1/24/2006 | 1/27/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L69847-03F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69847-03F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L69847-03F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 36 | 10 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69847-03F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.030 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L69847-03E | 1/23/2006 | 1/24/2006 | 1/30/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.032 | 0.005 | mg/L | | 6020-W |
| Sulfur Spring | L69847-03F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69847-03B | 1/23/2006 | | 1/24/2006 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L69847-03B | 1/23/2006 | | 1/24/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L69847-03D | 1/23/2006 | | 1/24/2006 | Aqueous | Oil & Grease | | 1 | 4.3 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L69847-03B | 1/23/2006 | | 1/24/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L69847-03F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.7 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69847-03F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L69847-03A | 1/23/2006 | | 1/24/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L69847-03F | 1/23/2006 | 2/2/2006 | 2/4/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.4 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L69847-03B | 1/23/2006 | | 1/27/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 44 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L69847-03A | 1/23/2006 | | 1/24/2006 | Aqueous | TDS | | 1 | 380 | 10 | mg/L | | TDS-W |
| Sulfur Spring | L69847-03A | 1/23/2006 | | 1/24/2006 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L69847-03F | 1/23/2006 | 1/24/2006 | 1/31/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.029 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L70355-01A | 2/26/2006 | | 2/28/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L70355-01A | 2/26/2006 | | 2/28/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L70355-01F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L70355-01C | 2/26/2006 | 3/2/2006 | 3/2/2006 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L70355-01F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L70355-01A | 2/26/2006 | | 2/28/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L70355-01F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L70355-01F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L70355-01F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 93 | 10 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L70355-01A | 2/26/2006 | | 2/28/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L70355-01A | 2/26/2006 | | 3/1/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 6.4 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L70355-01F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0.0079 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L70355-01F | 2/26/2006 | | 3/7/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 380 | 10 | mg/L | | HARD |
| Sulfur Spring | L70355-01F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Sulfur Spring | L70355-01E | 2/26/2006 | 2/28/2006 | 2/28/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L70355-01F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L70355-01F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 36 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L70355-01E | 2/26/2006 | 2/28/2006 | 2/28/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.030 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L70355-01F | 2/26/2006 | 3/13/2006 | 3/13/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.030 | 0.005 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L70355-01F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L70355-01A | 2/26/2006 | | 2/27/2006 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L70355-01A | 2/26/2006 | | 2/27/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | [1] | NO2-W |
| Sulfur Spring | L70355-01D | 2/26/2006 | | 2/27/2006 | Aqueous | Oil & Grease | | 1 | 3.5 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L70355-01A | 2/26/2006 | | 2/27/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | @ | PO4-O |
| Sulfur Spring | L70355-01F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.3 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L70355-01F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L70355-01B | 2/26/2006 | | 2/27/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L70355-01F | 2/26/2006 | 2/27/2006 | 3/7/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.6 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L70355-01A | 2/26/2006 | | 3/1/2006 | Aqueous | Sulfate | 14808-79-8 | 10 | 43 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L70355-01B | 2/26/2006 | | 3/3/2006 | Aqueous | TDS | | 1 | 300 | 10 | mg/L | | TDS-W |
| Sulfur Spring | L70355-01B | 2/26/2006 | | 2/28/2006 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L70355-01F | 2/26/2006 | 2/27/2006 | 3/10/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.12 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L70885-03E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L70885-03E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L70885-03E | 3/27/2006 | 4/3/2006 | 4/11/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 89 | 10 | mg/L | [2] | ICP-W-DIS |
| Sulfur Spring | L70885-03B | 3/27/2006 | | 3/30/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L70885-03B | 3/27/2006 | | 3/29/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 7.2 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L70885-03B | 3/27/2006 | | 3/30/2006 | Aqueous | Conductivity | | 1 | 710 | 2 | umhos/cm | | COND-W |
| Sulfur Spring | L70885-03E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L70885-03E | 3/27/2006 | | 4/11/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 380 | 10 | mg/L | | HARD |
| Sulfur Spring | L70885-03E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L70885-03D | 3/27/2006 | 4/6/2006 | 4/9/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L70885-03E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L70885-03E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 37 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L70885-03D | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.032 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L70885-03E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.033 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L70885-03E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L70885-03B | 3/27/2006 | | 3/29/2006 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L70885-03B | 3/27/2006 | | 3/29/2006 | Aqueous | Nitrite (as N) | | 1 | 0.10 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L70885-03F | 3/27/2006 | | 3/28/2006 | Aqueous | Oil & Grease | | 1 | 4.6 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L70885-03B | 3/27/2006 | | 3/28/2006 | Aqueous | pH @ 25° C | | 1 | 7.38 | 0 | pH Units | | PH-W |
| Sulfur Spring | L70885-03B | 3/27/2006 | | 3/29/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L70885-03E | 3/27/2006 | 4/3/2006 | 4/9/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.4 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L70885-03E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L70885-03A | 3/27/2006 | | 3/28/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L70885-03E | 3/27/2006 | 4/3/2006 | 4/11/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.4 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L70885-03B | 3/27/2006 | | 3/29/2006 | Aqueous | Sulfate | 14808-79-8 | 10 | 44 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L70885-03A | 3/27/2006 | | 3/31/2006 | Aqueous | TDS | | 1 | 230 | 10 | mg/L | | TDS-W |
| Sulfur Spring | L70885-03A | 3/27/2006 | | 3/28/2006 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L70885-03E | 3/27/2006 | 4/3/2006 | 4/4/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.042 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L71507-02B | 4/26/2006 | | 5/2/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L71507-02B | 4/26/2006 | | 5/2/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 380 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L71507-02E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L71507-02C | 4/26/2006 | 5/3/2006 | 5/3/2006 | Aqueous | Ammonia (as N) | | 1 | 0.15 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L71507-02E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L71507-02B | 4/26/2006 | | 5/2/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 380 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L71507-02E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L71507-02E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L71507-02E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 95 | 10 | mg/L | | ICP-W-dis |
| Sulfur Spring | L71507-02B | 4/26/2006 | | 5/2/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L71507-02B | 4/26/2006 | | 5/12/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 6.1 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L71507-02E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L71507-02E | 4/26/2006 | | 5/15/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 390 | 10 | mg/L | | HARD |
| Sulfur Spring | L71507-02E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L71507-02D | 4/26/2006 | 5/3/2006 | 5/11/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L71507-02E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L71507-02E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 38 | 10 | mg/L | | ICP-W-dis |
| Sulfur Spring | L71507-02D | 4/26/2006 | 5/3/2006 | 5/11/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.030 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L71507-02E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.027 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L71507-02E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L71507-02C | 4/26/2006 | | 5/4/2006 | Aqueous | Nitrate/Nitrite (as N) | | 1 | 0.022 | 0.01 | mg/L | | NO2/NO3-W |
| Sulfur Spring | L71507-02F | 4/26/2006 | | 5/5/2006 | Aqueous | Oil & Grease | | 1 | 3.9 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L71507-02B | 4/26/2006 | | 4/28/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0.02 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L71507-02E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.3 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L71507-02E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L71507-02A | 4/26/2006 | | 4/28/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L71507-02E | 4/26/2006 | 5/2/2006 | 5/15/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 10 | 19 | 10 | mg/L | | ICP-W-dis |
| Sulfur Spring | L71507-02B | 4/26/2006 | | 5/12/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 29 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L71507-02A | 4/26/2006 | | 4/28/2006 | Aqueous | TDS | | 1 | 360 | 10 | mg/L | | TDS-W |
| Sulfur Spring | L71507-02A | 4/26/2006 | | 4/28/2006 | Aqueous | TSS | | 1 | 17 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L71507-02E | 4/26/2006 | 5/2/2006 | 5/13/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.034 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L72071-02B | 5/25/2006 | | 5/30/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L72071-02B | 5/25/2006 | | 5/30/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L72071-02E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72071-02C | 5/25/2006 | 5/30/2006 | 5/31/2006 | Aqueous | Ammonia (as N) | | 1 | 0.075 | 0.05 | mg/L | [1] | NH3-W |
| Sulfur Spring | L72071-02E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L72071-02B | 5/25/2006 | | 5/30/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L72071-02E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72071-02E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L72071-02E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 84 | 10 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72071-02B | 5/25/2006 | | 5/30/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L72071-02B | 5/25/2006 | | 6/1/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 6.2 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L72071-02E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Sulfur Spring | L72071-02E | 5/25/2006 | | 6/9/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 210 | 10 | mg/L | | HARD |
| Sulfur Spring | L72071-02D | 5/25/2006 | 5/29/2006 | 6/8/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L72071-02E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72071-02E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L72071-02E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 35 | 10 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72071-02E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.028 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L72071-02D | 5/25/2006 | 5/29/2006 | 6/8/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.029 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L72071-02E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72071-02B | 5/25/2006 | | 5/26/2006 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L72071-02B | 5/25/2006 | | 5/26/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L72071-02F | 5/25/2006 | | 5/30/2006 | Aqueous | Oil & Grease | | 1 | 3.7 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L72071-02B | 5/25/2006 | | 5/26/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L72071-02E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.0 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72071-02E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L72071-02A | 5/25/2006 | | 5/26/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L72071-02E | 5/25/2006 | 5/30/2006 | 6/9/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.6 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72071-02B | 5/25/2006 | | 6/1/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 41 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L72071-02A | 5/25/2006 | | 5/26/2006 | Aqueous | TDS | | 1 | 350 | 10 | mg/L | | TDS-W |
| Sulfur Spring | L72071-02A | 5/25/2006 | | 5/26/2006 | Aqueous | TSS | | 1 | 3.0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L72071-02E | 5/25/2006 | 5/30/2006 | 6/8/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L72660-03B | 6/29/2006 | | 7/3/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L72660-03B | 6/29/2006 | | 7/3/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 330 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L72660-03E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72660-03C | 6/29/2006 | 7/5/2006 | 7/7/2006 | Aqueous | Ammonia (as N) | | 1 | 0.064 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L72660-03E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L72660-03B | 6/29/2006 | | 7/3/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 330 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L72660-03E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72660-03E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L72660-03E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 1 | 84 | 10 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72660-03B | 6/29/2006 | | 7/3/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L72660-03B | 6/29/2006 | | 7/5/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 6.2 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L72660-03E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L72660-03E | 6/29/2006 | | 7/11/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 390 | 10 | mg/L | | HARD |
| Sulfur Spring | L72660-03E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72660-03D | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L72660-03E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L72660-03E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 35 | 10 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72660-03D | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.029 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L72660-03E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.029 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L72660-03E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72660-03B | 6/29/2006 | | 6/30/2006 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L72660-03B | 6/29/2006 | | 6/30/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L72660-03F | 6/29/2006 | | 6/30/2006 | Aqueous | Oil & Grease | | 1 | 4.4 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L72660-03B | 6/29/2006 | | 6/30/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L72660-03E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.4 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72660-03E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L72660-03A | 6/29/2006 | | 6/30/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L72660-03E | 6/29/2006 | 7/5/2006 | 7/12/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 7.8 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L72660-03B | 6/29/2006 | | 7/5/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 44 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L72660-03A | 6/29/2006 | | 6/30/2006 | Aqueous | TDS | | 1 | 310 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L72660-03A | 6/29/2006 | | 6/30/2006 | Aqueous | TSS | | 1 | 6.0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L72660-03E | 6/29/2006 | 7/5/2006 | 7/11/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L73160-04B | 7/31/2006 | | 8/2/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L73160-04B | 7/31/2006 | | 8/2/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L73160-04E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L73160-04C | 7/31/2006 | 8/2/2006 | 8/4/2006 | Aqueous | Ammonia (as N) | | 1 | 0.089 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L73160-04E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L73160-04B | 7/31/2006 | | 8/2/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L73160-04E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L73160-04E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L73160-04E | 7/31/2006 | 8/3/2006 | 8/15/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 90 | 10 | mg/L | 2 | ICP-W-DIS |
| Sulfur Spring | L73160-04B | 7/31/2006 | | 8/2/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 10 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L73160-04B | 7/31/2006 | | 8/4/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 6.3 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L73160-04E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L73160-04E | 7/31/2006 | | 8/15/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 370 | 10 | mg/L | | HARD |
| Sulfur Spring | L73160-04D | 7/31/2006 | 8/3/2006 | 8/8/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L73160-04E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L73160-04E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L73160-04E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 35 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L73160-04D | 7/31/2006 | 8/3/2006 | 8/8/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.029 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L73160-04E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.030 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L73160-04E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L73160-04B | 7/31/2006 | | 8/2/2006 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L73160-04B | 7/31/2006 | | 8/2/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L73160-04F | 7/31/2006 | | 8/8/2006 | Aqueous | Oil & Grease | | 1 | 3.2 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L73160-04B | 7/31/2006 | | 8/2/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L73160-04E | 7/31/2006 | 8/3/2006 | 8/14/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.5 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L73160-04E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L73160-04A | 7/31/2006 | | 8/2/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L73160-04E | 7/31/2006 | 8/3/2006 | 8/15/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.4 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L73160-04B | 7/31/2006 | | 8/4/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 47 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L73160-04A | 7/31/2006 | | 8/3/2006 | Aqueous | TDS | | 1 | 330 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L73160-04A | 7/31/2006 | | 8/2/2006 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L73160-04E | 7/31/2006 | 8/3/2006 | 8/4/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0.022 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L73504-04B | 8/21/2006 | | 8/23/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L73504-04B | 8/21/2006 | | 8/23/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L73504-04E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L73504-04C | 8/21/2006 | 8/23/2006 | 8/24/2006 | Aqueous | Ammonia (as N) | | 1 | 0.17 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L73504-04E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Sulfur Spring | L73504-04B | 8/21/2006 | | 8/23/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L73504-04E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L73504-04E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L73504-04E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 88 | 10 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L73504-04B | 8/21/2006 | | 8/23/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L73504-04B | 8/21/2006 | | 8/24/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 6.6 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L73504-04E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L73504-04E | 8/21/2006 | | 9/5/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 360 | 10 | mg/L | | HARD |
| Sulfur Spring | L73504-04D | 8/21/2006 | 8/23/2006 | 9/1/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L73504-04E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L73504-04E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L73504-04E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 35 | 10 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L73504-04E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0.030 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L73504-04D | 8/21/2006 | 8/23/2006 | 9/1/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.031 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L73504-04E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L73504-04B | 8/21/2006 | | 8/23/2006 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L73504-04B | 8/21/2006 | | 8/23/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L73504-04F | 8/21/2006 | | 8/23/2006 | Aqueous | Oil & Grease | | 1 | 5.3 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L73504-04B | 8/21/2006 | | 8/23/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L73504-04E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.7 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L73504-04E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L73504-04A | 8/21/2006 | | 8/23/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L73504-04E | 8/21/2006 | 8/23/2006 | 9/5/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.7 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L73504-04B | 8/21/2006 | | 8/24/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 47 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L73504-04A | 8/21/2006 | | 8/25/2006 | Aqueous | TDS | | 1 | 320 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L73504-04A | 8/21/2006 | | 8/23/2006 | Aqueous | TSS | | 1 | 3.0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L73504-04E | 8/21/2006 | 8/23/2006 | 8/25/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L74688-02B | 10/30/2006 | | 11/1/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L74688-02B | 10/30/2006 | | 11/1/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 350 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L74688-02F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L74688-02C | 10/30/2006 | 11/1/2006 | 11/3/2006 | Aqueous | Ammonia (as N) | | 1 | 0.064 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L74688-02F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L74688-02B | 10/30/2006 | | 11/1/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 350 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L74688-02F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L74688-02F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L74688-02F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 89 | 10 | mg/L | * | ICP-W-DIS |
| Sulfur Spring | L74688-02B | 10/30/2006 | | 11/1/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L74688-02B | 10/30/2006 | | 11/9/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 6.5 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L74688-02F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L74688-02F | 10/30/2006 | | 11/13/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 380 | 10 | mg/L | | HARD |
| Sulfur Spring | L74688-02F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L74688-02E | 10/30/2006 | 11/1/2006 | 11/13/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L74688-02F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L74688-02F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 37 | 10 | mg/L | * | ICP-W-DIS |
| Sulfur Spring | L74688-02F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.032 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L74688-02E | 10/30/2006 | 11/1/2006 | 11/13/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.030 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L74688-02F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L74688-02B | 10/30/2006 | | 11/1/2006 | Aqueous | Nitrate (as N) | | 1 | 0.019 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L74688-02B | 10/30/2006 | | 11/1/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L74688-02D | 10/30/2006 | | 11/1/2006 | Aqueous | Oil & Grease | | 1 | 3.7 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L74688-02B | 10/30/2006 | | 11/1/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L74688-02F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.1 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L74688-02F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L74688-02A | 10/30/2006 | | 11/1/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L74688-02F | 10/30/2006 | 11/2/2006 | 11/13/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.9 | 1 | mg/L | | ICP-W-DIS |
| Sulfur Spring | L74688-02B | 10/30/2006 | | 11/9/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 46 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L74688-02A | 10/30/2006 | | 11/1/2006 | Aqueous | TDS | | 1 | 360 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L74688-02A | 10/30/2006 | | 11/1/2006 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L74688-02F | 10/30/2006 | 11/2/2006 | 11/6/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L75142-02B | 11/27/2006 | | 11/29/2006 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L75142-02B | 11/27/2006 | | 11/29/2006 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 350 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L75142-02F | 11/27/2006 | 11/29/2006 | 12/13/2006 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L75142-02C | 11/27/2006 | 11/30/2006 | 12/1/2006 | Aqueous | Ammonia (as N) | | 1 | 0.084 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L75142-02F | 11/27/2006 | 11/29/2006 | 11/30/2006 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L75142-02B | 11/27/2006 | | 11/29/2006 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 350 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L75142-02F | 11/27/2006 | 11/29/2006 | 12/11/2006 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L75142-02F | 11/27/2006 | 11/29/2006 | 11/30/2006 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L75142-02F | 11/27/2006 | 11/29/2006 | 12/13/2006 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 93 | 10 | mg/L | * | ICP-W-DIS |
| Sulfur Spring | L75142-02B | 11/27/2006 | | 11/29/2006 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L75142-02B | 11/27/2006 | | 11/29/2006 | Aqueous | Chloride | 16887-00-6 | 1 | 6.1 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L75142-02F | 11/27/2006 | 11/29/2006 | 11/30/2006 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L75142-02F | 11/27/2006 | | 12/13/2006 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 390 | 10 | mg/L | | HARD |
| Sulfur Spring | L75142-02E | 11/27/2006 | 11/29/2006 | 12/11/2006 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L75142-02F | 11/27/2006 | 11/29/2006 | 12/11/2006 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L75142-02F | 11/27/2006 | 11/29/2006 | 11/30/2006 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L75142-02F | 11/27/2006 | 11/29/2006 | 12/11/2006 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 38 | 1 | mg/L | [1] | ICP-W-dis |
| Sulfur Spring | L75142-02F | 11/27/2006 | 11/29/2006 | 11/30/2006 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.032 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L75142-02E | 11/27/2006 | 11/29/2006 | 12/11/2006 | Aqueous | Manganese | 7439-96-5 | 1 | 0.030 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L75142-02F | 11/27/2006 | 11/29/2006 | 12/11/2006 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L75142-02B | 11/27/2006 | | 11/29/2006 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L75142-02B | 11/27/2006 | | 11/29/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L75142-02D | 11/27/2006 | | 11/29/2006 | Aqueous | Oil & Grease | | 1 | 3.6 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L75142-02B | 11/27/2006 | | 11/29/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L75142-02F | 11/27/2006 | 11/29/2006 | 12/11/2006 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.2 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L75142-02F | 11/27/2006 | 11/29/2006 | 11/30/2006 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L75142-02F | 11/27/2006 | 11/29/2006 | 12/13/2006 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.0 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L75142-02B | 11/27/2006 | | 11/29/2006 | Aqueous | Sulfate | 14808-79-8 | 1 | 43 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L75142-02A | 11/27/2006 | | 12/1/2006 | Aqueous | TDS | | 1 | 350 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L75142-02A | 11/27/2006 | | 11/29/2006 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Sulfur Spring | L75142-02F | 11/27/2006 | 11/29/2006 | 11/30/2006 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L75586-02B | 12/26/2006 | | 1/2/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L75586-02B | 12/26/2006 | | 1/2/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L75586-02F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L75586-02C | 12/26/2006 | 12/28/2006 | 12/29/2006 | Aqueous | Ammonia (as N) | | 1 | 0.093 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L75586-02F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L75586-02B | 12/26/2006 | | 1/2/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L75586-02F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L75586-02F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L75586-02F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 93 | 10 | mg/L | * | ICP-W-dis |
| Sulfur Spring | L75586-02B | 12/26/2006 | | 1/2/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L75586-02B | 12/26/2006 | | 1/2/2007 | Aqueous | Chloride | 16887-00-6 | 1 | 6.5 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L75586-02F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L75586-02F | 12/26/2006 | | 1/5/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 380 | 10 | mg/L | | HARD |
| Sulfur Spring | L75586-02E | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L75586-02F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L75586-02F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L75586-02F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 36 | 10 | mg/L | * | ICP-W-dis |
| Sulfur Spring | L75586-02E | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.026 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L75586-02F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 10 | 0.029 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L75586-02F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L75586-02B | 12/26/2006 | | 12/28/2006 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L75586-02B | 12/26/2006 | | 12/28/2006 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L75586-02D | 12/26/2006 | | 12/29/2006 | Aqueous | Oil & Grease | | 1 | 3.3 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L75586-02B | 12/26/2006 | | 12/28/2006 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L75586-02F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.5 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L75586-02F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L75586-02A | 12/26/2006 | | 12/28/2006 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L75586-02F | 12/26/2006 | 1/2/2007 | 1/5/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.1 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L75586-02B | 12/26/2006 | | 1/2/2007 | Aqueous | Sulfate | 14808-79-8 | 1 | 42 | 5 | mg/L | | 300.0-W |
| Sulfur Spring | L75586-02A | 12/26/2006 | | 12/29/2006 | Aqueous | TDS | | 1 | 370 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L75586-02A | 12/26/2006 | | 12/28/2006 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L75586-02F | 12/26/2006 | 1/2/2007 | 1/3/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 10 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76053-02B | 1/31/2007 | | 2/5/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L76053-02B | 1/31/2007 | | 2/5/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L76053-02F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76053-02C | 1/31/2007 | 2/2/2007 | 2/5/2007 | Aqueous | Ammonia (as N) | | 1 | 0.097 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L76053-02F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76053-02B | 1/31/2007 | | 2/5/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L76053-02F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76053-02F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76053-02F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 89 | 10 | mg/L | * | ICP-W-dis |
| Sulfur Spring | L76053-02B | 1/31/2007 | | 2/5/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L76053-02B | 1/31/2007 | | 2/2/2007 | Aqueous | Chloride | 16887-00-6 | 1 | 6.4 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L76053-02F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76053-02F | 1/31/2007 | | 2/12/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 370 | 10 | mg/L | | HARD |
| Sulfur Spring | L76053-02E | 1/31/2007 | 2/2/2007 | 2/7/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L76053-02F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76053-02F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76053-02F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 37 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76053-02F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 10 | 0.025 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76053-02E | 1/31/2007 | 2/2/2007 | 2/7/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.027 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L76053-02F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76053-02B | 1/31/2007 | | 2/2/2007 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L76053-02B | 1/31/2007 | | 2/2/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L76053-02D | 1/31/2007 | | 2/9/2007 | Aqueous | Oil & Grease | | 1 | 3.8 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L76053-02B | 1/31/2007 | | 2/2/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L76053-02F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.1 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76053-02F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76053-02A | 1/31/2007 | | 2/2/2007 | Aqueous | Settable Solids | | 1 | 0 | 0.1 | ml/L | | SS |
| Sulfur Spring | L76053-02F | 1/31/2007 | 2/5/2007 | 2/12/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.8 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76053-02B | 1/31/2007 | | 2/2/2007 | Aqueous | Sulfate | 14808-79-8 | 1 | 41 | 5 | mg/L | | 300.0-W |
| Sulfur Spring | L76053-02A | 1/31/2007 | | 2/2/2007 | Aqueous | TDS | | 1 | 390 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L76053-02A | 1/31/2007 | | 2/2/2007 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L76053-02F | 1/31/2007 | 2/5/2007 | 2/5/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 10 | 0.010 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76314-02B | 2/19/2007 | | 2/21/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L76314-02B | 2/19/2007 | | 2/21/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 290 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L76314-02F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76314-02C | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous | Ammonia (as N) | | 1 | 0.10 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L76314-02F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76314-02B | 2/19/2007 | | 2/21/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 290 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L76314-02F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76314-02F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76314-02F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 94 | 10 | mg/L | * | ICP-W-dis |
| Sulfur Spring | L76314-02B | 2/19/2007 | | 2/21/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L76314-02B | 2/19/2007 | | 2/21/2007 | Aqueous | Chloride | 16887-00-6 | 1 | 6.6 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L76314-02F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 10 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76314-02F | 2/19/2007 | | 2/26/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 380 | 10 | mg/L | | HARD |
| Sulfur Spring | L76314-02E | 2/19/2007 | 2/21/2007 | 2/23/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L76314-02F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76314-02F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76314-02F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 36 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76314-02F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76314-02E | 2/19/2007 | 2/21/2007 | 2/23/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.027 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L76314-02F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76314-02B | 2/19/2007 | | 2/21/2007 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L76314-02B | 2/19/2007 | | 2/21/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L76314-02D | 2/19/2007 | | 2/27/2007 | Aqueous | Oil & Grease | | 1 | 3.6 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L76314-02B | 2/19/2007 | | 2/21/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Sulfur Spring | L76314-02F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.9 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76314-02F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 10 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76314-02F | 2/19/2007 | 2/21/2007 | 2/26/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.0 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76314-02B | 2/19/2007 | | 2/21/2007 | Aqueous | Sulfate | 14808-79-8 | 1 | 42 | 5 | mg/L | | 300.0-W |
| Sulfur Spring | L76314-02A | 2/19/2007 | | 2/22/2007 | Aqueous | TDS | | 1 | 340 | 10 | mg/L | | TDS-W |
| Sulfur Spring | L76314-02A | 2/19/2007 | | 2/21/2007 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L76314-02F | 2/19/2007 | 2/21/2007 | 2/22/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 10 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76981-02B | 3/29/2007 | | 4/2/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L76981-02B | 3/29/2007 | | 4/2/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 350 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L76981-02F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76981-02C | 3/29/2007 | 3/30/2007 | 4/2/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L76981-02F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76981-02B | 3/29/2007 | | 4/2/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 350 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L76981-02F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76981-02F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76981-02F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 90 | 10 | mg/L | * | ICP-W-dis |
| Sulfur Spring | L76981-02B | 3/29/2007 | | 4/2/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L76981-02B | 3/29/2007 | | 3/31/2007 | Aqueous | Chloride | 16887-00-6 | 1 | 6.5 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L76981-02F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76981-02F | 3/29/2007 | | 4/11/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 380 | 10 | mg/L | | HARD |
| Sulfur Spring | L76981-02E | 3/29/2007 | 4/2/2007 | 4/9/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L76981-02F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76981-02F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76981-02F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 37 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76981-02F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.031 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76981-02E | 3/29/2007 | 4/2/2007 | 4/9/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.032 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L76981-02F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76981-02B | 3/29/2007 | | 3/30/2007 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L76981-02B | 3/29/2007 | | 3/30/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L76981-02D | 3/29/2007 | | 3/30/2007 | Aqueous | Oil & Grease | | 1 | 3.1 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L76981-02B | 3/29/2007 | | 3/30/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L76981-02F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.9 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76981-02F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L76981-02F | 3/29/2007 | 4/2/2007 | 4/11/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.8 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L76981-02B | 3/29/2007 | | 3/31/2007 | Aqueous | Sulfate | 14808-79-8 | 5 | 44 | 5 | mg/L | | 300.0-W |
| Sulfur Spring | L76981-02A | 3/29/2007 | | 3/30/2007 | Aqueous | TDS | | 1 | 340 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L76981-02A | 3/29/2007 | | 3/30/2007 | Aqueous | TSS | | 1 | 4.0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L76981-02F | 3/29/2007 | 4/2/2007 | 4/6/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L77519-02B | 4/25/2007 | | 4/30/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W |
| Sulfur Spring | L77519-02B | 4/25/2007 | | 4/30/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L77519-02F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L77519-02C | 4/25/2007 | 5/1/2007 | 5/2/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L77519-02F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L77519-02B | 4/25/2007 | | 4/30/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L77519-02F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L77519-02F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L77519-02F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 90 | 10 | mg/L | * | ICP-W-dis |
| Sulfur Spring | L77519-02B | 4/25/2007 | | 4/30/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L77519-02B | 4/25/2007 | | 4/29/2007 | Aqueous | Chloride | 16887-00-6 | 1 | 6.6 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L77519-02F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 1 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L77519-02F | 4/25/2007 | | 5/9/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 370 | 10 | mg/L | | HARD |
| Sulfur Spring | L77519-02E | 4/25/2007 | 5/4/2007 | 5/9/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L77519-02F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L77519-02F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L77519-02F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 36 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L77519-02F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 1 | 0.031 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L77519-02E | 4/25/2007 | 5/4/2007 | 5/9/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.029 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L77519-02F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L77519-02B | 4/25/2007 | | 4/27/2007 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L77519-02B | 4/25/2007 | | 4/27/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L77519-02D | 4/25/2007 | | 5/3/2007 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L77519-02B | 4/25/2007 | | 4/27/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L77519-02F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.9 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L77519-02F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 1 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L77519-02F | 4/25/2007 | 4/30/2007 | 5/9/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.5 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L77519-02B | 4/25/2007 | | 4/29/2007 | Aqueous | Sulfate | 14808-79-8 | 10 | 45 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L77519-02A | 4/25/2007 | | 4/30/2007 | Aqueous | TDS | | 1 | 380 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L77519-02A | 4/25/2007 | | 4/27/2007 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W |
| Sulfur Spring | L77519-02F | 4/25/2007 | 4/30/2007 | 5/2/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 1 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L78061-02B | 5/29/2007 | | 6/4/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Sulfur Spring | L78061-02B | 5/29/2007 | | 6/4/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 330 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L78061-02F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L78061-02C | 5/29/2007 | 6/1/2007 | 6/6/2007 | Aqueous | Ammonia (as N) | | 1 | 0.093 | 0.05 | mg/L | [1] | NH3-W |
| Sulfur Spring | L78061-02F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L78061-02B | 5/29/2007 | | 6/4/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 330 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L78061-02F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L78061-02F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L78061-02F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 94 | 10 | mg/L | * | ICP-W-dis |
| Sulfur Spring | L78061-02B | 5/29/2007 | | 6/4/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L78061-02B | 5/29/2007 | | 5/30/2007 | Aqueous | Chloride | 16887-00-6 | 1 | 6.4 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L78061-02F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L78061-02F | 5/29/2007 | | 6/12/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 390 | 10 | mg/L | | HARD |
| Sulfur Spring | L78061-02E | 5/29/2007 | 6/5/2007 | 6/12/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0.054 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L78061-02F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L78061-02F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L78061-02F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 37 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L78061-02F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0.029 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L78061-02E | 5/29/2007 | 6/5/2007 | 6/12/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.027 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L78061-02F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Sulfur Spring | L78061-02B | 5/29/2007 | | 5/30/2007 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L78061-02B | 5/29/2007 | | 5/30/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L78061-02D | 5/29/2007 | | 6/1/2007 | Aqueous | Oil & Grease | | 1 | 5.3 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L78061-02B | 5/29/2007 | | 5/31/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L78061-02F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.3 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L78061-02F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L78061-02A | 5/29/2007 | | 5/30/2007 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Sulfur Spring | L78061-02F | 5/29/2007 | 5/31/2007 | 6/12/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 7.4 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L78061-02B | 5/29/2007 | | 5/31/2007 | Aqueous | Sulfate | 14808-79-8 | 10 | 46 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L78061-02A | 5/29/2007 | | 6/1/2007 | Aqueous | TDS | | 1 | 380 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L78061-02A | 5/29/2007 | | 5/30/2007 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W-2540D |
| Sulfur Spring | L78061-02F | 5/29/2007 | 5/31/2007 | 6/1/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L78574-02B | 6/25/2007 | | 6/28/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Sulfur Spring | L78574-02B | 6/25/2007 | | 6/28/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L78574-02F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L78574-02C | 6/25/2007 | 6/28/2007 | 6/29/2007 | Aqueous | Ammonia (as N) | | 1 | 0.060 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L78574-02F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L78574-02B | 6/25/2007 | | 6/28/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L78574-02F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L78574-02F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L78574-02F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 83 | 10 | mg/L | * | ICP-W-dis |
| Sulfur Spring | L78574-02B | 6/25/2007 | | 6/28/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L78574-02B | 6/25/2007 | | 7/9/2007 | Aqueous | Chloride | 16887-00-6 | 2 | 7.2 | 2 | mg/L | | 300.0-W |
| Sulfur Spring | L78574-02F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0.0046 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L78574-02F | 6/25/2007 | | 7/2/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 340 | 10 | mg/L | | HARD |
| Sulfur Spring | L78574-02E | 6/25/2007 | 6/27/2007 | 7/2/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L78574-02F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L78574-02F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L78574-02F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 33 | 10 | mg/L | * | ICP-W-dis |
| Sulfur Spring | L78574-02E | 6/25/2007 | 6/27/2007 | 7/2/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.029 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L78574-02F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0.039 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L78574-02F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L78574-02B | 6/25/2007 | | 6/28/2007 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | H | NO3-W |
| Sulfur Spring | L78574-02B | 6/25/2007 | | 6/28/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | H | NO2-W |
| Sulfur Spring | L78574-02D | 6/25/2007 | | 7/5/2007 | Aqueous | Oil & Grease | | 1 | 4.8 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L78574-02B | 6/25/2007 | | 6/27/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L78574-02F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.3 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L78574-02F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L78574-02A | 6/25/2007 | | 6/27/2007 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | mL/L | | SS-W-2540F |
| Sulfur Spring | L78574-02F | 6/25/2007 | 6/28/2007 | 7/2/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 16 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L78574-02B | 6/25/2007 | | 7/7/2007 | Aqueous | Sulfate | 14808-79-8 | 10 | 46 | 10 | mg/L | | 300.0-W |
| Sulfur Spring | L78574-02A | 6/25/2007 | | 6/27/2007 | Aqueous | TDS | | 1 | 360 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L78574-02A | 6/25/2007 | | 6/27/2007 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W-2540D |
| Sulfur Spring | L78574-02F | 6/25/2007 | 6/28/2007 | 7/9/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0.020 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L79156-01B | 7/30/2007 | | 8/6/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Sulfur Spring | L79156-01B | 7/30/2007 | | 8/3/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L79156-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L79156-01C | 7/30/2007 | 8/2/2007 | 8/3/2007 | Aqueous | Ammonia (as N) | | 1 | 0 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L79156-01F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L79156-01B | 7/30/2007 | | 8/3/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L79156-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L79156-01F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 5 | 0 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L79156-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 89 | 10 | mg/L | * | ICP-W-dis |
| Sulfur Spring | L79156-01B | 7/30/2007 | | 8/3/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L79156-01B | 7/30/2007 | | 8/11/2007 | Aqueous | Chloride | 16887-00-6 | 5 | 6.3 | 5 | mg/L | | 300.0-W |
| Sulfur Spring | L79156-01F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 5 | 0.0090 | 0.004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L79156-01F | 7/30/2007 | | 8/10/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 370 | 10 | mg/L | | HARD |
| Sulfur Spring | L79156-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L79156-01E | 7/30/2007 | 8/2/2007 | 8/7/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L79156-01F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L79156-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 10 | 35 | 10 | mg/L | * | ICP-W-dis |
| Sulfur Spring | L79156-01F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 5 | 0.038 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L79156-01E | 7/30/2007 | 8/2/2007 | 8/7/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.031 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L79156-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L79156-01B | 7/30/2007 | | 8/2/2007 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | H | NO3-W |
| Sulfur Spring | L79156-01B | 7/30/2007 | | 8/2/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | [1]H | NO2-W |
| Sulfur Spring | L79156-01D | 7/30/2007 | | 8/6/2007 | Aqueous | Oil & Grease | | 1 | 3.7 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L79156-01B | 7/30/2007 | | 8/2/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | [1]H | PO4-O |
| Sulfur Spring | L79156-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.9 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L79156-01F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 5 | 0 | 0.005 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L79156-01A | 7/30/2007 | | 8/2/2007 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | H | SS-W-2540F |
| Sulfur Spring | L79156-01F | 7/30/2007 | 8/3/2007 | 8/10/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.5 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L79156-01B | 7/30/2007 | | 8/11/2007 | Aqueous | Sulfate | 14808-79-8 | 5 | 47 | 5 | mg/L | | 300.0-W |
| Sulfur Spring | L79156-01A | 7/30/2007 | | 8/3/2007 | Aqueous | TDS | | 1 | 390 | 10 | mg/L | | TDS-W |
| Sulfur Spring | L79156-01A | 7/30/2007 | | 8/2/2007 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W-2540D |
| Sulfur Spring | L79156-01F | 7/30/2007 | 8/3/2007 | 8/6/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 5 | 0.018 | 0.01 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L81026-02B | 11/12/2007 | | 11/15/2007 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Sulfur Spring | L81026-02B | 11/12/2007 | | 11/15/2007 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L81026-02F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L81026-02C | 11/12/2007 | 11/15/2007 | 11/15/2007 | Aqueous | Ammonia (as N) | | 1 | 0.085 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L81026-02F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L81026-02B | 11/12/2007 | | 11/15/2007 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L81026-02F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L81026-02F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L81026-02F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 86 | 10 | mg/L | # | ICP-W-dis |
| Sulfur Spring | L81026-02B | 11/12/2007 | | 11/15/2007 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L81026-02B | 11/12/2007 | | 11/21/2007 | Aqueous | Chloride | 16887-00-6 | 5 | 6.0 | 5 | mg/L | | 300.0-W |
| Sulfur Spring | L81026-02F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0012 | 0.0008 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L81026-02F | 11/12/2007 | | 11/27/2007 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 360 | 10 | mg/L | | HARD |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Sulfur Spring | L81026-02F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L81026-02E | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L81026-02F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0001 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L81026-02F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 36 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L81026-02F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.028 | 0.0012 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L81026-02E | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous | Manganese | 7439-96-5 | 1 | 0.028 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L81026-02F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L81026-02B | 11/12/2007 | | 11/14/2007 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | 1 | NO3-W |
| Sulfur Spring | L81026-02B | 11/12/2007 | | 11/14/2007 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L81026-02D | 11/12/2007 | | 11/18/2007 | Aqueous | Oil & Grease | | 1 | 4.2 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L81026-02B | 11/12/2007 | | 11/14/2007 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L81026-02F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.4 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L81026-02F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L81026-02A | 11/12/2007 | | 11/14/2007 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Sulfur Spring | L81026-02F | 11/12/2007 | 11/15/2007 | 11/27/2007 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 8.8 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L81026-02B | 11/12/2007 | | 11/21/2007 | Aqueous | Sulfate | 14808-79-8 | 5 | 43 | 5 | mg/L | | 300.0-W |
| Sulfur Spring | L81026-02A | 11/12/2007 | | 11/14/2007 | Aqueous | TDS | | 1 | 440 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L81026-02A | 11/12/2007 | | 11/14/2007 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W-2540D |
| Sulfur Spring | L81026-02F | 11/12/2007 | 11/15/2007 | 11/16/2007 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0.0064 | 0.0054 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/28/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/28/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L83169-02C | 3/25/2008 | 4/1/2008 | 4/1/2008 | Aqueous | Ammonia (as N) | | 1 | 0.077 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/28/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 86 | 10 | mg/L | # | ICP-W-dis |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/28/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/30/2008 | Aqueous | Chloride | 16887-00-6 | 10 | 9.3 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0015 | 0.0008 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L83169-02F | 3/25/2008 | | 4/2/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 360 | 10 | mg/L | | HARD |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L83169-02E | 3/25/2008 | 4/10/2008 | 4/10/2008 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 35 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.032 | 0.0012 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L83169-02E | 3/25/2008 | 4/10/2008 | 4/10/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.033 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L83169-02D | 3/25/2008 | | 3/31/2008 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/27/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.8 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L83169-02A | 3/25/2008 | | 3/27/2008 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 10 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/30/2008 | Aqueous | Sulfate | 14808-79-8 | 10 | 44 | 7.5 | mg/L | | 300.0-W |
| Sulfur Spring | L83169-02A | 3/25/2008 | | 3/28/2008 | Aqueous | TDS | | 1 | 400 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L83169-02A | 3/25/2008 | | 3/27/2008 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W-2540D |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0 | 0.0054 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/28/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/28/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L83169-02C | 3/25/2008 | 4/1/2008 | 4/1/2008 | Aqueous | Ammonia (as N) | | 1 | 0.077 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/28/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 86 | 10 | mg/L | # | ICP-W-dis |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/28/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/30/2008 | Aqueous | Chloride | 16887-00-6 | 10 | 9.3 | 1 | mg/L | | 300.0-W |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0015 | 0.0008 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L83169-02F | 3/25/2008 | | 4/2/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 360 | 10 | mg/L | | HARD |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L83169-02E | 3/25/2008 | 4/10/2008 | 4/10/2008 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 35 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.032 | 0.0012 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L83169-02E | 3/25/2008 | 4/10/2008 | 4/10/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.033 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/27/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L83169-02D | 3/25/2008 | | 3/31/2008 | Aqueous | Oil & Grease | | 1 | 0 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/27/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 4.8 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L83169-02A | 3/25/2008 | | 3/27/2008 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 4/2/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 10 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L83169-02B | 3/25/2008 | | 3/30/2008 | Aqueous | Sulfate | 14808-79-8 | 10 | 44 | 7.5 | mg/L | | 300.0-W |
| Sulfur Spring | L83169-02A | 3/25/2008 | | 3/28/2008 | Aqueous | TDS | | 1 | 400 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L83169-02A | 3/25/2008 | | 3/27/2008 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W-2540D |
| Sulfur Spring | L83169-02F | 3/25/2008 | 3/28/2008 | 3/31/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0 | 0.0054 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L84608-02B | 6/16/2008 | | 6/20/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Sulfur Spring | L84608-02B | 6/16/2008 | | 6/20/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L84608-02F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L84608-02C | 6/16/2008 | 6/20/2008 | 6/25/2008 | Aqueous | Ammonia (as N) | | 1 | 0.067 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L84608-02F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L84608-02B | 6/16/2008 | | 6/20/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Sulfur Spring | L84608-02F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L84608-02F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L84608-02F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Calcium | 7440-70-2 | 10 | 88 | 10 | mg/L | ~ | ICP-W-dis |
| Sulfur Spring | L84608-02B | 6/16/2008 | | 6/20/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L84608-02B | 6/16/2008 | | 6/26/2008 | Aqueous | Chloride | 16887-00-6 | 5 | 6.1 | 0.5 | mg/L | | 300.0-W |
| Sulfur Spring | L84608-02F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Copper | 7440-50-8 | 20 | 0.0011 | 0.0008 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L84608-02F | 6/16/2008 | | 6/18/2008 | Aqueous Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 360 | 10 | mg/L | | HARD |
| Sulfur Spring | L84608-02F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L84608-02E | 6/16/2008 | 6/20/2008 | 6/27/2008 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L84608-02F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L84608-02F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Magnesium | 7439-95-4 | 1 | 35 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L84608-02F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Manganese | 7439-96-5 | 20 | 0.028 | 0.0012 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L84608-02E | 6/16/2008 | 6/20/2008 | 6/27/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.027 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L84608-02F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L84608-02B | 6/16/2008 | | 6/18/2008 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L84608-02B | 6/16/2008 | | 6/18/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L84608-02D | 6/16/2008 | | 6/18/2008 | Aqueous | Oil & Grease | | 1 | 540 | 3 | mg/L | * | OGB-W |
| Sulfur Spring | L84608-02B | 6/16/2008 | | 6/18/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | | PO4-O |
| Sulfur Spring | L84608-02F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Potassium | 7440-09-7 | 1 | 5.0 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L84608-02F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L84608-02A | 6/16/2008 | | 6/18/2008 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Sulfur Spring | L84608-02F | 6/16/2008 | 6/18/2008 | 6/18/2008 | Aqueous Dissolved | Sodium | 7440-23-5 | 1 | 8.7 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L84608-02B | 6/16/2008 | | 6/26/2008 | Aqueous | Sulfate | 14808-79-8 | 5 | 46 | 3.8 | mg/L | | 300.0-W |
| Sulfur Spring | L84608-02A | 6/16/2008 | | 6/19/2008 | Aqueous | TDS | | 1 | 390 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L84608-02A | 6/16/2008 | | 6/18/2008 | Aqueous | TSS | | 1 | 6.0 | 3 | mg/L | | TSS-W-2540D |
| Sulfur Spring | L84608-02F | 6/16/2008 | 6/18/2008 | 6/19/2008 | Aqueous Dissolved | Zinc | 7440-66-6 | 20 | 0.011 | 0.0054 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L85972-02B | 8/26/2008 | | 8/29/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Sulfur Spring | L85972-02B | 8/26/2008 | | 8/28/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 350 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L85972-02E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L85972-02D | 8/26/2008 | 8/28/2008 | 8/29/2008 | Aqueous | Ammonia (as N) | | 1 | 0.090 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L85972-02E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L85972-02B | 8/26/2008 | | 8/28/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 350 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L85972-02E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L85972-02E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L85972-02E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 88 | 10 | mg/L | ~ | ICP-W-dis |
| Sulfur Spring | L85972-02B | 8/26/2008 | | 8/28/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L85972-02B | 8/26/2008 | | 8/28/2008 | Aqueous | Chloride | 16887-00-6 | 1 | 7.7 | 0.1 | mg/L | | 300.0-W |
| Sulfur Spring | L85972-02E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0.0011 | 0.0008 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L85972-02E | 8/26/2008 | | 9/5/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 360 | 10 | mg/L | | HARD |
| Sulfur Spring | L85972-02E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L85972-02F | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous | Iron | 7439-89-6 | 1 | 0.073 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L85972-02E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L85972-02E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 35 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L85972-02E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.036 | 0.0012 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L85972-02F | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.035 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L85972-02E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L85972-02B | 8/26/2008 | | 8/28/2008 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L85972-02B | 8/26/2008 | | 8/28/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L85972-02C | 8/26/2008 | | 9/5/2008 | Aqueous | Oil & Grease | | 1 | 3.8 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L85972-02B | 8/26/2008 | | 8/28/2008 | Aqueous | Phosphorus, Orthophosphate (as P | 7723-14-0 | 1 | 0 | 0.1 | mg/L | | 300.0-W |
| Sulfur Spring | L85972-02E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.2 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L85972-02E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L85972-02A | 8/26/2008 | | 8/28/2008 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Sulfur Spring | L85972-02E | 8/26/2008 | 8/28/2008 | 9/5/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.0 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L85972-02B | 8/26/2008 | | 8/28/2008 | Aqueous | Sulfate | 14808-79-8 | 20 | 43 | 15 | mg/L | | 300.0-W |
| Sulfur Spring | L85972-02A | 8/26/2008 | | 8/28/2008 | Aqueous | TDS | | 1 | 420 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L85972-02A | 8/26/2008 | | 8/28/2008 | Aqueous | TSS | | 1 | 3.0 | 3 | mg/L | # | TSS-W-2540D |
| Sulfur Spring | L85972-02E | 8/26/2008 | 8/28/2008 | 8/28/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0.011 | 0.0054 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L87283-02B | 10/29/2008 | | 10/31/2008 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Sulfur Spring | L87283-02B | 10/29/2008 | | 10/31/2008 | Aqueous | Alkalinity,(As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L87283-02E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Aluminum | 7429-90-5 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L87283-02D | 10/29/2008 | 11/6/2008 | 11/7/2008 | Aqueous | Ammonia (as N) | | 1 | 0.074 | 0.05 | mg/L | | NH3-W |
| Sulfur Spring | L87283-02E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Arsenic | 7440-38-2 | 20 | 0 | 0.0006 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L87283-02B | 10/29/2008 | | 10/31/2008 | Aqueous | Bicarbonate (As CaCO3) | | 1 | 340 | 20 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L87283-02E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Boron | 7440-42-8 | 1 | 0 | 0.5 | mg/L | | ICP-W-dis |
| Sulfur Spring | L87283-02E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L87283-02E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Calcium | 7440-70-2 | 10 | 89 | 10 | mg/L | ~ | ICP-W-dis |
| Sulfur Spring | L87283-02B | 10/29/2008 | | 10/31/2008 | Aqueous | Carbonate (As CaCO3) | | 1 | 0 | 10 | mg/L | | 2320B-ALK-W |
| Sulfur Spring | L87283-02B | 10/29/2008 | | 11/11/2008 | Aqueous | Chloride | 16887-00-6 | 5 | 6.5 | 0.5 | mg/L | | 300.0-W |
| Sulfur Spring | L87283-02E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Copper | 7440-50-8 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L87283-02E | 10/29/2008 | | 11/5/2008 | Aqueous-Dissolved | Hardness (as CaCO3) | 471-34-1 | 1 | 370 | 10 | mg/L | | HARD |
| Sulfur Spring | L87283-02E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W-dis |
| Sulfur Spring | L87283-02F | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.05 | mg/L | | ICP-W |
| Sulfur Spring | L87283-02E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Lead | 7439-92-1 | 20 | 0 | 0.0004 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L87283-02E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Magnesium | 7439-95-4 | 1 | 36 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L87283-02E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Manganese | 7439-96-5 | 20 | 0.028 | 0.0012 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L87283-02F | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous | Manganese | 7439-96-5 | 1 | 0.029 | 0.005 | mg/L | | ICP-W |
| Sulfur Spring | L87283-02E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Molybdenum | 7439-98-7 | 1 | 0 | 0.1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L87283-02B | 10/29/2008 | | 10/31/2008 | Aqueous | Nitrate (as N) | | 1 | 0 | 0.01 | mg/L | | NO3-W |
| Sulfur Spring | L87283-02B | 10/29/2008 | | 10/31/2008 | Aqueous | Nitrite (as N) | | 1 | 0 | 0.01 | mg/L | | NO2-W |
| Sulfur Spring | L87283-02C | 10/29/2008 | | 11/2/2008 | Aqueous | Oil & Grease | | 1 | 4.4 | 3 | mg/L | | OGB-W |
| Sulfur Spring | L87283-02B | 10/29/2008 | | 10/31/2008 | Aqueous | Phosphate, ortho (as P) | 7723-14-0 | 1 | 0 | 0.05 | mg/L | 1 | PO4-O |
| Sulfur Spring | L87283-02E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Potassium | 7440-09-7 | 1 | 5.0 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L87283-02E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Selenium | 7782-49-2 | 20 | 0 | 0.0008 | mg/L | | 6020-W-DISS |
| Sulfur Spring | L87283-02A | 10/29/2008 | | 10/30/2008 | Aqueous | Settleable Solids | | 1 | 0 | 0.1 | ml/L | | SS-W-2540F |
| Sulfur Spring | L87283-02E | 10/29/2008 | 10/31/2008 | 11/5/2008 | Aqueous-Dissolved | Sodium | 7440-23-5 | 1 | 9.1 | 1 | mg/L | | ICP-W-dis |
| Sulfur Spring | L87283-02B | 10/29/2008 | | 11/11/2008 | Aqueous | Sulfate | 14808-79-8 | 5 | 47 | 3.8 | mg/L | | 300.0-W |
| Sulfur Spring | L87283-02A | 10/29/2008 | | 10/31/2008 | Aqueous | TDS | | 1 | 390 | 20 | mg/L | | TDS-W |
| Sulfur Spring | L87283-02A | 10/29/2008 | | 10/30/2008 | Aqueous | TSS | | 1 | 0 | 3 | mg/L | | TSS-W-2540D |

| Carbon Resources, Kinney#2 Hydrology Baseline Analytical DATA, 5-5-2009 thru 8-31-2010, Spread Sheet Print | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Client Samp ID | Samp ID | Collection Date | Prep Date | Anal Date | Matrix | Analyte | CAS | DF | Result | PQL | Units | Qual | Test Code |
| Sulfur Spring | L87283-02E | 10/29/2008 | 10/31/2008 | 10/31/2008 | Aqueous-Dissolved | Zinc | 7440-66-6 | 20 | 0 | 0.0054 | mg/L | | 6020-W-DISS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | | 6/25/2010 | Aqueous | Settleable Solids | | 1 | 0 | 0.10 | mL/L | | SS-W-2540F |
| Sulfur Spring | 1006480-002 | 6/23/2010 | | 6/25/2010 | Aqueous | Total Dissolved Solids | | 2 | 370 | 20 | mg/L | | TDS-W-2540C |
| Sulfur Spring | 1006480-002 | 6/23/2010 | | 6/25/2010 | Aqueous | Total Suspended Solids | TSS | 1 | 0 | 3.0 | mg/L | | TSS-W-2540D |
| Sulfur Spring | 1006480-002 | 6/23/2010 | | 6/29/2010 | Aqueous | Chloride | 16887-00-6 | 10 | 6.5 | 1.0 | mg/L | | 300.0-W |
| Sulfur Spring | 1006480-002 | 6/23/2010 | | 6/29/2010 | Aqueous | Sulfate | 14808-79-8 | 10 | 44 | 7.5 | mg/L | | 300.0-W |
| Sulfur Spring | 1006480-002 | 6/23/2010 | | 6/28/2010 | Aqueous | Acidity | | 1 | 0 | 15 | mg/L | | ACIDITY-W-2310B |
| Sulfur Spring | 1006480-002 | 6/23/2010 | | 6/28/2010 | Aqueous | Alkalinity (as CaCO3) | | 4 | 350 | 40 | mg/L | | ALK-W-2320B |
| Sulfur Spring | 1006480-002 | 6/23/2010 | | 6/28/2010 | Aqueous | Bicarbonate (as CaCO3) | | 4 | 350 | 40 | mg/L | | ALK-W-2320B |
| Sulfur Spring | 1006480-002 | 6/23/2010 | | 6/28/2010 | Aqueous | Carbonate (as CaCO3) | | 4 | 0 | 10 | mg/L | | ALK-W-2320B |
| Sulfur Spring | 1006480-002 | 6/23/2010 | | 6/25/2010 | Aqueous | Nitrite (as N) | 14797-65-0 | 1 | 0 | 0.010 | mg/L | | NO2-W-353.2 |
| Sulfur Spring | 1006480-002 | 6/23/2010 | | 6/25/2010 | Aqueous | Nitrate (as N) | 14797-55-8 | 1 | 0 | 0.010 | mg/L | | NO3-W-353.2 |
| Sulfur Spring | 1006480-002 | 6/23/2010 | | 6/25/2010 | Aqueous | pH @ 25° C | | 1 | 7.30 | 1.00 | pH Units | H | PH-4500H+B |
| Sulfur Spring | 1006480-002 | 6/23/2010 | | 6/25/2010 | Aqueous | Phosphate, Total Ortho (as P) | 7723-14-0 | 1 | 0 | 0.050 | mg/L | | PO4-O-365.1 |
| Sulfur Spring | 1006480-002 | 6/23/2010 | | 6/30/2010 | Aqueous | Oil & Grease | | 1 | 0 | 3.0 | mg/L | | OGB-W-1664A |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/28/2010 | 6/29/2010 | Aqueous | Ammonia (as N) | 7664-41-7 | 1 | 0.21 | 0.050 | mg/L | | NH3-W-350.1 |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Aluminum | 7429-90-5 | 1 | 0 | 0.10 | mg/L | | 6010C-DIS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Boron | 7440-42-8 | 1 | 0 | 0.50 | mg/L | | 6010C-DIS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Calcium | 7440-70-2 | 10 | 86 | 10 | mg/L | | 6010C-DIS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.10 | mg/L | | 6010C-DIS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Magnesium | 7439-95-4 | 1 | 35 | 1.0 | mg/L | [1] | 6010C-DIS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Molybdenum | 7439-98-7 | 1 | 0 | 0.020 | mg/L | | 6010C-DIS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Potassium | 7440-09-7 | 1 | 5.0 | 1.0 | mg/L | | 6010C-DIS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Sodium | 7440-23-5 | 1 | 8.5 | 1.0 | mg/L | | 6010C-DIS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Arsenic | 7440-38-2 | 20 | 0 | 0.00060 | mg/L | | 6020-DIS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Cadmium | 7440-43-9 | 20 | 0 | 0.00018 | mg/L | | 6020-DIS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Copper | 7440-50-8 | 20 | 0 | 0.00080 | mg/L | | 6020-DIS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Lead | 7439-92-1 | 20 | 0 | 0.00040 | mg/L | | 6020-DIS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.030 | 0.0012 | mg/L | | 6020-DIS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Selenium | 7782-49-2 | 20 | 0 | 0.00080 | mg/L | | 6020-DIS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Zinc | 7440-66-6 | 20 | 0 | 0.0050 | mg/L | | 6020-DIS |
| Sulfur Spring | 1006480-002 | 6/23/2010 | | 6/28/2010 | Aqueous | Hardness (as CaCO3) | | 10 | 360 | 100 | mg/L | | HARD-2340B |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/28/2010 | Aqueous | Iron | 7439-89-6 | 1 | 0 | 0.10 | mg/L | | 6010C-W |
| Sulfur Spring | 1006480-002 | 6/23/2010 | 6/25/2010 | 6/25/2010 | Aqueous | Manganese | 7439-96-5 | 20 | 0.029 | 0.0012 | mg/L | | 6020-W |

# EXHIBIT 12

# SURFACE AND GROUNDWATER QUALITY DATA
# (5-5-2009 Thru 8-31-2010)

## AWAL Labs
## Individual Analyses Sheet
## 1,022 Pages

## Carbon Resources Kinney # 2 Mine

# INORGANIC ANALYSIS REPORT

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-01C

Field Sample ID:
Eagle Outlet

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 5/19/2005 12:56:14 PM | 6010B | 0.050 | **2.3** [1] |
| Manganese | mg/L | 5/19/2005 1:31:48 PM | 6020 | 0.0050 | **0.16** |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005



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Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-02C

Field Sample ID:
Eagle Springs

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 5/19/2005 1:12:51 PM | 6010B | 0.050 | **1.1** |
| Manganese | mg/L | 5/19/2005 1:51:47 PM | 6020 | 0.0050 | **0.018** |

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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Laboratory Supervisor

Report Date: May 23, 2005



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e-mail: awal@awal-Labs.com

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-03C

Field Sample ID:
Sulfer Springs

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 5/19/2005 1:17:32 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 5/19/2005 1:56:46 PM | 6020 | 0.0050 | **0.17** |

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by: Kyle F. Gross
Laboratory Supervisor

Report Date: May 23, 2005



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Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-04C

Field Sample ID:
Muddy Creek

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 5/19/2005 1:21:30 PM | 6010B | 0.050 | **0.84** |
| Manganese | mg/L | 5/19/2005 2:01:46 PM | 6020 | 0.0050 | **0.094** |

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

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Laboratory Supervisor

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-01D

Field Sample ID:
Eagle Outlet

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 5/19/2005 12:02:40 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 5/17/2005 4:22:25 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 5/19/2005 12:02:40 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 5/17/2005 4:22:25 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 5/19/2005 12:02:40 PM | 6010B | 10 | **92** [1] |
| Copper | mg/L | 5/17/2005 4:22:25 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 5/19/2005 12:02:40 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 5/17/2005 4:22:25 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 5/19/2005 12:02:40 PM | 6010B | 1.0 | **18** |
| Manganese | mg/L | 5/17/2005 4:22:25 PM | 6020 | 0.0050 | **0.075** |
| Molybdenum | mg/L | 5/19/2005 12:02:40 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 5/19/2005 12:02:40 PM | 6010B | 1.0 | **2.6** |
| Selenium | mg/L | 5/17/2005 4:22:25 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 5/19/2005 12:02:40 PM | 6010B | 1.0 | **11** [1] |
| Zinc | mg/L | 5/17/2005 4:22:25 PM | 6020 | 0.010 | < 0.010 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-02D

Field Sample ID:
Eagle Springs

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 5/19/2005 12:18:40 PM | 6010B | 0.10 | **0.94** |
| Arsenic | mg/L | 5/17/2005 4:42:22 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 5/19/2005 12:18:40 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 5/17/2005 4:42:22 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 5/19/2005 12:18:40 PM | 6010B | 1.0 | **15** |
| Copper | mg/L | 5/17/2005 4:42:22 PM | 6020 | 0.0040 | **0.0057** |
| Iron | mg/L | 5/19/2005 12:18:40 PM | 6010B | 0.050 | **0.75** |
| Lead | mg/L | 5/17/2005 4:42:22 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 5/19/2005 12:18:40 PM | 6010B | 1.0 | **3.5** |
| Manganese | mg/L | 5/17/2005 4:42:22 PM | 6020 | 0.0050 | **0.017** |
| Molybdenum | mg/L | 5/19/2005 12:18:40 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 5/19/2005 12:18:40 PM | 6010B | 1.0 | **4.5** |
| Selenium | mg/L | 5/17/2005 4:42:22 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 5/19/2005 12:18:40 PM | 6010B | 1.0 | **4.4** |
| Zinc | mg/L | 5/17/2005 4:42:22 PM | 6020 | 0.010 | **0.016** |

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-03D

Field Sample ID:
Sulfer Springs

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 5/19/2005 12:22:33 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 5/17/2005 4:47:22 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 5/19/2005 12:22:33 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 5/17/2005 4:47:22 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 5/19/2005 12:22:33 PM | 6010B | 10 | **87** |
| Copper | mg/L | 5/17/2005 4:47:22 PM | 6020 | 0.0040 | **0.0077** |
| Iron | mg/L | 5/19/2005 12:22:33 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 5/17/2005 4:47:22 PM | 6020 | 0.0050 | **0.0057** |
| Magnesium | mg/L | 5/19/2005 12:22:33 PM | 6010B | 10 | **35** |
| Manganese | mg/L | 5/17/2005 4:47:22 PM | 6020 | 0.0050 | **0.16** |
| Molybdenum | mg/L | 5/19/2005 12:22:33 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 5/19/2005 12:22:33 PM | 6010B | 1.0 | **5.0** |
| Selenium | mg/L | 5/17/2005 4:47:22 PM | 6020 | 0.0050 | **0.0075** |
| Sodium | mg/L | 5/19/2005 12:22:33 PM | 6010B | 1.0 | **8.6** |
| Zinc | mg/L | 5/17/2005 4:47:22 PM | 6020 | 0.010 | **0.012** |

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-04D

Field Sample ID:
Muddy Creek

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 5/19/2005 12:26:27 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 5/17/2005 4:52:21 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 5/19/2005 12:26:27 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 5/17/2005 4:52:21 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 5/19/2005 12:26:27 PM | 6010B | 10 | **81** |
| Copper | mg/L | 5/17/2005 4:52:21 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 5/19/2005 12:26:27 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 5/17/2005 4:52:21 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 5/19/2005 12:26:27 PM | 6010B | 10 | **35** |
| Manganese | mg/L | 5/17/2005 4:52:21 PM | 6020 | 0.0050 | **0.089** |
| Molybdenum | mg/L | 5/19/2005 12:26:27 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 5/19/2005 12:26:27 PM | 6010B | 1.0 | **5.2** |
| Selenium | mg/L | 5/17/2005 4:52:21 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 5/19/2005 12:26:27 PM | 6010B | 10 | **37** |
| Zinc | mg/L | 5/17/2005 4:52:21 PM | 6020 | 0.010 | < 0.010 |

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005



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# INORGANIC ANALYSIS REPORT

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-01

Field Sample ID:
Eagle Outlet


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 05/11/05 | 305.1 | 15 | **86** |
| Alkalinity,(As CaCO3) | mg/L | 05/11/05 | 2320B | 10 | **260** |
| Ammonia (as N) | mg/L | 05/12/05 | 350.1 | 0.050 | **0.055** |
| Bicarbonate (As CaCO3) | mg/L | 05/11/05 | 2320B | 10 | **260** |
| Carbonate (As CaCO3) | mg/L | 05/11/05 | 2320B | 10 | < 10 |
| Chloride | mg/L | 05/18/05 2:54 am | 300.0 | 10 | **13** |
| Hardness (as CaCO3) | mg/L | 05/20/05 | 2340B | 10 | **310** |
| Nitrate (as N) | mg/L | 05/11/05 9:05 am | 353.2 | 0.010 | **0.023** |
| Nitrite (as N) | mg/L | 05/11/05 9:05 am | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 05/11/05 | EPA 1664 | 3.0 | **3.5** |
| Phosphate, ortho (as P) | mg/L | 05/11/05 7:29 am | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 05/10/05 1:15 pm | 2540F | 0.10 | **0.20** |
| Sulfate | mg/L | 05/18/05 2:54 am | 300.0 | 10 | **42** |
| TDS | mg/L | 05/10/05 | 160.1 | 10 | **330** |
| TSS | mg/L | 05/10/05 | 160.2 | 3.0 | **150** |

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005



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e-mail: awal@awal-Labs.com

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-02

Field Sample ID:
Eagle Springs

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 05/11/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 05/11/05 | 2320B | 10 | **46** |
| Ammonia (as N) | mg/L | 05/12/05 | 350.1 | 0.050 | **0.082** |
| Bicarbonate (As CaCO3) | mg/L | 05/11/05 | 2320B | 10 | **46** |
| Carbonate (As CaCO3) | mg/L | 05/11/05 | 2320B | 10 | < 10 |
| Chloride | mg/L | 05/18/05 4:01 am | 300.0 | 1.0 | **5.0** |
| Hardness (as CaCO3) | mg/L | 05/20/05 | 2340B | 10 | **55** |
| Nitrate (as N) | mg/L | 05/11/05 9:05 am | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 05/11/05 9:05 am | 353.2 | 0.010 | **0.010** |
| Oil & Grease | mg/L | 05/11/05 | EPA 1664 | 3.0 | **3.3** |
| Phosphate, ortho (as P) | mg/L | 05/11/05 7:29 am | 365.1 | 0.050 | **0.13** |
| Settable Solids | ml/L | 05/10/05 1:15 pm | 2540F | 0.10 | ND |
| Sulfate | mg/L | 05/18/05 4:01 am | 300.0 | 1.0 | **6.2** |
| TDS | mg/L | 05/10/05 | 160.1 | 10 | **120** |
| TSS | mg/L | 05/10/05 | 160.2 | 3.0 | **8.0** |

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005



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Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-03

Field Sample ID:
Sulfer Springs


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 05/11/05 | 305.1 | 15 | **80** |
| Alkalinity,(As CaCO3) | mg/L | 05/11/05 | 2320B | 10 | **350** |
| Ammonia (as N) | mg/L | 05/12/05 | 350.1 | 0.050 | **0.10** |
| Bicarbonate (As CaCO3) | mg/L | 05/11/05 | 2320B | 10 | **350** |
| Carbonate (As CaCO3) | mg/L | 05/11/05 | 2320B | 10 | < 10 |
| Chloride | mg/L | 05/18/05 4:34 am | 300.0 | 1.0 | **6.6** |
| Hardness (as CaCO3) | mg/L | 05/20/05 | 2340B | 10 | **350** |
| Nitrate (as N) | mg/L | 05/11/05 9:05 am | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 05/11/05 9:05 am | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 05/11/05 | EPA 1664 | 3.0 | **3.8** |
| Phosphate, ortho (as P) | mg/L | 05/11/05 7:29 am | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 05/10/05 1:15 pm | 2540F | 0.10 | ND |
| Sulfate | mg/L | 05/18/05 4:34 am | 300.0 | 10 | **43** |
| TDS | mg/L | 05/10/05 | 160.1 | 10 | **390** |
| TSS | mg/L | 05/10/05 | 160.2 | 3.0 | < 3.0 |

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

AMERICAN WEST ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, Utah
84115

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e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Cash Account
Date Sampled: May 9, 2005
Project: Wiskey Creek / Scofield Baseline

Contact: Brad Lindsay
Date Received: May 10, 2005

Lab Sample ID:
L65736-04

Field Sample ID:
Muddy Creek

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 05/11/05 | 305.1 | 15 | **68** |
| Alkalinity,(As CaCO3) | mg/L | 05/11/05 | 2320B | 10 | **230** |
| Ammonia (as N) | mg/L | 05/12/05 | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 05/11/05 | 2320B | 10 | **220** |
| Carbonate (As CaCO3) | mg/L | 05/11/05 | 2320B | 10 | **11** |
| Chloride | mg/L | 05/18/05 5:41 am | 300.0 | 10 | **27** |
| Hardness (as CaCO3) | mg/L | 05/20/05 | 2340B | 10 | **350** |
| Nitrate (as N) | mg/L | 05/11/05 9:05 am | 353.2 | 0.010 | **0.70** |
| Nitrite (as N) | mg/L | 05/11/05 9:05 am | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 05/11/05 | EPA 1664 | 3.0 | **3.9** |
| Phosphate, ortho (as P) | mg/L | 05/11/05 7:29 am | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 05/10/05 1:15 pm | 2540F | 0.10 | **0.10** |
| Sulfate | mg/L | 05/17/05 12:00 am | 300.0 | 100 | **120** |
| TDS | mg/L | 05/10/05 | 160.1 | 10 | **500** |
| TSS | mg/L | 05/10/05 | 160.2 | 3.0 | **52** |

Released by: _____
Laboratory Supervisor

Report Date: May 23, 2005



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# American West Analytical Labs

## WORK ORDER Summary

*10-May-05*

**Work Order** L65736

**Client ID:** WALKIN

**Project:** Wiskey Creek / Scofield Baseline **QC Level:** QC 1 HOK

**Comments:**

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage |
|---|---|---|---|---|---|---|---|
| L65736-01A | Eagle Outlet | 5/9/2005 12:30:00 PM | 5/10/2005 | 5/24/2005 | Aqueous | SS | ww |
| | | | | 5/24/2005 | | TDS-W | ww |
| | | | | 5/24/2005 | | TSS-W | ww |
| L65736-01B | | | | 5/24/2005 | | 2320B-ALK-W | may 10 - wc |
| | | | | 5/24/2005 | | 300.0-W | may 10 - wc |
| | | | | 5/24/2005 | | ACIDITY-W | may 10 - wc |
| | | | | 5/24/2005 | | NO2-W | may 10 - wc |
| | | | | 5/24/2005 | | NO3-W | may 10 - wc |
| | | | | 5/24/2005 | | PO4-O | may 10 - wc |
| L65736-01C | | | | 5/24/2005 | | 3005A-ICPMS | may 10 - metal |
| | | | | 5/24/2005 | | 6020-W | may 10 - metal |
| | | | | 5/24/2005 | | ICP-W | may 10 - metal |
| L65736-01D | | | | 5/24/2005 | queous-Dissolve | 3005A-Diss | may 10 - dis m |
| | | | | 5/24/2005 | | 6020-W-DISS | may 10 - dis m |
| | | | | 5/24/2005 | | HARD | may 10 - dis m |
| | | | | 5/24/2005 | | ICP-W-DIS | may 10 - dis m |
| L65736-01E | | | | 5/24/2005 | Aqueous | OGB-W | ogb |
| L65736-01F | | | | 5/24/2005 | | NH3-W | may 10 - nh3 |
| | | | | 5/24/2005 | | NH3-W-PREP | may 10 - nh3 |
| L65736-02A | Eagle Springs | 5/9/2005 12:45:00 PM | | 5/24/2005 | | SS | ww |
| | | | | 5/24/2005 | | TDS-W | ww |
| | | | | 5/24/2005 | | TSS-W | ww |
| L65736-02B | | | | 5/24/2005 | | 2320B-ALK-W | may 10 - wc |
| | | | | 5/24/2005 | | 300.0-W | may 10 - wc |
| | | | | 5/24/2005 | | ACIDITY-W | may 10 - wc |
| | | | | 5/24/2005 | | NO2-W | may 10 - wc |
| | | | | 5/24/2005 | | NO3-W | may 10 - wc |

# WORK ORDER Summary

*10-May-05*

**Work Order** L65736

**Client ID:** WALKIN

**Project:** Wiskey Creek / Scofield Baseline **QC Level:** QC 1

**Comments:**

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage |
|---|---|---|---|---|---|---|---|
| L65736-02B | Eagle Springs | 5/9/2005 12:45:00 PM | 5/10/2005 | 5/24/2005 | Aqueous | PO4-O | may 10 - wc |
| L65736-02C | | | | 5/24/2005 | | 3005A-ICPMS | may 10 - metal |
| | | | | 5/24/2005 | | 6020-W | may 10 - metal |
| | | | | 5/24/2005 | | ICP-W | may 10 - metal |
| L65736-02D | | | | 5/24/2005 | Aqueous-Dissolve | 3005A-Diss | may 10 - dis m |
| | | | | 5/24/2005 | | 6020-W-DISS | may 10 - dis m |
| | | | | 5/24/2005 | | HARD | may 10 - dis m |
| | | | | 5/24/2005 | | ICP-W-DIS | may 10 - dis m |
| L65736-02E | | | | 5/24/2005 | Aqueous | OGB-W | ogb |
| L65736-02F | | | | 5/24/2005 | | NH3-W | may 10 - nh3 |
| | | | | 5/24/2005 | | NH3-W-PREP | may 10 - nh3 |
| L65736-03A | Sulfer Springs | 5/9/2005 1:30:00 PM | | 5/24/2005 | | SS | ww |
| | | | | 5/24/2005 | | TDS-W | ww |
| | | | | 5/24/2005 | | TSS-W | ww |
| L65736-03B | | | | 5/24/2005 | | 2320B-ALK-W | may 10 - wc |
| | | | | 5/24/2005 | | 300.0-W | may 10 - wc |
| | | | | 5/24/2005 | | ACIDITY-W | may 10 - wc |
| | | | | 5/24/2005 | | NO2-W | may 10 - wc |
| | | | | 5/24/2005 | | NO3-W | may 10 - wc |
| | | | | 5/24/2005 | | PO4-O | may 10 - wc |
| L65736-03C | | | | 5/24/2005 | | 3005A-ICPMS | may 10 - metal |
| | | | | 5/24/2005 | | 6020-W | may 10 - metal |
| | | | | 5/24/2005 | | ICP-W | may 10 - metal |
| L65736-03D | | | | 5/24/2005 | Aqueous-Dissolve | 3005A-Diss | may 10 - dis m |
| | | | | 5/24/2005 | | 6020-W-DISS | may 10 - dis m |
| | | | | 5/24/2005 | | HARD | may 10 - dis m |
| | | | | 5/24/2005 | | ICP-W-DIS | may 10 - dis m |
| L65736-03E | | | | 5/24/2005 | Aqueous | OGB-W | ogb |

# WORK ORDER Summary

*10-May-05*

**Work Order** L65736

**Client ID:** WALKIN

**Project:** Wiskey Creek / Scofield Baseline **QC Level:** QC 1

**Comments:**

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage |
|---|---|---|---|---|---|---|---|
| L65736-03F | Sulfer Springs | 5/9/2005 1:30:00 PM | 5/10/2005 | 5/24/2005 | Aqueous | NH3-W | may 10 - nh3 |
| | | | | 5/24/2005 | | NH3-W-PREP | may 10 - nh3 |
| L65736-04A | Muddy Creek | 5/9/2005 2:00:00 PM | | 5/24/2005 | | SS | ww |
| | | | | 5/24/2005 | | TDS-W | ww |
| | | | | 5/24/2005 | | TSS-W | ww |
| L65736-04B | | | | 5/24/2005 | | 2320B-ALK-W | may 10 - wc |
| | | | | 5/24/2005 | | 300.0-W | may 10 - wc |
| | | | | 5/24/2005 | | ACIDITY-W | may 10 - wc |
| | | | | 5/24/2005 | | NO2-W | may 10 - wc |
| | | | | 5/24/2005 | | NO3-W | may 10 - wc |
| | | | | 5/24/2005 | | PO4-O | may 10 - wc |
| L65736-04C | | | | 5/24/2005 | | 3005A-ICPMS | may 10 - metal |
| | | | | 5/24/2005 | | 6020-W | may 10 - metal |
| | | | | 5/24/2005 | | ICP-W | may 10 - metal |
| L65736-04D | | | | 5/24/2005 | Aqueous-Dissolve | 3005A-Diss | may 10 - dis m |
| | | | | 5/24/2005 | | 6020-W-DISS | may 10 - dis m |
| | | | | 5/24/2005 | | HARD | may 10 - dis m |
| | | | | 5/24/2005 | | ICP-W-DIS | may 10 - dis m |
| L65736-04E | | | | 5/24/2005 | Aqueous | OGB-W | ogb |
| L65736-04F | | | | 5/24/2005 | | NH3-W | may 10 - nh3 |
| | | | | 5/24/2005 | | NH3-W-PREP | may 10 - nh3 |

Client Wisley Creek
Address
City State Zip
Phone 970-835-3715 Fax
Contact Brad Lindsay
E-mail boarding-star@hotmail.com
Project Name Scofield Baseline
Project Number/P.O.#
Sampler Name Brad Lindsay

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# CHAIN OF CUSTODY

Lab Sample Set # 65736
Page 1 of 1

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day Standard
QC 1 2 2+ 3 3+ 4

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | Please indicate tests needed below: see table 3 attached | COMMENTS |
|---|---|---|---|---|---|
| Eagle Outlook Outlet | 5-9-05 / 1230 | W | 6 | ✓ | |
| Eagle Springs | 5-9-05 / 1245 | W | 6 | ✓ | |
| Sutter Spring | 5-9-05 / 1330 | W | 6 | ✓ | |
| Muddy Creek | 5-9-05 / 1400 | W | 6 | ✓ | |

| | | | |
|---|---|---|---|
| Relinquished By: Signature | Date 5-9-05 | Received By: Signature | |
| PRINT NAME BRAD LINDSAY | Time 15:30 | PRINT NAME | |
| Relinquished By: Signature UPS | Date 5/10/05 | Received By: Signature | |
| PRINT NAME | Time 11:00 | PRINT NAME REBEKAH WINKLER | |
| Relinquished By: Signature | Date | Received By: Signature | |
| PRINT NAME | Time | PRINT NAME | |
| Relinquished By: Signature | Date | Received By: Signature | |
| PRINT NAME | Time | PRINT NAME | |

Special Instructions:
5-11-05 Emailed credit ap

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes: UPS
2 Ambient or Chilled
Notes:
3 Temperature 7.5°C
4 Received Broken/Leaking (Improperly Sealed) Y N
Notes:
5 Properly Preserved Y N
Notes:
6 Received Within Holding Times Y N
Notes:

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record? Y N
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | | |
|---|---|---|---|---|
| * | - | Total Dissolved Solids | | mg/l |
| * | - | Total Settleable Solids | | (UPDES) |
| * | - | Total Suspended Solids | | mg/l |
| * | - | Total Hardness ($CaCO_3$) | | mg/l |
| * | - | Total Alkalinity | | mg/l |
| | - | Acidity | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved)[1] | | mg/l |
| * | - | Carbonate | | mg/l |
| * | - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| * | - | Calcium (Dissolved) | | mg/l |
| * | - | Chloride | mg/l | |
| | - | Copper (Dissolved) | | mg/l |
| * | - | Iron (Dissolved) | | mg/l |
| * | - | Iron (Total) | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| * | - | Magnesium (Dissolved) | | mg/l |
| * | - | Manganese (Dissolved) | | mg/l |
| * | - | Manganese (Total) | | mg/l |
| | - | Molybdenum (Dissolved) | | mg/l |
| | - | Ammonia | | mg/l |
| | - | Nitrates | | mg/l |
| | - | Nitrites | | mg/l |
| * | - | Potassium (Dissolved) | | mg/l |
| | - | Phosphates(Ortho) | | mg/l |
| | - | Selenium[1] (Dissolved) | | mg/l |
| * | - | Sodium (Dissolved) | | mg/l |
| * | - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| * | - | Oil & Grease[2] | | mg/l |
| * | - | Cations | | meq/l |
| * | - | Anions | | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

## Preservation Check Sheet

Sample Set: 605736

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Cyanide | pH >12 NaOH | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Sulfide | pH > 9 NaOH, ZnAC | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOC[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| T PO4[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 $H_2SO_4$ in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 $H_2SO_4$ in a B.R.

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

November 11, 2005

Brad Lindsay
Carbon Resources
c/o Rock Logic Consulting
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L68520

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 10/31/2005 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Approved by: _____
Laboratory Director or designee

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-01C
Field Sample ID: **Eagle Outlet**
Collected: 10/31/2005 11:40:00 AM
Received: 10/31/2005

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/9/2005 8:55:22 PM | 6010B | 0.050 | **2.2** |
| Manganese | mg/L | 11/10/2005 12:56:44 PM | 6020 | 0.0050 | **0.13** |

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-02C
Field Sample ID: **Sulfur Springs**
Collected: 10/31/2005 12:00:00 PM
Received: 10/31/2005

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/9/2005 9:11:13 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 11/10/2005 1:29:05 PM | 6020 | 0.0050 | **0.030** |

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-03C
Field Sample ID: **Angle Spring**
Collected: 10/31/2005 12:45:00 PM
Received: 10/31/2005

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/9/2005 9:15:10 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 11/10/2005 1:34:29 PM | 6020 | 0.0050 | < 0.0050 |

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-04C
Field Sample ID: **Mud Creek**
Collected: 10/31/2005 1:15:00 PM
Received: 10/31/2005

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/9/2005 9:19:08 PM | 6010B | 0.050 | **0.24** |
| Manganese | mg/L | 11/10/2005 1:39:54 PM | 6020 | 0.0050 | **0.033** |

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-01D
Field Sample ID: **Eagle Outlet**
Collected: 10/31/2005 11:40:00 AM
Received: 10/31/2005


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 11/9/2005 8:02:37 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 11/10/2005 12:13:34 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 11/9/2005 8:02:37 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 11/10/2005 12:13:34 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 11/10/2005 1:31:42 PM | 6010B | 5.0 | **79** |
| Copper | mg/L | 11/10/2005 12:13:34 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 11/9/2005 8:02:37 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 11/10/2005 12:13:34 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 11/9/2005 8:02:37 PM | 6010B | 1.0 | **17** |
| Manganese | mg/L | 11/10/2005 12:13:34 PM | 6020 | 0.0050 | **0.042** |
| Molybdenum | mg/L | 11/9/2005 8:02:37 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 11/9/2005 8:02:37 PM | 6010B | 1.0 | **2.7** |
| Selenium | mg/L | 11/10/2005 12:13:34 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 11/10/2005 1:31:42 PM | 6010B | 5.0 | **6.9** |
| Zinc | mg/L | 11/10/2005 12:13:34 PM | 6020 | 0.010 | **0.011** |

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-02D
Field Sample ID: **Sulfur Springs**
Collected: 10/31/2005 12:00:00 PM
Received: 10/31/2005

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Laboratory Director

Peggy McNicol
QA Officer

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 11/9/2005 8:18:22 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 11/10/2005 12:35:07 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 11/9/2005 8:18:22 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 11/10/2005 12:35:07 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 11/10/2005 1:47:24 PM | 6010B | 5.0 | **88** |
| Copper | mg/L | 11/10/2005 12:35:07 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 11/9/2005 8:18:22 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 11/10/2005 12:35:07 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 11/9/2005 8:18:22 PM | 6010B | 1.0 | **36** |
| Manganese | mg/L | 11/10/2005 12:35:07 PM | 6020 | 0.0050 | **0.029** |
| Molybdenum | mg/L | 11/9/2005 8:18:22 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 11/9/2005 8:18:22 PM | 6010B | 1.0 | **5.0** |
| Selenium | mg/L | 11/10/2005 12:35:07 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 11/10/2005 1:47:24 PM | 6010B | 5.0 | **8.9** |
| Zinc | mg/L | 11/10/2005 12:35:07 PM | 6020 | 0.010 | **0.014** |

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-03D
Field Sample ID: **Angle Spring**
Collected: 10/31/2005 12:45:00 PM
Received: 10/31/2005

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Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 11/9/2005 8:22:16 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 11/10/2005 12:40:31 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 11/9/2005 8:22:16 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 11/10/2005 12:40:31 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 11/10/2005 1:51:25 PM | 6010B | 5.0 | **94** |
| Copper | mg/L | 11/10/2005 12:40:31 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 11/9/2005 8:22:16 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 11/10/2005 12:40:31 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 11/9/2005 8:22:16 PM | 6010B | 1.0 | **18** |
| Manganese | mg/L | 11/10/2005 12:40:31 PM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 11/9/2005 8:22:16 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 11/9/2005 8:22:16 PM | 6010B | 1.0 | **1.5** |
| Selenium | mg/L | 11/10/2005 12:40:31 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 11/10/2005 1:51:25 PM | 6010B | 5.0 | **9.8** |
| Zinc | mg/L | 11/10/2005 12:40:31 PM | 6020 | 0.010 | **0.058** |

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-04D
Field Sample ID: **Mud Creek**
Collected: 10/31/2005 1:15:00 PM
Received: 10/31/2005

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Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 11/9/2005 8:26:11 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 11/10/2005 12:45:56 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 11/9/2005 8:26:11 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 11/10/2005 12:45:56 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 11/10/2005 1:55:20 PM | 6010B | 5.0 | **92** |
| Copper | mg/L | 11/10/2005 12:45:56 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 11/9/2005 8:26:11 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 11/10/2005 12:45:56 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 11/9/2005 8:26:11 PM | 6010B | 1.0 | **56** |
| Manganese | mg/L | 11/10/2005 12:45:56 PM | 6020 | 0.0050 | **0.024** |
| Molybdenum | mg/L | 11/9/2005 8:26:11 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 11/9/2005 8:26:11 PM | 6010B | 1.0 | **9.4** |
| Selenium | mg/L | 11/10/2005 12:45:56 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 11/10/2005 1:55:20 PM | 6010B | 5.0 | **51** |
| Zinc | mg/L | 11/10/2005 12:45:56 PM | 6020 | 0.010 | **0.024** |

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-01
Field Sample ID: **Eagle Outlet**
Collected: 10/31/2005 11:40:00 AM
Received: 10/31/2005

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Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 11/02/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 11/01/05 | 2320B | 10 | **280** |
| Ammonia (as N) | mg/L | 11/09/05 | 350.1 | 0.050 | **0.057** |
| Bicarbonate (As CaCO3) | mg/L | 11/01/05 | 2320B | 10 | **280** |
| Carbonate (As CaCO3) | mg/L | 11/01/05 | 2320B | 10 | < 10 |
| Chloride | mg/L | 11/09/05 | 4500-CL E | 5.0 | **9.9** |
| Hardness (as CaCO3) | mg/L | 11/09/05 | 2340B | 10 | **270** |
| Nitrate (as N) | mg/L | 11/01/05 12:32 pm | 353.2 | 0.010 | **0.092** |
| Nitrite (as N) | mg/L | 11/01/05 12:32 pm | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/02/05 | EPA 1664 | 3.0 | **3.3** |
| Phosphate, ortho (as P) | mg/L | 11/01/05 9:52 am | 365.1 | 0.050 | **0.055** |
| Settable Solids | ml/L | 11/01/05 10:30 am | 2540F | 0.10 | **0.10** |
| Sulfate | mg/L | 11/10/05 | 375.4 | 5.0 | **29** |
| TDS | mg/L | 11/01/05 | 160.1 | 10 | **300** |
| TSS | mg/L | 11/01/05 | 160.2 | 3.0 | **88** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-02
Field Sample ID: **Sulfur Springs**
Collected: 10/31/2005 12:00:00 PM
Received: 10/31/2005


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Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 11/02/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 11/01/05 | 2320B | 10 | **370** |
| Ammonia (as N) | mg/L | 11/09/05 | 350.1 | 0.050 | **0.15** |
| Bicarbonate (As CaCO3) | mg/L | 11/01/05 | 2320B | 10 | **370** |
| Carbonate (As CaCO3) | mg/L | 11/01/05 | 2320B | 10 | < 10 |
| Chloride | mg/L | 11/09/05 | 4500-CL E | 5.0 | **5.1** |
| Hardness (as CaCO3) | mg/L | 11/09/05 | 2340B | 10 | **370** |
| Nitrate (as N) | mg/L | 11/01/05 12:32 pm | 353.2 | 0.010 | **0.010** |
| Nitrite (as N) | mg/L | 11/01/05 12:32 pm | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/02/05 | EPA 1664 | 3.0 | **3.1** |
| Phosphate, ortho (as P) | mg/L | 11/01/05 9:52 am | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 11/01/05 10:30 am | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 11/10/05 | 375.4 | 5.0 | **46** |
| TDS | mg/L | 11/01/05 | 160.1 | 10 | **390** |
| TSS | mg/L | 11/01/05 | 160.2 | 3.0 | < 3.0 |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-03
Field Sample ID: **Angle Spring**
Collected: 10/31/2005 12:45:00 PM
Received: 10/31/2005


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Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 11/02/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 11/01/05 | 2320B | 10 | **320** |
| Ammonia (as N) | mg/L | 11/09/05 | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 11/01/05 | 2320B | 10 | **320** |
| Carbonate (As CaCO3) | mg/L | 11/01/05 | 2320B | 10 | < 10 |
| Chloride | mg/L | 11/09/05 | 4500-CL E | 5.0 | **20** |
| Hardness (as CaCO3) | mg/L | 11/09/05 | 2340B | 10 | **310** |
| Nitrate (as N) | mg/L | 11/01/05 12:32 pm | 353.2 | 0.010 | **0.99** |
| Nitrite (as N) | mg/L | 11/01/05 12:32 pm | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/02/05 | EPA 1664 | 3.0 | < 3.0 |
| Phosphate, ortho (as P) | mg/L | 11/01/05 9:52 am | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 11/01/05 10:30 am | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 11/10/05 | 375.4 | 5.0 | < 5.0 |
| TDS | mg/L | 11/01/05 | 160.1 | 10 | **350** |
| TSS | mg/L | 11/01/05 | 160.2 | 3.0 | < 3.0 |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68520-04
Field Sample ID: **Mud Creek**
Collected: 10/31/2005 1:15:00 PM
Received: 10/31/2005


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Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 11/02/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 11/01/05 | 2320B | 10 | **300** |
| Ammonia (as N) | mg/L | 11/09/05 | 350.1 | 0.050 | **0.077** |
| Bicarbonate (As CaCO3) | mg/L | 11/01/05 | 2320B | 10 | **260** |
| Carbonate (As CaCO3) | mg/L | 11/01/05 | 2320B | 10 | **33** |
| Chloride | mg/L | 11/09/05 | 4500-CL E | 5.0 | **15** |
| Hardness (as CaCO3) | mg/L | 11/09/05 | 2340B | 10 | **460** |
| Nitrate (as N) | mg/L | 11/01/05 12:32 pm | 353.2 | 0.010 | **0.35** |
| Nitrite (as N) | mg/L | 11/01/05 12:32 pm | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/02/05 | EPA 1664 | 3.0 | < 3.0 |
| Phosphate, ortho (as P) | mg/L | 11/01/05 9:52 am | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 11/01/05 10:30 am | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 11/10/05 | 375.4 | 5.0 | **250** |
| TDS | mg/L | 11/01/05 | 160.1 | 10 | **720** |
| TSS | mg/L | 11/01/05 | 160.2 | 3.0 | **10** |




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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Oualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-25821 | Manganese | mg/L | 6020 | 0.1973 | 0.2 | 0 | 98.6 | 85-115 | | | | 11/10/2005 |
| LCS-25820 | Arsenic | mg/L | 6020 | 0.1977 | 0.2 | 0 | 98.8 | 85-115 | | | | 11/10/2005 |
| LCS-25820 | Cadmium | mg/L | 6020 | 0.2027 | 0.2 | 0 | 101 | 85-115 | | | | 11/10/2005 |
| LCS-25820 | Copper | mg/L | 6020 | 0.2008 | 0.2 | 0 | 100 | 85-115 | | | | 11/10/2005 |
| LCS-25820 | Lead | mg/L | 6020 | 0.2002 | 0.2 | 0 | 100 | 85-115 | | | | 11/10/2005 |
| LCS-25820 | Manganese | mg/L | 6020 | 0.1990 | 0.2 | 0 | 99.5 | 85-115 | | | | 11/10/2005 |
| LCS-25820 | Selenium | mg/L | 6020 | 0.2091 | 0.2 | 0 | 105 | 85-115 | | | | 11/10/2005 |
| LCS-25820 | Zinc | mg/L | 6020 | 1.012 | 1 | 0 | 101 | 85-115 | | | | 11/10/2005 |
| LCS-25821 | Iron | mg/L | 6010B | 1.010 | 1 | 0 | 101 | 75-125 | | | | 11/9/2005 |
| LCS-25820 | Sodium | mg/L | 6010B | 10.07 | 10 | 0 | 101 | 75-125 | | | | 11/10/2005 |
| LCS-25820 | Aluminum | mg/L | 6010B | 0.9928 | 1 | 0 | 99.3 | 75-125 | | | | 11/9/2005 |
| LCS-25820 | Boron | mg/L | 6010B | 0.9616 | 1 | 0 | 96.2 | 75-125 | | | | 11/9/2005 |
| LCS-25820 | Calcium | mg/L | 6010B | 9.928 | 10 | 0 | 99.3 | 75-125 | | | | 11/9/2005 |
| LCS-25820 | Iron | mg/L | 6010B | 1.026 | 1 | 0 | 103 | 75-125 | | | | 11/9/2005 |
| LCS-25820 | Magnesium | mg/L | 6010B | 10.15 | 10 | 0 | 102 | 75-125 | | | | 11/9/2005 |
| LCS-25820 | Molybdenum | mg/L | 6010B | 0.2008 | 0.2 | 0 | 100 | 75-125 | | | | 11/9/2005 |
| LCS-25820 | Potassium | mg/L | 6010B | 10.12 | 10 | 0 | 101 | 75-125 | | | | 11/9/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L68520-01CMS | Manganese | mg/L | 6020 | 0.3323 | 0.2 | 0.1267 | 103 | 70-130 | | | | 11/10/2005 |
| L68520-01DMS | Arsenic | mg/L | 6020 | 0.1972 | 0.2 | 0 | 98.6 | 70-130 | | | | 11/10/2005 |
| L68520-01DMS | Cadmium | mg/L | 6020 | 0.1986 | 0.2 | 0 | 99.3 | 70-130 | | | | 11/10/2005 |
| L68520-01DMS | Copper | mg/L | 6020 | 0.1930 | 0.2 | 0 | 96.5 | 70-130 | | | | 11/10/2005 |
| L68520-01DMS | Lead | mg/L | 6020 | 0.1881 | 0.2 | 0 | 94.1 | 70-130 | | | | 11/10/2005 |
| L68520-01DMS | Manganese | mg/L | 6020 | 0.2373 | 0.2 | 0.0419 | 97.7 | 70-130 | | | | 11/10/2005 |
| L68520-01DMS | Selenium | mg/L | 6020 | 0.2111 | 0.2 | 0 | 106 | 70-130 | | | | 11/10/2005 |
| L68520-01DMS | Zinc | mg/L | 6020 | 0.9900 | 1 | 0.0107 | 97.9 | 70-130 | | | | 11/10/2005 |
| L68520-01CMS | Iron | mg/L | 6010B | 3.282 | 1 | 2.187 | 109 | 75-125 | | | | 11/9/2005 |
| L68520-01DMS | Calcium | mg/L | 6010B | 90.43 | 10 | 79.49 | 109 | 75-125 | | | | 11/10/2005 |
| L68520-01DMS | Sodium | mg/L | 6010B | 16.82 | 10 | 6.867 | 99.6 | 75-125 | | | | 11/10/2005 |
| L68520-01DMS | Aluminum | mg/L | 6010B | 1.015 | 1 | 0.08254 | 93.3 | 75-125 | | | | 11/9/2005 |
| L68520-01DMS | Boron | mg/L | 6010B | 0.9915 | 1 | 0.02303 | 96.8 | 75-125 | | | | 11/9/2005 |
| L68520-01DMS | Iron | mg/L | 6010B | 1.024 | 1 | 0 | 102 | 75-125 | | | | 11/9/2005 |
| L68520-01DMS | Magnesium | mg/L | 6010B | 27.38 | 10 | 17.31 | 101 | 75-125 | | | | 11/9/2005 |
| L68520-01DMS | Molybdenum | mg/L | 6010B | 0.1985 | 0.2 | 0 | 99.2 | 75-125 | | | | 11/9/2005 |
| L68520-01DMS | Potassium | mg/L | 6010B | 12.68 | 10 | 2.676 | 100 | 75-125 | | | | 11/9/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

**Dept:** ME
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Oualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-25821 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 11/10/2005 |
| MB-25820 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 11/10/2005 |
| MB-25820 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 11/10/2005 |
| MB-25820 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 11/10/2005 |
| MB-25820 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 11/10/2005 |
| MB-25820 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 11/10/2005 |
| MB-25820 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 11/10/2005 |
| MB-25820 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 11/10/2005 |
| MB-25821 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 11/9/2005 |
| MB-25820 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/10/2005 |
| MB-25820 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 11/9/2005 |
| MB-25820 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 11/9/2005 |
| MB-25820 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/9/2005 |
| MB-25820 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 11/9/2005 |
| MB-25820 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/9/2005 |
| MB-25820 | Molybdenum | mg/L | 6010B | < 0.10 | | | | - | | | | 11/9/2005 |
| MB-25820 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/9/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

**Dept:** ME
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L68520-01CMSD | Manganese | mg/L | 6020 | 0.3239 | 0.2 | 0.1267 | 98.6 | 70-130 | 2.56 | 20 | | 11/10/2005 |
| L68520-01DMSD | Arsenic | mg/L | 6020 | 0.2046 | 0.2 | 0 | 102 | 70-130 | 3.68 | 20 | | 11/10/2005 |
| L68520-01DMSD | Cadmium | mg/L | 6020 | 0.2067 | 0.2 | 0 | 103 | 70-130 | 4.00 | 20 | | 11/10/2005 |
| L68520-01DMSD | Copper | mg/L | 6020 | 0.1995 | 0.2 | 0 | 99.8 | 70-130 | 3.31 | 20 | | 11/10/2005 |
| L68520-01DMSD | Lead | mg/L | 6020 | 0.1963 | 0.2 | 0 | 98.2 | 70-130 | 4.27 | 20 | | 11/10/2005 |
| L68520-01DMSD | Manganese | mg/L | 6020 | 0.2449 | 0.2 | 0.0419 | 102 | 70-130 | 3.15 | 20 | | 11/10/2005 |
| L68520-01DMSD | Selenium | mg/L | 6020 | 0.2193 | 0.2 | 0 | 110 | 70-130 | 3.81 | 20 | | 11/10/2005 |
| L68520-01DMSD | Zinc | mg/L | 6020 | 1.022 | 1 | 0.0107 | 101 | 70-130 | 3.19 | 20 | | 11/10/2005 |
| L68520-01CMSD | Iron | mg/L | 6010B | 3.256 | 1 | 2.187 | 107 | 75-125 | 0.783 | 20 | | 11/9/2005 |
| L68520-01DMSD | Calcium | mg/L | 6010B | 89.12 | 10 | 79.49 | 96.2 | 75-125 | 1.47 | 20 | | 11/10/2005 |
| L68520-01DMSD | Sodium | mg/L | 6010B | 16.77 | 10 | 6.867 | 99.1 | 75-125 | 0.308 | 20 | | 11/10/2005 |
| L68520-01DMSD | Aluminum | mg/L | 6010B | 1.018 | 1 | 0.08254 | 93.5 | 75-125 | 0.241 | 20 | | 11/9/2005 |
| L68520-01DMSD | Boron | mg/L | 6010B | 0.9997 | 1 | 0.02303 | 97.7 | 75-125 | 0.832 | 20 | | 11/9/2005 |
| L68520-01DMSD | Iron | mg/L | 6010B | 1.025 | 1 | 0 | 102 | 75-125 | 0.0235 | 20 | | 11/9/2005 |
| L68520-01DMSD | Magnesium | mg/L | 6010B | 27.12 | 10 | 17.31 | 98.1 | 75-125 | 0.956 | 20 | | 11/9/2005 |
| L68520-01DMSD | Molybdenum | mg/L | 6010B | 0.2058 | 0.2 | 0 | 103 | 75-125 | 3.62 | 20 | | 11/9/2005 |
| L68520-01DMSD | Potassium | mg/L | 6010B | 12.59 | 10 | 2.676 | 99.2 | 75-125 | 0.703 | 20 | | 11/9/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

**Dept:** WC
**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Oualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L68520-04ADUP | TDS | mg/L | 160.1 | 736.0 | 0 | 716 | | - | 2.75 | 20 | | 11/1/2005 |
| L68518-03DDUP | TSS | mg/L | 160.2 | 97.00 | 0 | 96 | | - | 1.04 | 20 | | 11/1/2005 |
| L68520-04ADUP | TSS | mg/L | 160.2 | 11.00 | 0 | 10 | | - | 9.52 | 20 | | 11/1/2005 |
| L68539-03ADUP | TSS | mg/L | 160.2 | 4.000 | 0 | 6 | | - | 40.0 | 20 | * | 11/1/2005 |
| L68541-02ADUP | TSS | mg/L | 160.2 | 790.0 | 0 | 775 | | - | 1.92 | 20 | | 11/1/2005 |

* High RPD due to low analyte concentration. In this range, high RPD's may be expected.

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

**Dept:** WC
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Oualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R52156 | Alkalinity,(As CaCO3) | mg/L | 2320B | 49140 | 50000 | 0 | 98.3 | 90-110 | | | | 11/1/2005 |
| LCS-R52205 | Acidity | mg/L | 305.1 | 55.00 | 50 | 0 | 110 | 80-120 | | | | 11/2/2005 |
| LCS-52455 | Chloride | mg/L | 4500-Cl E | 24.16 | 25 | 0 | 96.6 | 90-110 | | | | 11/9/2005 |
| LCS-25889 | Ammonia (as N) | mg/L | 350.1 | 0.9020 | 1 | 0 | 90.2 | 90-110 | | | | 11/9/2005 |
| LCS-52181 | Nitrite (as N) | mg/L | 353.2 | 1.046 | 1 | 0 | 105 | 90-110 | | | | 11/1/2005 |
| LCS-52183 | Nitrate (as N) | mg/L | 353.2 | 1.034 | 1 | 0 | 103 | 90-110 | | | | 11/1/2005 |
| LCS-R52281 | Oil & Grease | mg/L | EPA 1664 | 39.90 | 40 | 0 | 99.8 | 79-114 | | | | 11/2/2005 |
| LCS-52151 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9550 | 1 | 0.023 | 93.2 | 90-110 | | | | 11/1/2005 |
| LCS-R52477 | Sulfate | mg/L | 375.4 | 975.0 | 1000 | 0 | 97.5 | 90-110 | | | | 11/10/2005 |
| LCS-R52251 | TDS | mg/L | 160.1 | 204.0 | 205 | 0 | 99.5 | 80-120 | | | | 11/1/2005 |
| LCS-R52211 | TSS | mg/L | 160.2 | 101.0 | 100 | 0 | 101 | 80-120 | | | | 11/1/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Oualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R52156 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 11/1/2005 |
| MB-R52156 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 11/1/2005 |
| MB-R52205 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 11/2/2005 |
| MB-R52455 | Chloride | mg/L | 4500-Cl E | < 5.0 | | | | - | | | | 11/9/2005 |
| MB-25889 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 11/9/2005 |
| MB-52181 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 11/1/2005 |
| MB-52183 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 11/1/2005 |
| MB-R52281 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 11/2/2005 |
| MB-52151 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 11/1/2005 |
| MB-R52477 | Sulfate | mg/L | 375.4 | < 5.0 | | | | - | | | | 11/10/2005 |
| MB-R52251 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 11/1/2005 |
| MB-R52211 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 11/1/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

**Dept:** WC
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L68518-01CMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 1070 | 200 | 866 | 102 | 80-120 | | | | 11/1/2005 |
| L68520-01BMS | Acidity | mg/L | 305.1 | 46.00 | 50 | 0 | 92.0 | 80-120 | | | | 11/2/2005 |
| L68520-01BMS | Chloride | mg/L | 4500-Cl E | 59.83 | 50 | 9.858 | 99.9 | 90-110 | | | | 11/9/2005 |
| L68520-03FMS | Ammonia (as N) | mg/L | 350.1 | 0.9390 | 1 | 0.029 | 91.0 | 90-110 | | | | 11/9/2005 |
| L68518-01CMS | Nitrite (as N) | mg/L | 353.2 | 0.9860 | 1 | 0 | 98.6 | 90-110 | | | | 11/1/2005 |
| L68518-01CMS | Nitrate (as N) | mg/L | 353.2 | 0.9630 | 1 | 0 | 96.3 | 90-110 | | | | 11/1/2005 |
| L68520-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9860 | 1 | 0.055 | 93.1 | 90-110 | | | | 11/1/2005 |
| L68520-01BMS | Sulfate | mg/L | 375.4 | 38.00 | 10 | 29 | 90.0 | 80-120 | | | | 11/10/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68520
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L68518-01CMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 1077 | 200 | 866 | 106 | 80-120 | 0.652 | 10 | | 11/1/2005 |
| L68520-01BMSD | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | 8.33 | 20 | | 11/2/2005 |
| L68520-01BMSD | Chloride | mg/L | 4500-Cl E | 59.42 | 50 | 9.858 | 99.1 | 90-110 | 0.681 | 10 | | 11/9/2005 |
| L68520-03FMSD | Ammonia (as N) | mg/L | 350.1 | 0.9650 | 1 | 0.029 | 93.6 | 90-110 | 2.73 | 10 | | 11/9/2005 |
| L68518-01CMSD | Nitrite (as N) | mg/L | 353.2 | 1.102 | 1 | 0 | 110 | 90-110 | 11.1 | 10 | @ | 11/1/2005 |
| L68518-01CMSD | Nitrate (as N) | mg/L | 353.2 | 1.039 | 1 | 0 | 104 | 90-110 | 7.59 | 10 | | 11/1/2005 |
| L68520-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9980 | 1 | 0.055 | 94.3 | 90-110 | 1.21 | 10 | | 11/1/2005 |
| L68520-01BMSD | Sulfate | mg/L | 375.4 | 39.00 | 10 | 29 | 100 | 80-120 | 2.60 | 10 | | 11/10/2005 |

@ High RPD due to suspected matrix interference.

# American West Analytical Labs

## WORK ORDER Summary

*01-Nov-05*

**Work Order** L68520

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** Hot 5

**Comments:** QCLevel: 2+ (added 11/1)

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L68520-01A | Eagle Outlet | 10/31/2005 11:40:00 AM | 10/31/2005 | 11/14/2005 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 11/14/2005 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/14/2005 | | TSS-W | ww - tss/tds/ss | 1 |
| L68520-01B | | | | 11/14/2005 | | 2320B-ALK-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | 300.0-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | ACIDITY-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | NO2-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | NO3-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | PO4-O | oct 31- wc | 1 |
| L68520-01C | | | | 11/14/2005 | | 3005A-ICPMS | oct 31 - metals | 1 |
| | | | | 11/14/2005 | | 6020-W | oct 31 - metals | 1 |
| | | | | 11/14/2005 | | ICP-W | oct 31 - metals | 1 |
| L68520-01D | | | | 11/14/2005 | Aqueous-Dissolved | 3005A-Diss | oct 31 - dis met | 1 |
| | | | | 11/14/2005 | | 6020-W-DISS | oct 31 - dis met | 1 |
| | | | | 11/14/2005 | | HARD | oct 31 - dis met | 1 |
| | | | | 11/14/2005 | | ICP-W-DIS | oct 31 - dis met | 1 |
| L68520-01E | | | | 11/14/2005 | Aqueous | OGB-W | ogb | 1 |
| L68520-01F | | | | 11/14/2005 | | NH3-W | oct 31 - nh3 | 1 |
| | | | | 11/14/2005 | | NH3-W-PREP | oct 31 - nh3 | 1 |
| L68520-02A | Sulfur Springs | 10/31/2005 12:00:00 PM | | 11/14/2005 | | SS | ww - tss/tds/ss | 1 |
| | | | | 11/14/2005 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/14/2005 | | TSS-W | ww - tss/tds/ss | 1 |
| L68520-02B | | | | 11/14/2005 | | 2320B-ALK-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | 300.0-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | ACIDITY-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | NO2-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | NO3-W | oct 31- wc | 1 |



L68520

# WORK ORDER Summary

*01-Nov-05*

**Work Order** L68520

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: 2+ (added 11/1)

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L68520-02B | Sulfur Springs | 10/31/2005 12:00:00 PM | 10/31/2005 | 11/14/2005 | Aqueous | PO4-O | oct 31- wc | 1 |
| L68520-02C | | | | 11/14/2005 | | 3005A-ICPMS | oct 31 - metals | 1 |
| | | | | 11/14/2005 | | 6020-W | oct 31 - metals | 1 |
| | | | | 11/14/2005 | | ICP-W | oct 31 - metals | 1 |
| L68520-02D | | | | 11/14/2005 | Aqueous-Dissolved | 3005A-Diss | oct 31 - dis met | 1 |
| | | | | 11/14/2005 | | 6020-W-DISS | oct 31 - dis met | 1 |
| | | | | 11/14/2005 | | HARD | oct 31 - dis met | 1 |
| | | | | 11/14/2005 | | ICP-W-DIS | oct 31 - dis met | 1 |
| L68520-02E | | | | 11/14/2005 | Aqueous | OGB-W | ogb | 1 |
| L68520-02F | | | | 11/14/2005 | | NH3-W | oct 31 - nh3 | 1 |
| | | | | 11/14/2005 | | NH3-W-PREP | oct 31 - nh3 | 1 |
| L68520-03A | Angle Spring | 10/31/2005 12:45:00 PM | | 11/14/2005 | | SS | ww - tss/tds/ss | 1 |
| | | | | 11/14/2005 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/14/2005 | | TSS-W | ww - tss/tds/ss | 1 |
| L68520-03B | | | | 11/14/2005 | | 2320B-ALK-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | 300.0-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | ACIDITY-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | NO2-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | NO3-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | PO4-O | oct 31- wc | 1 |
| L68520-03C | | | | 11/14/2005 | | 3005A-ICPMS | oct 31 - metals | 1 |
| | | | | 11/14/2005 | | 6020-W | oct 31 - metals | 1 |
| | | | | 11/14/2005 | | ICP-W | oct 31 - metals | 1 |
| L68520-03D | | | | 11/14/2005 | Aqueous-Dissolved | 3005A-Diss | oct 31 - dis met | 1 |
| | | | | 11/14/2005 | | 6020-W-DISS | oct 31 - dis met | 1 |
| | | | | 11/14/2005 | | HARD | oct 31 - dis met | 1 |
| | | | | 11/14/2005 | | ICP-W-DIS | oct 31 - dis met | 1 |
| L68520-03E | | | | 11/14/2005 | Aqueous | OGB-W | ogb | 1 |

# WORK ORDER Summary

*01-Nov-05*

**Work Order** L68520

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: 2+ (added 11/1)

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L68520-03F | Angle Spring | 10/31/2005 12:45:00 PM | 10/31/2005 | 11/14/2005 | Aqueous | NH3-W | oct 31 - nh3 | 1 |
| | | | | 11/14/2005 | | NH3-W-PREP | oct 31 - nh3 | 1 |
| L68520-04A | Mud Creek | 10/31/2005 1:15:00 PM | | 11/14/2005 | | SS | ww - tss/tds/ss | 1 |
| | | | | 11/14/2005 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/14/2005 | | TSS-W | ww - tss/tds/ss | 1 |
| L68520-04B | | | | 11/14/2005 | | 2320B-ALK-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | 300.0-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | ACIDITY-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | NO2-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | NO3-W | oct 31- wc | 1 |
| | | | | 11/14/2005 | | PO4-O | oct 31- wc | 1 |
| L68520-04C | | | | 11/14/2005 | | 3005A-ICPMS | oct 31 - metals | 1 |
| | | | | 11/14/2005 | | 6020-W | oct 31 - metals | 1 |
| | | | | 11/14/2005 | | ICP-W | oct 31 - metals | 1 |
| L68520-04D | | | | 11/14/2005 | Aqueous-Dissolved | 3005A-Diss | oct 31 - dis met | 1 |
| | | | | 11/14/2005 | | 6020-W-DISS | oct 31 - dis met | 1 |
| | | | | 11/14/2005 | | HARD | oct 31 - dis met | 1 |
| | | | | 11/14/2005 | | ICP-W-DIS | oct 31 - dis met | 1 |
| L68520-04E | | | | 11/14/2005 | Aqueous | OGB-W | ogb | 1 |
| L68520-04F | | | | 11/14/2005 | | NH3-W | oct 31 - nh3 | 1 |
| | | | | 11/14/2005 | | NH3-W-PREP | oct 31 - nh3 | 1 |

Client Carbon Resources / ~~Whiskey Creek~~

Address _____

City State Zip

Phone 970-835-3715 Fax _____

Contact Brad Lindsay

E-mail lindsay.Brad@gmail.com

Project Name Scofield Baseline

Project Number/P.O.# _____

Sampler Name Brad Lindsay

**AMERICAN WEST ANALYTICAL LABORATORIES**
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

# CHAIN OF CUSTODY

Lab Sample Set # 68520

Page _____ of _____

*Turn Around Time (Circle One)*

| 1 day | 2 day | 3 day | 4 day | 5 day | Standard |
|---|---|---|---|---|---|
| QC | 1 | 2 | 2+ | 3 | 3+ 4 |

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | See table 3 on file | | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Eagle Outlet | 10-31-05 11:40 | W | 6 | ✓ | | | | | | | | | | |
| Sulfer Springs | 10-31-05 12:00 | W | 6 | ✓ | | | | | | | | | | |
| Angle Spring | 10-31-05 12:45 | W | 6 | ✓ | | | | | | | | | | |
| Mud Creek | 10-31-05 1:15 | W | 6 | ✓ | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

Please indicate tests needed below

| Relinquished By: *Signature* | Date | Received By: *Signature* |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 16:00 | PRINT NAME Elma Hayward |
| Relinquished By: *Signature* | Date | Received By: *Signature* |
| PRINT NAME | Time | PRINT NAME |

| Relinquished By: *Signature* | Date | Received By: *Signature* |
|---|---|---|
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: *Signature* | Date | Received By: *Signature* |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

Please filter for disolved metals

Analysis the same as the previous set (table 3 surface water

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
*Notes:*

2 Ambient or Chilled
*Notes:*

3 Temperature 8°C

4 Received Broken/Leaking (Improperly Sealed)
Y N
*Notes:*

5 Properly Preserved
Y N
*Notes:*

6 Received Within Holding Times
Y N
*Notes:*

COC Tape Was:

1 Present on Outer Package Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
*Notes:*

Discrepancies Between Sample Labels and COC Record?
Y N
*Notes:*

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

## Preservation Check Sheet

Sample Set: 68520

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Cyanide | pH >12 NaOH | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Sulfide | pH > 9 NaOH, ZnAC | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOC[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| T PO4[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

Procedure:

1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 $H_2SO_4$ in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 $H_2SO_4$ in a B.R.

Frequency: All samples requiring preservation

December 08, 2005

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Brad Lindsay
Carbon Resources
c/o Rock Logic Consulting
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L68977

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 11/29/2005 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-01E
Field Sample ID: **Eagle Outlet**
Collected: 11/28/2005 11:00:00 AM
Received: 11/29/2005

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 12/6/2005 2:24:14 PM | 6010B | 0.050 | **1.2** |
| Manganese | mg/L | 12/2/2005 3:59:44 PM | 6020 | 0.0050 | **0.12** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-02E
Field Sample ID: **Sulfur Spring**
Collected: 11/28/2005 11:35:00 AM
Received: 11/29/2005

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 12/6/2005 2:40:07 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 12/2/2005 4:21:19 PM | 6020 | 0.0050 | **0.028** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-03E
Field Sample ID: **Mud Creek**
Collected: 11/28/2005 12:15:00 PM
Received: 11/29/2005

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 12/6/2005 2:44:05 PM | 6010B | 0.050 | **0.25** |
| Manganese | mg/L | 12/2/2005 4:26:44 PM | 6020 | 0.0050 | **0.030** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-04E
Field Sample ID: **Angle Spring**
Collected: 11/28/2005 1:15:00 PM
Received: 11/29/2005

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## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 12/6/2005 2:48:03 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 12/2/2005 4:32:08 PM | 6020 | 0.0050 | < 0.0050 |

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-01D
Field Sample ID: **Eagle Outlet**
Collected: 11/28/2005 11:00:00 AM
Received: 11/29/2005

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Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 12/5/2005 10:24:48 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 12/2/2005 3:00:40 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 12/5/2005 10:24:48 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 12/2/2005 3:00:40 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 12/6/2005 3:58:50 PM | 6010B | 5.0 | **100** |
| Copper | mg/L | 12/2/2005 3:00:40 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 12/5/2005 10:24:48 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 12/2/2005 3:00:40 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 12/5/2005 10:24:48 PM | 6010B | 1.0 | **20** |
| Manganese | mg/L | 12/2/2005 3:00:40 PM | 6020 | 0.0050 | **0.070** |
| Molybdenum | mg/L | 12/5/2005 10:24:48 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 12/5/2005 10:24:48 PM | 6010B | 1.0 | **1.8** |
| Selenium | mg/L | 12/2/2005 3:00:40 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 12/6/2005 3:58:50 PM | 6010B | 5.0 | **7.3** |
| Zinc | mg/L | 12/2/2005 3:00:40 PM | 6020 | 0.010 | **0.015** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-02D
Field Sample ID: **Sulfur Spring**
Collected: 11/28/2005 11:35:00 AM
Received: 11/29/2005

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Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 12/5/2005 10:40:31 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 12/2/2005 3:22:15 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 12/5/2005 10:40:31 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 12/2/2005 3:22:15 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 12/6/2005 4:14:55 PM | 6010B | 5.0 | **91** |
| Copper | mg/L | 12/2/2005 3:22:15 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 12/5/2005 10:40:31 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 12/2/2005 3:22:15 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 12/5/2005 10:40:31 PM | 6010B | 1.0 | **37** |
| Manganese | mg/L | 12/2/2005 3:22:15 PM | 6020 | 0.0050 | **0.031** |
| Molybdenum | mg/L | 12/5/2005 10:40:31 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 12/5/2005 10:40:31 PM | 6010B | 1.0 | **4.6** |
| Selenium | mg/L | 12/2/2005 3:22:15 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 12/6/2005 4:14:55 PM | 6010B | 5.0 | **8.8** |
| Zinc | mg/L | 12/2/2005 3:22:15 PM | 6020 | 0.010 | **0.035** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-03D
Field Sample ID: **Mud Creek**
Collected: 11/28/2005 12:15:00 PM
Received: 11/29/2005


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 12/5/2005 10:57:45 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 12/2/2005 3:43:32 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 12/5/2005 10:57:45 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 12/2/2005 3:43:32 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 12/6/2005 4:18:54 PM | 6010B | 5.0 | **98** |
| Copper | mg/L | 12/2/2005 3:43:32 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 12/5/2005 10:57:45 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 12/2/2005 3:43:32 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 12/5/2005 10:57:45 PM | 6010B | 1.0 | **59** |
| Manganese | mg/L | 12/2/2005 3:43:32 PM | 6020 | 0.0050 | **0.022** |
| Molybdenum | mg/L | 12/5/2005 10:57:45 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 12/5/2005 10:57:45 PM | 6010B | 1.0 | **9.2** |
| Selenium | mg/L | 12/2/2005 3:43:32 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 12/6/2005 4:18:54 PM | 6010B | 5.0 | **53** |
| Zinc | mg/L | 12/2/2005 3:43:32 PM | 6020 | 0.010 | **0.015** |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-04D
Field Sample ID: **Angle Spring**
Collected: 11/28/2005 1:15:00 PM
Received: 11/29/2005

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 12/5/2005 11:01:40 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 12/2/2005 3:48:56 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 12/5/2005 11:01:40 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 12/2/2005 3:48:56 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 12/6/2005 4:22:48 PM | 6010B | 5.0 | **100** |
| Copper | mg/L | 12/2/2005 3:48:56 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 12/5/2005 11:01:40 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 12/2/2005 3:48:56 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 12/5/2005 11:01:40 PM | 6010B | 1.0 | **18** |
| Manganese | mg/L | 12/2/2005 3:48:56 PM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 12/5/2005 11:01:40 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 12/5/2005 11:01:40 PM | 6010B | 1.0 | **1.0** |
| Selenium | mg/L | 12/2/2005 3:48:56 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 12/6/2005 4:22:48 PM | 6010B | 5.0 | **10** |
| Zinc | mg/L | 12/2/2005 3:48:56 PM | 6020 | 0.010 | **0.024** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-01
Field Sample ID: **Eagle Outlet**
Collected: 11/28/2005 11:00:00 AM
Received: 11/29/2005

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 12/01/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 11/29/05 | 2320B | 10 | **290** |
| Ammonia (as N) | mg/L | 12/07/05 | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 11/29/05 | 2320B | 10 | **290** |
| Carbonate (As CaCO3) | mg/L | 11/29/05 | 2320B | 10 | **< 10** |
| Chloride | mg/L | 12/03/05 | 300.0 | 10 | **12** |
| Hardness (as CaCO3) | mg/L | 12/06/05 | 2340B | 10 | **330** |
| Nitrate (as N) | mg/L | 11/29/05 1:48 pm | 353.2 | 0.010 | **0.36** |
| Nitrite (as N) | mg/L | 11/29/05 1:48 pm | 353.2 | 0.010 | **0.010** |
| Oil & Grease | mg/L | 11/30/05 | EPA 1664 | 3.0 | **3.9** |
| Phosphate, ortho (as P) | mg/L | 11/29/05 12:23 pm | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 11/29/05 12:00 pm | 2540F | 0.10 | **0.10** |
| Sulfate | mg/L | 12/03/05 | 300.0 | 10 | **30** |
| TDS | mg/L | 12/02/05 | 160.1 | 10 | **300** |
| TSS | mg/L | 11/29/05 | 160.2 | 3.0 | **44** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-02
Field Sample ID: **Sulfur Spring**
Collected: 11/28/2005 11:35:00 AM
Received: 11/29/2005

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 12/01/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 11/29/05 | 2320B | 10 | **340** |
| Ammonia (as N) | mg/L | 12/07/05 | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 11/29/05 | 2320B | 10 | **340** |
| Carbonate (As CaCO3) | mg/L | 11/29/05 | 2320B | 10 | < 10 |
| Chloride | mg/L | 12/03/05 | 300.0 | 1.0 | **6.2** |
| Hardness (as CaCO3) | mg/L | 12/06/05 | 2340B | 10 | **380** |
| Nitrate (as N) | mg/L | 11/29/05 1:48 pm | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 11/29/05 1:48 pm | 353.2 | 0.010 | **0.010** |
| Oil & Grease | mg/L | 11/30/05 | EPA 1664 | 3.0 | **3.6** |
| Phosphate, ortho (as P) | mg/L | 11/29/05 12:23 pm | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 11/29/05 12:00 pm | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 12/03/05 | 300.0 | 10 | **45** |
| TDS | mg/L | 12/02/05 | 160.1 | 10 | **330** |
| TSS | mg/L | 11/29/05 | 160.2 | 3.0 | < 3.0 |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-03
Field Sample ID: **Mud Creek**
Collected: 11/28/2005 12:15:00 PM
Received: 11/29/2005

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 12/01/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 11/29/05 | 2320B | 10 | **270** |
| Ammonia (as N) | mg/L | 12/07/05 | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 11/29/05 | 2320B | 10 | **250** |
| Carbonate (As CaCO3) | mg/L | 11/29/05 | 2320B | 10 | **24** |
| Chloride | mg/L | 12/03/05 | 300.0 | 10 | **15** |
| Hardness (as CaCO3) | mg/L | 12/06/05 | 2340B | 10 | **490** |
| Nitrate (as N) | mg/L | 11/29/05 1:48 pm | 353.2 | 0.010 | **0.40** |
| Nitrite (as N) | mg/L | 11/29/05 1:48 pm | 353.2 | 0.010 | **0.013** |
| Oil & Grease | mg/L | 11/30/05 | EPA 1664 | 3.0 | **4.1** |
| Phosphate, ortho (as P) | mg/L | 11/29/05 12:23 pm | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 11/29/05 12:00 pm | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 12/03/05 | 300.0 | 100 | **260** |
| TDS | mg/L | 12/02/05 | 160.1 | 10 | **700** |
| TSS | mg/L | 11/29/05 | 160.2 | 3.0 | **23** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L68977-04
Field Sample ID: **Angle Spring**
Collected: 11/28/2005 1:15:00 PM
Received: 11/29/2005

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 12/01/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 11/29/05 | 2320B | 10 | **300** |
| Ammonia (as N) | mg/L | 12/07/05 | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 11/29/05 | 2320B | 10 | **300** |
| Carbonate (As CaCO3) | mg/L | 11/29/05 | 2320B | 10 | < 10 |
| Chloride | mg/L | 12/03/05 | 300.0 | 10 | **22** |
| Hardness (as CaCO3) | mg/L | 12/06/05 | 2340B | 10 | **340** |
| Nitrate (as N) | mg/L | 11/29/05 1:48 pm | 353.2 | 0.010 | **0.96** |
| Nitrite (as N) | mg/L | 11/29/05 1:48 pm | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/30/05 | EPA 1664 | 3.0 | **3.7** |
| Phosphate, ortho (as P) | mg/L | 11/29/05 12:23 pm | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 11/29/05 12:00 pm | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 12/03/05 | 300.0 | 10 | **16** |
| TDS | mg/L | 12/02/05 | 160.1 | 10 | **290** |
| TSS | mg/L | 11/29/05 | 160.2 | 3.0 | < 3.0 |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

**Dept:** ME
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-26226 | Manganese | mg/L | 6020 | 0.1984 | 0.2 | 0 | 99.2 | 85-115 | | | | 12/2/2005 |
| LCS-26225 | Arsenic | mg/L | 6020 | 0.2258 | 0.2 | 0 | 113 | 85-115 | | | | 12/2/2005 |
| LCS-26225 | Cadmium | mg/L | 6020 | 0.2038 | 0.2 | 0 | 102 | 85-115 | | | | 12/2/2005 |
| LCS-26225 | Copper | mg/L | 6020 | 0.1998 | 0.2 | 0 | 99.9 | 85-115 | | | | 12/2/2005 |
| LCS-26225 | Lead | mg/L | 6020 | 0.2084 | 0.2 | 0 | 104 | 85-115 | | | | 12/2/2005 |
| LCS-26225 | Manganese | mg/L | 6020 | 0.2041 | 0.2 | 0 | 102 | 85-115 | | | | 12/2/2005 |
| LCS-26225 | Selenium | mg/L | 6020 | 0.2132 | 0.2 | 0 | 107 | 85-115 | | | | 12/2/2005 |
| LCS-26225 | Zinc | mg/L | 6020 | 1.027 | 1 | 0 | 103 | 85-115 | | | | 12/2/2005 |
| LCS-26226 | Iron | mg/L | 6010B | 1.062 | 1 | 0 | 106 | 75-125 | | | | 12/6/2005 |
| LCS-26225 | Aluminum | mg/L | 6010B | 0.8936 | 1 | 0 | 89.4 | 75-125 | | | | 12/5/2005 |
| LCS-26225 | Boron | mg/L | 6010B | 1.004 | 1 | 0 | 100 | 75-125 | | | | 12/5/2005 |
| LCS-26225 | Iron | mg/L | 6010B | 1.082 | 1 | 0 | 108 | 75-125 | | | | 12/5/2005 |
| LCS-26225 | Magnesium | mg/L | 6010B | 10.72 | 10 | 0 | 107 | 75-125 | | | | 12/5/2005 |
| LCS-26225 | Molybdenum | mg/L | 6010B | 0.2058 | 0.2 | 0 | 103 | 75-125 | | | | 12/5/2005 |
| LCS-26225 | Potassium | mg/L | 6010B | 10.07 | 10 | 0 | 101 | 75-125 | | | | 12/5/2005 |
| LCS-26225 | Calcium | mg/L | 6010B | 10.69 | 10 | 0 | 107 | 75-125 | | | | 12/6/2005 |
| LCS-26225 | Sodium | mg/L | 6010B | 10.22 | 10 | 0 | 102 | 75-125 | | | | 12/6/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

**Dept:** ME
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-26226 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 12/2/2005 |
| MB-26225 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 12/2/2005 |
| MB-26225 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 12/2/2005 |
| MB-26225 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 12/2/2005 |
| MB-26225 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 12/2/2005 |
| MB-26225 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 12/2/2005 |
| MB-26225 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 12/2/2005 |
| MB-26225 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 12/2/2005 |
| MB-26226 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 12/6/2005 |
| MB-26225 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 12/5/2005 |
| MB-26225 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 12/5/2005 |
| MB-26225 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 12/5/2005 |
| MB-26225 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/5/2005 |
| MB-26225 | Molybdenum | mg/L | 6010B | < 0.10 | | | | - | | | | 12/5/2005 |
| MB-26225 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/5/2005 |
| MB-26225 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/6/2005 |
| MB-26225 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/6/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

**Dept:** ME
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L68977-01EMS | Manganese | mg/L | 6020 | 0.3034 | 0.2 | 0.1184 | 92.5 | 70-130 | | | | 12/2/2005 |
| L68977-01DMS | Arsenic | mg/L | 6020 | 0.2289 | 0.2 | 0 | 114 | 70-130 | | | | 12/2/2005 |
| L68977-01DMS | Cadmium | mg/L | 6020 | 0.2031 | 0.2 | 0 | 102 | 70-130 | | | | 12/2/2005 |
| L68977-01DMS | Copper | mg/L | 6020 | 0.1821 | 0.2 | 0 | 91.0 | 70-130 | | | | 12/2/2005 |
| L68977-01DMS | Lead | mg/L | 6020 | 0.2160 | 0.2 | 0 | 108 | 70-130 | | | | 12/2/2005 |
| L68977-01DMS | Manganese | mg/L | 6020 | 0.2688 | 0.2 | 0.0699 | 99.5 | 70-130 | | | | 12/2/2005 |
| L68977-01DMS | Selenium | mg/L | 6020 | 0.2243 | 0.2 | 0 | 112 | 70-130 | | | | 12/2/2005 |
| L68977-01DMS | Zinc | mg/L | 6020 | 1.018 | 1 | 0.0146 | 100 | 70-130 | | | | 12/2/2005 |
| L68977-01EMS | Iron | mg/L | 6010B | 2.342 | 1 | 1.239 | 110 | 75-125 | | | | 12/6/2005 |
| L68977-01DMS | Aluminum | mg/L | 6010B | 0.9630 | 1 | 0 | 96.3 | 75-125 | | | | 12/5/2005 |
| L68977-01DMS | Boron | mg/L | 6010B | 1.010 | 1 | 0 | 101 | 75-125 | | | | 12/5/2005 |
| L68977-01DMS | Iron | mg/L | 6010B | 1.065 | 1 | 0 | 106 | 75-125 | | | | 12/5/2005 |
| L68977-01DMS | Magnesium | mg/L | 6010B | 30.59 | 10 | 20.37 | 102 | 75-125 | | | | 12/5/2005 |
| L68977-01DMS | Molybdenum | mg/L | 6010B | 0.2065 | 0.2 | 0 | 103 | 75-125 | | | | 12/5/2005 |
| L68977-01DMS | Potassium | mg/L | 6010B | 12.19 | 10 | 1.784 | 104 | 75-125 | | | | 12/5/2005 |
| L68977-01DMS | Calcium | mg/L | 6010B | 109.2 | 10 | 99.59 | 96.4 | 75-125 | | | | 12/6/2005 |
| L68977-01DMS | Sodium | mg/L | 6010B | 17.33 | 10 | 7.273 | 101 | 75-125 | | | | 12/6/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

**Dept:** ME
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L68977-01EMSD | Manganese | mg/L | 6020 | 0.3144 | 0.2 | 0.1184 | 98.0 | 70-130 | 3.56 | 20 | | 12/2/2005 |
| L68977-01DMSD | Arsenic | mg/L | 6020 | 0.2327 | 0.2 | 0 | 116 | 70-130 | 1.65 | 20 | | 12/2/2005 |
| L68977-01DMSD | Cadmium | mg/L | 6020 | 0.2090 | 0.2 | 0 | 104 | 70-130 | 2.86 | 20 | | 12/2/2005 |
| L68977-01DMSD | Copper | mg/L | 6020 | 0.1840 | 0.2 | 0 | 92.0 | 70-130 | 1.04 | 20 | | 12/2/2005 |
| L68977-01DMSD | Lead | mg/L | 6020 | 0.2241 | 0.2 | 0 | 112 | 70-130 | 3.68 | 20 | | 12/2/2005 |
| L68977-01DMSD | Manganese | mg/L | 6020 | 0.2746 | 0.2 | 0.0699 | 102 | 70-130 | 2.13 | 20 | | 12/2/2005 |
| L68977-01DMSD | Selenium | mg/L | 6020 | 0.2312 | 0.2 | 0 | 116 | 70-130 | 3.03 | 20 | | 12/2/2005 |
| L68977-01DMSD | Zinc | mg/L | 6020 | 1.028 | 1 | 0.0146 | 101 | 70-130 | 1.05 | 20 | | 12/2/2005 |
| L68977-01EMSD | Iron | mg/L | 6010B | 2.360 | 1 | 1.239 | 112 | 75-125 | 0.755 | 20 | | 12/6/2005 |
| L68977-01DMSD | Aluminum | mg/L | 6010B | 0.9580 | 1 | 0 | 95.8 | 75-125 | 0.521 | 20 | | 12/5/2005 |
| L68977-01DMSD | Boron | mg/L | 6010B | 1.017 | 1 | 0 | 102 | 75-125 | 0.653 | 20 | | 12/5/2005 |
| L68977-01DMSD | Iron | mg/L | 6010B | 1.061 | 1 | 0 | 106 | 75-125 | 0.291 | 20 | | 12/5/2005 |
| L68977-01DMSD | Magnesium | mg/L | 6010B | 30.55 | 10 | 20.37 | 102 | 75-125 | 0.118 | 20 | | 12/5/2005 |
| L68977-01DMSD | Molybdenum | mg/L | 6010B | 0.2068 | 0.2 | 0 | 103 | 75-125 | 0.160 | 20 | | 12/5/2005 |
| L68977-01DMSD | Potassium | mg/L | 6010B | 12.47 | 10 | 1.784 | 107 | 75-125 | 2.29 | 20 | | 12/5/2005 |
| L68977-01DMSD | Calcium | mg/L | 6010B | 108.4 | 10 | 99.59 | 87.8 | 75-125 | 0.791 | 20 | | 12/6/2005 |
| L68977-01DMSD | Sodium | mg/L | 6010B | 17.37 | 10 | 7.273 | 101 | 75-125 | 0.249 | 20 | | 12/6/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

**Dept:** WC
**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L68977-01CDUP | Chloride | mg/L | 300.0 | 12.59 | 0 | 12.39 | | - | 1.57 | 20 | | 12/3/2005 |
| L68977-01CDUP | Sulfate | mg/L | 300.0 | 29.57 | 0 | 30.24 | | - | 2.24 | 20 | | 12/3/2005 |
| L68977-04BDUP | TDS | mg/L | 160.1 | 300.0 | 0 | 288 | | - | 4.08 | 20 | | 12/2/2005 |
| L68999-01CDUP | TDS | mg/L | 160.1 | 1400 | 0 | 1000 | | - | 33.3 | 20 | ~ | 12/2/2005 |
| L68977-04ADUP | TSS | mg/L | 160.2 | < 3.0 | 0 | 0 | | - | 0 | 20 | | 11/29/2005 |
| L68981-03ADUP | TSS | mg/L | 160.2 | 10.00 | 0 | 10 | | - | 0 | 20 | | 11/29/2005 |
| L68985-02ADUP | TSS | mg/L | 160.2 | 1050 | 0 | 1040 | | - | 0.957 | 20 | | 11/29/2005 |

~ High RPD due to suspected sample non-homogeneity.

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

**Dept:** WC
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R52954 | Alkalinity,(As CaCO3) | mg/L | 2320B | 49020 | 50000 | 0 | 98.0 | 90-110 | | | | 11/29/2005 |
| LCS-R53107 | Chloride | mg/L | 300.0 | 5.041 | 5 | 0 | 101 | 90-110 | | | | 12/2/2005 |
| LCS-R53107 | Sulfate | mg/L | 300.0 | 5.119 | 5 | 0 | 102 | 90-110 | | | | 12/2/2005 |
| LCS-R53022 | Acidity | mg/L | 305.1 | 55.00 | 50 | 0 | 110 | 80-120 | | | | 12/1/2005 |
| LCS-26282 | Ammonia (as N) | mg/L | 350.1 | 0.9150 | 1 | 0 | 91.5 | 90-110 | | | | 12/7/2005 |
| LCS-52958 | Nitrite (as N) | mg/L | 353.2 | 0.9380 | 1 | 0 | 93.8 | 90-110 | | | | 11/29/2005 |
| LCS-52959 | Nitrate (as N) | mg/L | 353.2 | 0.9780 | 1 | 0 | 97.8 | 90-110 | | | | 11/29/2005 |
| LCS-R53035 | Oil & Grease | mg/L | EPA 1664 | 40.60 | 40 | 0 | 102 | 79-114 | | | | 11/30/2005 |
| LCS-52955 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9870 | 1 | 0 | 98.7 | 90-110 | | | | 11/29/2005 |
| LCS-R53132 | TDS | mg/L | 160.1 | 200.0 | 205 | 0 | 97.6 | 80-120 | | | | 12/2/2005 |
| LCS-R52988 | TSS | mg/L | 160.2 | 100.0 | 100 | 0 | 100 | 80-120 | | | | 11/29/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

**Dept:** WC
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R52954 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 11/29/2005 |
| MB-R52954 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 11/29/2005 |
| MB-R52954 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 11/29/2005 |
| MB-R53107 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 12/2/2005 |
| MB-R53107 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 12/2/2005 |
| MB-R53022 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 12/1/2005 |
| MB-26282 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 12/7/2005 |
| MB-52958 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 11/29/2005 |
| MB-52959 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 11/29/2005 |
| MB-R53035 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 11/30/2005 |
| MB-52955 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 11/29/2005 |
| MB-R53132 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 12/2/2005 |
| MB-R52988 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 11/29/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

**Dept:** WC
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L68977-01CMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 397.0 | 100 | 294 | 103 | 80-120 | | | | 11/29/2005 |
| L68977-01CMS | Chloride | mg/L | 300.0 | 60.88 | 50 | 12.39 | 97.0 | 90-110 | | | | 12/3/2005 |
| L68977-01CMS | Sulfate | mg/L | 300.0 | 81.08 | 50 | 30.24 | 102 | 90-110 | | | | 12/3/2005 |
| L68977-01CMS | Acidity | mg/L | 305.1 | 42.00 | 50 | 0 | 84.0 | 80-120 | | | | 12/1/2005 |
| L68977-02FMS | Ammonia (as N) | mg/L | 350.1 | 0.9810 | 1 | 0 | 98.1 | 90-110 | | | | 12/7/2005 |
| L68977-01CMS | Nitrite (as N) | mg/L | 353.2 | 0.9890 | 1 | 0.01 | 97.9 | 90-110 | | | | 11/29/2005 |
| L68977-01CMS | Nitrate (as N) | mg/L | 353.2 | 1.297 | 1 | 0.356 | 94.1 | 90-110 | | | | 11/29/2005 |
| L68977-01CMS | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9430 | 1 | 0 | 94.3 | 90-110 | | | | 11/29/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

**Dept:** WC
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L68977-01CMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 394.0 | 100 | 294 | 100 | 80-120 | 0.759 | 10 | | 11/29/2005 |
| L68977-01CMSD | Chloride | mg/L | 300.0 | 60.21 | 50 | 12.39 | 95.6 | 90-110 | 1.10 | 20 | | 12/3/2005 |
| L68977-01CMSD | Sulfate | mg/L | 300.0 | 79.72 | 50 | 30.24 | 98.9 | 90-110 | 1.70 | 20 | | 12/3/2005 |
| L68977-01CMSD | Acidity | mg/L | 305.1 | 44.00 | 50 | 0 | 88.0 | 80-120 | 4.65 | 20 | | 12/1/2005 |
| L68977-02FMSD | Ammonia (as N) | mg/L | 350.1 | 0.9190 | 1 | 0 | 91.9 | 90-110 | 6.53 | 10 | | 12/7/2005 |
| L68977-01CMSD | Nitrite (as N) | mg/L | 353.2 | 0.9630 | 1 | 0.01 | 95.3 | 90-110 | 2.66 | 10 | | 11/29/2005 |
| L68977-01CMSD | Nitrate (as N) | mg/L | 353.2 | 1.418 | 1 | 0.356 | 106 | 90-110 | 8.91 | 10 | | 11/29/2005 |
| L68977-01CMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9460 | 1 | 0 | 94.6 | 90-110 | 0.318 | 10 | | 11/29/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R53035 | Oil & Grease | mg/L | EPA 1664 | 40.80 | 40 | 0 | 102 | 79-114 | | | | 11/30/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L68977
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R53035 | Oil & Grease | mg/L | EPA 1664 | 41.60 | 40 | 0 | 104 | 79-114 | | | | 11/30/2005 |

# American West Analytical Labs

## WORK ORDER Summary

*29-Nov-05*

**Work Order** L68977

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** HOK 15

**Comments:** QCLevel: 2+.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L68977-01A | Eagle Outlet | 11/28/2005 11:00:00 AM | 11/29/2005 | 12/13/2005 | Aqueous | SS | ww - tss/ss | 1 |
| | | | | 12/13/2005 | | TSS-W | ww - tss/ss | 1 |
| L68977-01B | | | | 12/13/2005 | | TDS-W | ww - tds | 1 |
| L68977-01C | | | | 12/13/2005 | | 2320B-ALK-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | 300.0-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | ACIDITY-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | NO2-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | NO3-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | PO4-O | nov 29 - wc | 1 |
| L68977-01D | | | | 12/13/2005 | Aqueous-Dissolved | 3005A-Diss | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | 6020-W-DISS | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | HARD | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | ICP-W-DIS | nov 29 - wc | 1 |
| L68977-01E | | | | 12/13/2005 | Aqueous | 3005A-ICPMS | nov 29 - metals | 1 |
| | | | | 12/13/2005 | | 6020-W | nov 29 - metals | 1 |
| | | | | 12/13/2005 | | ICP-W | nov 29 - metals | 1 |
| L68977-01F | | | | 12/13/2005 | | NH3-W | nov 29 - nh3 | 1 |
| | | | | 12/13/2005 | | NH3-W-PREP | nov 29 - nh3 | 1 |
| L68977-01G | | | | 12/13/2005 | | OGB-W | ogb | 1 |
| L68977-02A | Sulfur Spring | 11/28/2005 11:35:00 AM | | 12/13/2005 | | SS | ww - tss/ss | 1 |
| | | | | 12/13/2005 | | TSS-W | ww - tss/ss | 1 |
| L68977-02B | | | | 12/13/2005 | | TDS-W | ww - tds | 1 |
| L68977-02C | | | | 12/13/2005 | | 2320B-ALK-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | 300.0-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | ACIDITY-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | NO2-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | NO3-W | nov 29 - wc | 1 |



L68977

# WORK ORDER Summary

*29-Nov-05*

**Work Order** L68977

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: 2+.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L68977-02C | Sulfur Spring | 11/28/2005 11:35:00 AM | 11/29/2005 | 12/13/2005 | Aqueous | PO4-O | nov 29 - wc | 1 |
| L68977-02D | | | | 12/13/2005 | Aqueous-Dissolved | 3005A-Diss | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | 6020-W-DISS | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | HARD | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | ICP-W-DIS | nov 29 - wc | 1 |
| L68977-02E | | | | 12/13/2005 | Aqueous | 3005A-ICPMS | nov 29 - metals | 1 |
| | | | | 12/13/2005 | | 6020-W | nov 29 - metals | 1 |
| | | | | 12/13/2005 | | ICP-W | nov 29 - metals | 1 |
| L68977-02F | | | | 12/13/2005 | | NH3-W | nov 29 - nh3 | 1 |
| | | | | 12/13/2005 | | NH3-W-PREP | nov 29 - nh3 | 1 |
| L68977-02G | | | | 12/13/2005 | | OGB-W | ogb | 1 |
| L68977-03A | Mud Creek | 11/28/2005 12:15:00 PM | | 12/13/2005 | | SS | ww - tss/ss | 1 |
| | | | | 12/13/2005 | | TSS-W | ww - tss/ss | 1 |
| L68977-03B | | | | 12/13/2005 | | TDS-W | ww - tds | 1 |
| L68977-03C | | | | 12/13/2005 | | 2320B-ALK-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | 300.0-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | ACIDITY-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | NO2-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | NO3-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | PO4-O | nov 29 - wc | 1 |
| L68977-03D | | | | 12/13/2005 | Aqueous-Dissolved | 3005A-Diss | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | 6020-W-DISS | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | HARD | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | ICP-W-DIS | nov 29 - wc | 1 |
| L68977-03E | | | | 12/13/2005 | Aqueous | 3005A-ICPMS | nov 29 - metals | 1 |
| | | | | 12/13/2005 | | 6020-W | nov 29 - metals | 1 |
| | | | | 12/13/2005 | | ICP-W | nov 29 - metals | 1 |
| L68977-03F | | | | 12/13/2005 | | NH3-W | nov 29 - nh3 | 1 |

# WORK ORDER Summary

*29-Nov-05*

**Work Order** L68977

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: 2+.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L68977-03F | Mud Creek | 11/28/2005 12:15:00 PM | 11/29/2005 | 12/13/2005 | Aqueous | NH3-W-PREP | nov 29 - nh3 | 1 |
| L68977-03G | | | | 12/13/2005 | | OGB-W | ogb | 1 |
| L68977-04A | Angle Spring | 11/28/2005 1:15:00 PM | | 12/13/2005 | | SS | ww - tss/ss | 1 |
| | | | | 12/13/2005 | | TSS-W | ww - tss/ss | 1 |
| L68977-04B | | | | 12/13/2005 | | TDS-W | ww - tds | 1 |
| L68977-04C | | | | 12/13/2005 | | 2320B-ALK-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | 300.0-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | ACIDITY-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | NO2-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | NO3-W | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | PO4-O | nov 29 - wc | 1 |
| L68977-04D | | | | 12/13/2005 | Aqueous-Dissolved | 3005A-Diss | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | 6020-W-DISS | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | HARD | nov 29 - wc | 1 |
| | | | | 12/13/2005 | | ICP-W-DIS | nov 29 - wc | 1 |
| L68977-04E | | | | 12/13/2005 | Aqueous | 3005A-ICPMS | nov 29 - metals | 1 |
| | | | | 12/13/2005 | | 6020-W | nov 29 - metals | 1 |
| | | | | 12/13/2005 | | ICP-W | nov 29 - metals | 1 |
| L68977-04F | | | | 12/13/2005 | | NH3-W | nov 29 - nh3 | 1 |
| | | | | 12/13/2005 | | NH3-W-PREP | nov 29 - nh3 | 1 |
| L68977-04G | | | | 12/13/2005 | | OGB-W | ogb | 1 |

Client Carbon Resources

Address C/O ROCK LOGIC P.O. BOX 544

CEDAREDGE CO 81413

City State Zip

Phone 435-851-9044 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield baseline

Project Number/P.O.#

Sampler Name Brad Lindsay

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# CHAIN OF CUSTODY

Lab Sample Set # 68977

Page 1 of 1

*Turn Around Time (Circle One)*

1 day 2 day 3 day 4 day 5 day (Standard)

QC 1 2 (2+) 3 3+ 4

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | See tab 2 on file | | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Eagle Outlet | 11-28-05/11:00 | W | 6 | ✓ | | | | | | | | | | |
| Sulfer Spring | 11-28-05/11:35 | W | 6 | ✓ | | | | | | | | | | |
| Mud Creek | 11-28-05/12:15 | W | 6 | ✓ | | | | | | | | | | |
| Argle Spring | 11-28-05/13:15 | W | 6 | ✓ | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

Please indicate tests needed below

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 15:00 | PRINT NAME |
| Relinquished By: Signature UPS | Date 11/29/05 | Received By: Signature |
| PRINT NAME | Time 10:45 | PRINT NAME REBECCA WINKLER |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

please filter for dissolved metals

Analysis the same as the previous set (table 2 surface water)

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
Notes: UPS

2 Ambient or Chilled
Notes:

3 Temperature 1°C

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y N
Notes: pH 11/29/05

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | | |
|---|---|---|---|---|
| * | - | Total Dissolved Solids | | mg/l |
| * | - | Total Settleable Solids | | (UPDES) |
| * | - | Total Suspended Solids | | mg/l |
| * | - | Total Hardness ($CaCO_3$) | | mg/l |
| * | - | Total Alkalinity | | mg/l |
| | - | Acidity | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved)[1] | | mg/l |
| * | - | Carbonate | | mg/l |
| * | - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| * | - | Calcium (Dissolved) | | mg/l |
| * | - | Chloride | mg/l | |
| | - | Copper (Dissolved) | | mg/l |
| * | - | Iron (Dissolved) | | mg/l |
| * | - | Iron (Total) | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| * | - | Magnesium (Dissolved) | | mg/l |
| * | - | Manganese (Dissolved) | | mg/l |
| * | - | Manganese (Total) | | mg/l |
| | - | Molybdenum (Dissolved) | | mg/l |
| | - | Ammonia | | mg/l |
| | - | Nitrates | | mg/l |
| | - | Nitrites | | mg/l |
| * | - | Potassium (Dissolved) | | mg/l |
| | - | Phosphates(Ortho) | | mg/l |
| | - | Selenium[1] (Dissolved) | | mg/l |
| * | - | Sodium (Dissolved) | | mg/l |
| * | - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| * | - | Oil & Grease[2] | | mg/l |
| * | - | Cations | | meq/l |
| * | - | Anions | | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

## Preservation Check Sheet

Sample Set: 68977

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia[1] | pH <2 $H_2SO_4$ | √ | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Cyanide | pH >12 NaOH | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | √ | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | √ | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Sulfide | pH > 9 NaOH, ZnAC | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOC[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| T PO4[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

Procedure:

1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 $H_2SO_4$ in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 $H_2SO_4$ in a B.R.

Frequency: All samples requiring preservation

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January 03, 2006

Brad Lindsay
Carbon Resources
c/o Rock Logic Consulting
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L69428

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 12/22/2005 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-01D
Field Sample ID: **Mud Creek**
Collected: 12/22/2005 12:30:00 PM
Received: 12/22/2005

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 12/27/2005 3:17:24 PM | 6010B | 0.050 | **0.28** |
| Manganese | mg/L | 12/28/2005 2:43:04 PM | 6020 | 0.0050 | **0.028** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-02D
Field Sample ID: **Sulfur Spring**
Collected: 12/22/2005 1:00:00 PM
Received: 12/22/2005

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 12/27/2005 3:34:56 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 12/28/2005 3:15:28 PM | 6020 | 0.0050 | **0.033** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-03D
Field Sample ID: **Eagle Outlet**
Collected: 12/22/2005 9:00:00 AM
Received: 12/22/2005

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 12/27/2005 3:38:51 PM | 6010B | 0.050 | **1.5** |
| Manganese | mg/L | 12/28/2005 3:20:49 PM | 6020 | 0.0050 | **0.14** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-04D
Field Sample ID: **Angle Spring**
Collected: 12/22/2005 11:00:00 AM
Received: 12/22/2005

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Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 12/27/2005 3:42:46 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 12/28/2005 3:26:14 PM | 6020 | 0.0050 | < 0.0050 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L69428-01C
Field Sample ID: **Mud Creek**
Collected: 12/22/2005 12:30:00 PM
Received: 12/22/2005


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Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 12/27/2005 4:05:52 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 12/28/2005 1:59:54 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 12/27/2005 4:05:52 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 12/28/2005 1:59:54 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 12/27/2005 4:05:52 PM | 6010B | 10 | **91** [2] |
| Copper | mg/L | 12/28/2005 1:59:54 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 12/27/2005 4:05:52 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 12/28/2005 1:59:54 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 12/27/2005 4:05:52 PM | 6010B | 1.0 | **50** |
| Manganese | mg/L | 12/28/2005 1:59:54 PM | 6020 | 0.0050 | **0.021** |
| Molybdenum | mg/L | 12/27/2005 4:05:52 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 12/27/2005 4:05:52 PM | 6010B | 1.0 | **7.6** |
| Selenium | mg/L | 12/28/2005 1:59:54 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 12/27/2005 6:28:40 PM | 6010B | 1.0 | **35** |
| Zinc | mg/L | 12/28/2005 1:59:54 PM | 6020 | 0.010 | < 0.010 |

[2] *Analyte concentration is too high for accurate spike recovery.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-02C
Field Sample ID: **Sulfur Spring**
Collected: 12/22/2005 1:00:00 PM
Received: 12/22/2005

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QA Officer

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 12/27/2005 4:26:42 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 12/28/2005 2:21:30 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 12/27/2005 4:26:42 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 12/28/2005 2:21:30 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 12/27/2005 4:26:42 PM | 6010B | 1.0 | **93** |
| Copper | mg/L | 12/28/2005 2:21:30 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 12/27/2005 4:26:42 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 12/28/2005 2:21:30 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 12/27/2005 4:26:42 PM | 6010B | 1.0 | **36** |
| Manganese | mg/L | 12/28/2005 2:21:30 PM | 6020 | 0.0050 | **0.035** |
| Molybdenum | mg/L | 12/27/2005 4:26:42 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 12/27/2005 4:26:42 PM | 6010B | 1.0 | **5.0** |
| Selenium | mg/L | 12/28/2005 2:21:30 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 12/27/2005 6:44:32 PM | 6010B | 1.0 | **9.1** |
| Zinc | mg/L | 12/28/2005 2:21:30 PM | 6020 | 0.010 | < 0.010 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-03C
Field Sample ID: **Eagle Outlet**
Collected: 12/22/2005 9:00:00 AM
Received: 12/22/2005


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Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 12/27/2005 4:30:50 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 12/28/2005 2:26:53 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 12/27/2005 4:30:50 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 12/28/2005 2:26:53 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 12/27/2005 4:30:50 PM | 6010B | 1.0 | **95** |
| Copper | mg/L | 12/28/2005 2:26:53 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 12/27/2005 4:30:50 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 12/28/2005 2:26:53 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 12/27/2005 4:30:50 PM | 6010B | 1.0 | **18** |
| Manganese | mg/L | 12/28/2005 2:26:53 PM | 6020 | 0.0050 | **0.074** |
| Molybdenum | mg/L | 12/27/2005 4:30:50 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 12/27/2005 4:30:50 PM | 6010B | 1.0 | **1.9** |
| Selenium | mg/L | 12/28/2005 2:26:53 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 12/28/2005 12:03:01 PM | 6010B | 1.0 | **6.4** |
| Zinc | mg/L | 12/28/2005 2:26:53 PM | 6020 | 0.010 | **0.023** |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-04C
Field Sample ID: **Angle Spring**
Collected: 12/22/2005 11:00:00 AM
Received: 12/22/2005

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Peggy McNicol
QA Officer

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 12/27/2005 4:35:13 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 12/28/2005 2:32:15 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 12/27/2005 4:35:13 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 12/28/2005 2:32:15 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 12/27/2005 4:35:13 PM | 6010B | 1.0 | **100** |
| Copper | mg/L | 12/28/2005 2:32:15 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 12/27/2005 4:35:13 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 12/28/2005 2:32:15 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 12/27/2005 4:35:13 PM | 6010B | 1.0 | **19** |
| Manganese | mg/L | 12/28/2005 2:32:15 PM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 12/27/2005 4:35:13 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 12/27/2005 4:35:13 PM | 6010B | 1.0 | **1.4** |
| Selenium | mg/L | 12/28/2005 2:32:15 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 12/28/2005 12:06:57 PM | 6010B | 1.0 | **9.8** |
| Zinc | mg/L | 12/28/2005 2:32:15 PM | 6020 | 0.010 | < 0.010 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-01
Field Sample ID: **Mud Creek**
Collected: 12/22/2005 12:30:00 PM
Received: 12/22/2005


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Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 12/23/05 | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 12/23/05 | 2320B | 10 | **250** | |
| Ammonia (as N) | mg/L | 12/28/05 | 350.1 | 0.050 | < 0.050 | 1 |
| Bicarbonate (As CaCO3) | mg/L | 12/23/05 | 2320B | 10 | **250** | |
| Carbonate (As CaCO3) | mg/L | 12/23/05 | 2320B | 10 | < 10 | |
| Chloride | mg/L | 12/28/05 | 300.0 | 10 | **17** | |
| Hardness (as CaCO3) | mg/L | 12/27/05 | 2340B | 10 | **430** | |
| Nitrate (as N) | mg/L | 12/23/05 3:26 pm | 353.2 | 0.010 | **0.28** | 1 |
| Nitrite (as N) | mg/L | 12/23/05 3:26 pm | 353.2 | 0.010 | < 0.010 | 1 |
| Oil & Grease | mg/L | 12/28/05 | EPA 1664 | 3.0 | **3.1** | |
| Phosphate, ortho (as P) | mg/L | 12/23/05 10:42 am | 365.1 | 0.050 | < 0.050 | 1@ |
| Settable Solids | ml/L | 12/23/05 10:00 am | 2540F | 0.10 | < 0.10 | |
| Sulfate | mg/L | 12/28/05 | 300.0 | 100 | **190** | |
| TDS | mg/L | 12/23/05 | 160.1 | 10 | **600** | |
| TSS | mg/L | 12/23/05 | 160.2 | 3.0 | **13** | |

*[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*
*@ High RPD due to suspected matrix interference.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-02
Field Sample ID: **Sulfur Spring**
Collected: 12/22/2005 1:00:00 PM
Received: 12/22/2005


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Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 12/23/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 12/23/05 | 2320B | 10 | **340** |
| Ammonia (as N) | mg/L | 12/28/05 | 350.1 | 0.050 | **0.13** |
| Bicarbonate (As CaCO3) | mg/L | 12/23/05 | 2320B | 10 | **340** |
| Carbonate (As CaCO3) | mg/L | 12/23/05 | 2320B | 10 | < 10 |
| Chloride | mg/L | 12/28/05 | 300.0 | 1.0 | **6.3** |
| Hardness (as CaCO3) | mg/L | 12/27/05 | 2340B | 10 | **380** |
| Nitrate (as N) | mg/L | 12/23/05 3:26 pm | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 12/23/05 3:26 pm | 353.2 | 0.010 | **0.010** |
| Oil & Grease | mg/L | 12/28/05 | EPA 1664 | 3.0 | **4.2** |
| Phosphate, ortho (as P) | mg/L | 12/23/05 10:42 am | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 12/23/05 10:00 am | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 12/28/05 | 300.0 | 10 | **46** |
| TDS | mg/L | 12/23/05 | 160.1 | 10 | **420** |
| TSS | mg/L | 12/23/05 | 160.2 | 3.0 | < 3.0 |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-03
Field Sample ID: **Eagle Outlet**
Collected: 12/22/2005 9:00:00 AM
Received: 12/22/2005

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Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 12/23/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 12/23/05 | 2320B | 10 | **280** |
| Ammonia (as N) | mg/L | 12/28/05 | 350.1 | 0.050 | **0.087** |
| Bicarbonate (As CaCO3) | mg/L | 12/23/05 | 2320B | 10 | **280** |
| Carbonate (As CaCO3) | mg/L | 12/23/05 | 2320B | 10 | < 10 |
| Chloride | mg/L | 12/28/05 | 300.0 | 10 | **11** |
| Hardness (as CaCO3) | mg/L | 12/27/05 | 2340B | 10 | **310** |
| Nitrate (as N) | mg/L | 12/23/05 3:26 pm | 353.2 | 0.010 | **0.53** |
| Nitrite (as N) | mg/L | 12/23/05 3:26 pm | 353.2 | 0.010 | **0.012** |
| Oil & Grease | mg/L | 12/28/05 | EPA 1664 | 3.0 | **3.5** |
| Phosphate, ortho (as P) | mg/L | 12/23/05 10:42 am | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 12/23/05 10:00 am | 2540F | 0.10 | **0.10** |
| Sulfate | mg/L | 12/28/05 | 300.0 | 10 | **27** |
| TDS | mg/L | 12/23/05 | 160.1 | 10 | **370** |
| TSS | mg/L | 12/23/05 | 160.2 | 3.0 | **75** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69428-04
Field Sample ID: **Angle Spring**
Collected: 12/22/2005 11:00:00 AM
Received: 12/22/2005


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Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 12/23/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 12/23/05 | 2320B | 10 | **310** |
| Ammonia (as N) | mg/L | 12/28/05 | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 12/23/05 | 2320B | 10 | **310** |
| Carbonate (As CaCO3) | mg/L | 12/23/05 | 2320B | 10 | < 10 |
| Chloride | mg/L | 12/28/05 | 300.0 | 10 | **22** |
| Hardness (as CaCO3) | mg/L | 12/27/05 | 2340B | 10 | **330** |
| Nitrate (as N) | mg/L | 12/23/05 3:26 pm | 353.2 | 0.010 | **0.98** |
| Nitrite (as N) | mg/L | 12/23/05 3:26 pm | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 12/28/05 | EPA 1664 | 3.0 | **3.4** |
| Phosphate, ortho (as P) | mg/L | 12/23/05 10:42 am | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 12/23/05 10:00 am | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 12/28/05 | 300.0 | 10 | **15** |
| TDS | mg/L | 12/23/05 | 160.1 | 10 | **400** |
| TSS | mg/L | 12/23/05 | 160.2 | 3.0 | < 3.0 |




All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

**Dept:** ME
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-26529 | Manganese | mg/L | 6020 | 0.1987 | 0.2 | 0.0009143 | 98.9 | 85-115 | | | | 12/28/2005 |
| LCS-26528 | Arsenic | mg/L | 6020 | 0.2057 | 0.2 | 0 | 103 | 85-115 | | | | 12/28/2005 |
| LCS-26528 | Cadmium | mg/L | 6020 | 0.2046 | 0.2 | 0 | 102 | 85-115 | | | | 12/28/2005 |
| LCS-26528 | Copper | mg/L | 6020 | 0.2026 | 0.2 | 0 | 101 | 85-115 | | | | 12/28/2005 |
| LCS-26528 | Lead | mg/L | 6020 | 0.2113 | 0.2 | 0 | 106 | 85-115 | | | | 12/28/2005 |
| LCS-26528 | Manganese | mg/L | 6020 | 0.2015 | 0.2 | 0 | 101 | 85-115 | | | | 12/28/2005 |
| LCS-26528 | Selenium | mg/L | 6020 | 0.2121 | 0.2 | 0 | 106 | 85-115 | | | | 12/28/2005 |
| LCS-26528 | Zinc | mg/L | 6020 | 1.036 | 1 | 0 | 104 | 85-115 | | | | 12/28/2005 |
| LCS-26529 | Iron | mg/L | 6010B | 1.076 | 1 | 0 | 108 | 75-125 | | | | 12/27/2005 |
| LCS-26528 | Aluminum | mg/L | 6010B | 1.007 | 1 | 0 | 101 | 75-125 | | | | 12/27/2005 |
| LCS-26528 | Boron | mg/L | 6010B | 1.050 | 1 | 0 | 105 | 75-125 | | | | 12/27/2005 |
| LCS-26528 | Calcium | mg/L | 6010B | 10.22 | 10 | 0 | 102 | 75-125 | | | | 12/27/2005 |
| LCS-26528 | Iron | mg/L | 6010B | 1.054 | 1 | 0 | 105 | 75-125 | | | | 12/27/2005 |
| LCS-26528 | Magnesium | mg/L | 6010B | 10.34 | 10 | 0 | 103 | 75-125 | | | | 12/27/2005 |
| LCS-26528 | Molybdenum | mg/L | 6010B | 0.2072 | 0.2 | 0 | 104 | 75-125 | | | | 12/27/2005 |
| LCS-26528 | Potassium | mg/L | 6010B | 10.15 | 10 | 0 | 102 | 75-125 | | | | 12/27/2005 |
| LCS-26528 | Sodium | mg/L | 6010B | 10.16 | 10 | 0 | 102 | 75-125 | | | | 12/27/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

**Dept:** ME
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-26529 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 12/28/2005 |
| MB-26528 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 12/28/2005 |
| MB-26528 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 12/28/2005 |
| MB-26528 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 12/28/2005 |
| MB-26528 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 12/28/2005 |
| MB-26528 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 12/28/2005 |
| MB-26528 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 12/28/2005 |
| MB-26528 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 12/28/2005 |
| MB-26529 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 12/27/2005 |
| MB-26528 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 12/27/2005 |
| MB-26528 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 12/27/2005 |
| MB-26528 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/27/2005 |
| MB-26528 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 12/27/2005 |
| MB-26528 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/27/2005 |
| MB-26528 | Molybdenum | mg/L | 6010B | < 0.10 | | | | - | | | | 12/27/2005 |
| MB-26528 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/27/2005 |
| MB-26528 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/27/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

**Dept:** ME
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L69428-01DMS | Manganese | mg/L | 6020 | 0.2287 | 0.2 | 0.0282 | 100 | 70-130 | | | | 12/28/2005 |
| L69428-01CMS | Arsenic | mg/L | 6020 | 0.1938 | 0.2 | 0 | 96.9 | 70-130 | | | | 12/28/2005 |
| L69428-01CMS | Cadmium | mg/L | 6020 | 0.1999 | 0.2 | 0 | 100 | 70-130 | | | | 12/28/2005 |
| L69428-01CMS | Copper | mg/L | 6020 | 0.1964 | 0.2 | 0.002 | 97.2 | 70-130 | | | | 12/28/2005 |
| L69428-01CMS | Lead | mg/L | 6020 | 0.2060 | 0.2 | 0 | 103 | 70-130 | | | | 12/28/2005 |
| L69428-01CMS | Manganese | mg/L | 6020 | 0.2191 | 0.2 | 0.0211 | 99.0 | 70-130 | | | | 12/28/2005 |
| L69428-01CMS | Selenium | mg/L | 6020 | 0.2056 | 0.2 | 0 | 103 | 70-130 | | | | 12/28/2005 |
| L69428-01CMS | Zinc | mg/L | 6020 | 0.9877 | 1 | 0.0063 | 98.1 | 70-130 | | | | 12/28/2005 |
| L69428-01DMS | Iron | mg/L | 6010B | 1.353 | 1 | 0.2813 | 107 | 75-125 | | | | 12/27/2005 |
| L69428-01CMS | Aluminum | mg/L | 6010B | 1.033 | 1 | 0.05437 | 97.8 | 75-125 | | | | 12/27/2005 |
| L69428-01CMS | Boron | mg/L | 6010B | 1.252 | 1 | 0.1346 | 112 | 75-125 | | | | 12/27/2005 |
| L69428-01CMS | Calcium | mg/L | 6010B | 96.88 | 10 | 90.59 | 62.9 | 75-125 | | | [2] | 12/27/2005 |
| L69428-01CMS | Iron | mg/L | 6010B | 1.072 | 1 | 0 | 107 | 75-125 | | | | 12/27/2005 |
| L69428-01CMS | Magnesium | mg/L | 6010B | 59.45 | 10 | 49.78 | 96.7 | 75-125 | | | | 12/27/2005 |
| L69428-01CMS | Molybdenum | mg/L | 6010B | 0.2077 | 0.2 | 0 | 104 | 75-125 | | | | 12/27/2005 |
| L69428-01CMS | Potassium | mg/L | 6010B | 18.23 | 10 | 7.556 | 107 | 75-125 | | | | 12/27/2005 |
| L69428-01CMS | Sodium | mg/L | 6010B | 44.54 | 10 | 34.59 | 99.5 | 75-125 | | | | 12/27/2005 |

[2] Analyte concentration is too high for accurate spike recovery.

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

**Dept:** ME
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L69428-01DMSD | Manganese | mg/L | 6020 | 0.2378 | 0.2 | 0.0282 | 105 | 70-130 | 3.90 | 20 | | 12/28/2005 |
| L69428-01CMSD | Arsenic | mg/L | 6020 | 0.1961 | 0.2 | 0 | 98.0 | 70-130 | 1.18 | 20 | | 12/28/2005 |
| L69428-01CMSD | Cadmium | mg/L | 6020 | 0.2005 | 0.2 | 0 | 100 | 70-130 | 0.300 | 20 | | 12/28/2005 |
| L69428-01CMSD | Copper | mg/L | 6020 | 0.1952 | 0.2 | 0.002 | 96.6 | 70-130 | 0.613 | 20 | | 12/28/2005 |
| L69428-01CMSD | Lead | mg/L | 6020 | 0.2087 | 0.2 | 0 | 104 | 70-130 | 1.30 | 20 | | 12/28/2005 |
| L69428-01CMSD | Manganese | mg/L | 6020 | 0.2223 | 0.2 | 0.0211 | 101 | 70-130 | 1.45 | 20 | | 12/28/2005 |
| L69428-01CMSD | Selenium | mg/L | 6020 | 0.2086 | 0.2 | 0 | 104 | 70-130 | 1.45 | 20 | | 12/28/2005 |
| L69428-01CMSD | Zinc | mg/L | 6020 | 0.9883 | 1 | 0.0063 | 98.2 | 70-130 | 0.0607 | 20 | | 12/28/2005 |
| L69428-01DMSD | Iron | mg/L | 6010B | 1.350 | 1 | 0.2813 | 107 | 75-125 | 0.197 | 20 | | 12/27/2005 |
| L69428-01CMSD | Aluminum | mg/L | 6010B | 1.068 | 1 | 0.05437 | 101 | 75-125 | 3.33 | 20 | | 12/27/2005 |
| L69428-01CMSD | Boron | mg/L | 6010B | 1.252 | 1 | 0.1346 | 112 | 75-125 | 0.0463 | 20 | | 12/27/2005 |
| L69428-01CMSD | Calcium | mg/L | 6010B | 97.93 | 10 | 90.59 | 73.4 | 75-125 | 1.08 | 20 | 2 | 12/27/2005 |
| L69428-01CMSD | Iron | mg/L | 6010B | 1.070 | 1 | 0 | 107 | 75-125 | 0.167 | 20 | | 12/27/2005 |
| L69428-01CMSD | Magnesium | mg/L | 6010B | 61.27 | 10 | 49.78 | 115 | 75-125 | 3.01 | 20 | | 12/27/2005 |
| L69428-01CMSD | Molybdenum | mg/L | 6010B | 0.2045 | 0.2 | 0 | 102 | 75-125 | 1.56 | 20 | | 12/27/2005 |
| L69428-01CMSD | Potassium | mg/L | 6010B | 18.57 | 10 | 7.556 | 110 | 75-125 | 1.84 | 20 | | 12/27/2005 |
| L69428-01CMSD | Sodium | mg/L | 6010B | 44.84 | 10 | 34.59 | 103 | 75-125 | 0.677 | 20 | | 12/27/2005 |

[2] Analyte concentration is too high for accurate spike recovery.

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

**Dept:** WC
**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L69428-03BDUP | Chloride | mg/L | 300.0 | 10.02 | 0 | 10.62 | | - | 5.81 | 20 | | 12/28/2005 |
| L69428-03BDUP | Sulfate | mg/L | 300.0 | 26.08 | 0 | 26.88 | | - | 3.02 | 20 | | 12/28/2005 |
| L69401-01DDUP | TDS | mg/L | 160.1 | 13160 | 0 | 13240 | | - | 0.606 | 20 | | 12/23/2005 |
| L69428-04ADUP | TDS | mg/L | 160.1 | 392.0 | 0 | 396 | | - | 1.02 | 20 | | 12/23/2005 |
| L69422-02ADUP | TSS | mg/L | 160.2 | 4.000 | 0 | 4 | | - | 0 | 20 | | 12/23/2005 |
| L69428-04ADUP | TSS | mg/L | 160.2 | < 3.0 | 0 | 0 | | - | 0 | 20 | | 12/23/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

**Dept:** WC
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R53600 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50740 | 50000 | 0 | 101 | 90-110 | | | | 12/23/2005 |
| LCS-R53684 | Chloride | mg/L | 300.0 | 4.982 | 5 | 0 | 99.6 | 90-110 | | | | 12/27/2005 |
| LCS-R53684 | Sulfate | mg/L | 300.0 | 5.217 | 5 | 0 | 104 | 90-110 | | | | 12/27/2005 |
| LCS-R53602 | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 12/23/2005 |
| LCS-26513 | Ammonia (as N) | mg/L | 350.1 | 0.9660 | 1 | 0 | 96.6 | 90-110 | | | | 12/28/2005 |
| LCS-53618 | Nitrite (as N) | mg/L | 353.2 | 0.9460 | 1 | 0 | 94.6 | 90-110 | | | | 12/23/2005 |
| LCS-53619 | Nitrate (as N) | mg/L | 353.2 | 0.9620 | 1 | 0 | 96.2 | 90-110 | | | | 12/23/2005 |
| LCS-R53697 | Oil & Grease | mg/L | EPA 1664 | 41.60 | 40 | 0 | 104 | 79-114 | | | | 12/28/2005 |
| LCS-53609 | Phosphate, ortho (as P) | mg/L | 365.1 | 1.020 | 1 | 0.01 | 101 | 90-110 | | | | 12/23/2005 |
| LCS-R53670 | TDS | mg/L | 160.1 | 200.0 | 205 | 0 | 97.6 | 80-120 | | | | 12/23/2005 |
| LCS-R53636 | TSS | mg/L | 160.2 | 100.0 | 100 | 0 | 100 | 80-120 | | | | 12/23/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

**Dept:** WC
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R53600 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 12/23/2005 |
| MB-R53600 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 12/23/2005 |
| MB-R53600 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 12/23/2005 |
| MB-R53684 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 12/27/2005 |
| MB-R53684 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 12/27/2005 |
| MB-R53602 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 12/23/2005 |
| MB-26513 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 12/28/2005 |
| MB-53618 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 12/23/2005 |
| MB-53619 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 12/23/2005 |
| MB-R53697 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 12/28/2005 |
| MB-53609 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 12/23/2005 |
| MB-R53670 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 12/23/2005 |
| MB-R53636 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 12/23/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

**Dept:** WC
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L69428-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 346.0 | 100 | 248 | 98.0 | 80-120 | | | | 12/23/2005 |
| L69428-03BMS | Chloride | mg/L | 300.0 | 60.27 | 50 | 10.62 | 99.3 | 90-110 | | | | 12/28/2005 |
| L69428-03BMS | Sulfate | mg/L | 300.0 | 78.87 | 50 | 26.88 | 104 | 90-110 | | | | 12/28/2005 |
| L69428-01BMS | Acidity | mg/L | 305.1 | 52.00 | 50 | 0 | 96.0 | 80-120 | | | | 12/23/2005 |
| L69428-01EMS | Ammonia (as N) | mg/L | 350.1 | 0.9050 | 1 | 0 | 90.5 | 90-110 | | | | 12/28/2005 |
| L69428-01BMS | Nitrite (as N) | mg/L | 353.2 | 0.8830 | 1 | 0 | 88.3 | 90-110 | | | 1 | 12/23/2005 |
| L69428-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.191 | 1 | 0.276 | 91.5 | 90-110 | | | | 12/23/2005 |
| L69428-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.124 | 1 | 0.01 | 111 | 90-110 | | | 1 | 12/23/2005 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

**Dept:** WC
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L69428-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 351.0 | 100 | 248 | 103 | 80-120 | 1.43 | 10 | | 12/23/2005 |
| L69428-03BMSD | Chloride | mg/L | 300.0 | 60.10 | 50 | 10.62 | 99.0 | 90-110 | 0.276 | 20 | | 12/28/2005 |
| L69428-03BMSD | Sulfate | mg/L | 300.0 | 77.94 | 50 | 26.88 | 102 | 90-110 | 1.19 | 20 | | 12/28/2005 |
| L69428-01BMSD | Acidity | mg/L | 305.1 | 48.00 | 50 | 0 | 104 | 80-120 | 8.00 | 20 | | 12/23/2005 |
| L69428-01EMSD | Ammonia (as N) | mg/L | 350.1 | 0.8840 | 1 | 0 | 88.4 | 90-110 | 2.35 | 10 | [1] | 12/28/2005 |
| L69428-01BMSD | Nitrite (as N) | mg/L | 353.2 | 0.9140 | 1 | 0 | 91.4 | 90-110 | 3.45 | 10 | | 12/23/2005 |
| L69428-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.158 | 1 | 0.276 | 88.2 | 90-110 | 2.81 | 10 | [1] | 12/23/2005 |
| L69428-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 0.8880 | 1 | 0.01 | 87.8 | 90-110 | 23.5 | 10 | [1]@ | 12/23/2005 |

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R53697 | Oil & Grease | mg/L | EPA 1664 | 38.30 | 40 | 0 | 95.8 | 79-114 | | | | 12/28/2005 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69428
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R53697 | Oil & Grease | mg/L | EPA 1664 | 37.80 | 40 | 0 | 94.5 | 79-114 | 1.31 | 18 | | 12/28/2005 |

# American West Analytical Labs

## WORK ORDER Summary

*28-Dec-05*

**Work Order** L69428

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: 2+. EDD in Excel format.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L69428-01A | Mud Creek | 12/22/2005 12:30:00 PM | 12/22/2005 | 1/9/2006 | Aqueous | SS | ww - tss/ss/tds | 1 |
| | | | | 1/9/2006 | | TDS-W | ww - tss/ss/tds | 1 |
| | | | | 1/9/2006 | | TSS-W | ww - tss/ss/tds | 1 |
| L69428-01B | | | | 1/9/2006 | | 2320B-ALK-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | 300.0-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | ACIDITY-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | NO2-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | NO3-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | PO4-O | dec 22 - wc | 1 |
| L69428-01C | | | | 1/9/2006 | Aqueous-Dissolved | 3005A-Diss | dec 22 - dis met | 1 |
| | | | | 1/9/2006 | | 6020-W-DISS | dec 22 - dis met | 1 |
| | | | | 1/9/2006 | | HARD | dec 22 - dis met | 1 |
| | | | | 1/9/2006 | | ICP-W-DIS | dec 22 - dis met | 1 |
| L69428-01D | | | | 1/9/2006 | Aqueous | 3005A-ICPMS | dec 22 - metals | 1 |
| | | | | 1/9/2006 | | 6020-W | dec 22 - metals | 1 |
| | | | | 1/9/2006 | | ICP-W | dec 22 - metals | 1 |
| L69428-01E | | | | 1/9/2006 | | NH3-W | dec 22 - nh3 | 1 |
| | | | | 1/9/2006 | | NH3-W-PREP | dec 22 - nh3 | 1 |
| L69428-01F | | | | 1/9/2006 | | OGB-W | ogb | 1 |
| L69428-02A | Sulfur Spring | 12/22/2005 1:00:00 PM | | 1/9/2006 | | SS | ww - tss/ss/tds | 1 |
| | | | | 1/9/2006 | | TDS-W | ww - tss/ss/tds | 1 |
| | | | | 1/9/2006 | | TSS-W | ww - tss/ss/tds | 1 |
| L69428-02B | | | | 1/9/2006 | | 2320B-ALK-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | 300.0-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | ACIDITY-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | NO2-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | NO3-W | dec 22 - wc | 1 |

# WORK ORDER Summary

*28-Dec-05*

**Work Order** L69428

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: 2+. EDD in Excel format.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L69428-02B | Sulfur Spring | 12/22/2005 1:00:00 PM | 12/22/2005 | 1/9/2006 | Aqueous | PO4-O | dec 22 - wc | 1 |
| L69428-02C | | | | 1/9/2006 | Aqueous-Dissolved | 3005A-Diss | dec 22 - dis met | 1 |
| | | | | 1/9/2006 | | 6020-W-DISS | dec 22 - dis met | 1 |
| | | | | 1/9/2006 | | HARD | dec 22 - dis met | 1 |
| | | | | 1/9/2006 | | ICP-W-DIS | dec 22 - dis met | 1 |
| L69428-02D | | | | 1/9/2006 | Aqueous | 3005A-ICPMS | dec 22 - metals | 1 |
| | | | | 1/9/2006 | | 6020-W | dec 22 - metals | 1 |
| | | | | 1/9/2006 | | ICP-W | dec 22 - metals | 1 |
| L69428-02E | | | | 1/9/2006 | | NH3-W | dec 22 - nh3 | 1 |
| | | | | 1/9/2006 | | NH3-W-PREP | dec 22 - nh3 | 1 |
| L69428-02F | | | | 1/9/2006 | | OGB-W | ogb | 1 |
| L69428-03A | Eagle Outlet | 12/22/2005 9:00:00 AM | | 1/9/2006 | | SS | ww - tss/ss/tds | 1 |
| | | | | 1/9/2006 | | TDS-W | ww - tss/ss/tds | 1 |
| | | | | 1/9/2006 | | TSS-W | ww - tss/ss/tds | 1 |
| L69428-03B | | | | 1/9/2006 | | 2320B-ALK-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | 300.0-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | ACIDITY-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | NO2-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | NO3-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | PO4-O | dec 22 - wc | 1 |
| L69428-03C | | | | 1/9/2006 | Aqueous-Dissolved | 3005A-Diss | dec 22 - dis met | 1 |
| | | | | 1/9/2006 | | 6020-W-DISS | dec 22 - dis met | 1 |
| | | | | 1/9/2006 | | HARD | dec 22 - dis met | 1 |
| | | | | 1/9/2006 | | ICP-W-DIS | dec 22 - dis met | 1 |
| L69428-03D | | | | 1/9/2006 | Aqueous | 3005A-ICPMS | dec 22 - metals | 1 |
| | | | | 1/9/2006 | | 6020-W | dec 22 - metals | 1 |
| | | | | 1/9/2006 | | ICP-W | dec 22 - metals | 1 |
| L69428-03E | | | | 1/9/2006 | | NH3-W | dec 22 - nh3 | 1 |

# WORK ORDER Summary

*28-Dec-05*

**Work Order** L69428

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: 2+. EDD in Excel format.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L69428-03E | Eagle Outlet | 12/22/2005 9:00:00 AM | 12/22/2005 | 1/9/2006 | Aqueous | NH3-W-PREP | dec 22 - nh3 | 1 |
| L69428-03F | | | | 1/9/2006 | | OGB-W | ogb | 1 |
| L69428-04A | Angle Spring | 12/22/2005 11:00:00 AM | | 1/9/2006 | | SS | ww - tss/ss/tds | 1 |
| | | | | 1/9/2006 | | TDS-W | ww - tss/ss/tds | 1 |
| | | | | 1/9/2006 | | TSS-W | ww - tss/ss/tds | 1 |
| L69428-04B | | | | 1/9/2006 | | 2320B-ALK-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | 300.0-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | ACIDITY-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | NO2-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | NO3-W | dec 22 - wc | 1 |
| | | | | 1/9/2006 | | PO4-O | dec 22 - wc | 1 |
| L69428-04C | | | | 1/9/2006 | Aqueous-Dissolved | 3005A-Diss | dec 22 - dis met | 1 |
| | | | | 1/9/2006 | | 6020-W-DISS | dec 22 - dis met | 1 |
| | | | | 1/9/2006 | | HARD | dec 22 - dis met | 1 |
| | | | | 1/9/2006 | | ICP-W-DIS | dec 22 - dis met | 1 |
| L69428-04D | | | | 1/9/2006 | Aqueous | 3005A-ICPMS | dec 22 - metals | 1 |
| | | | | 1/9/2006 | | 6020-W | dec 22 - metals | 1 |
| | | | | 1/9/2006 | | ICP-W | dec 22 - metals | 1 |
| L69428-04E | | | | 1/9/2006 | | NH3-W | dec 22 - nh3 | 1 |
| | | | | 1/9/2006 | | NH3-W-PREP | dec 22 - nh3 | 1 |
| L69428-04F | | | | 1/9/2006 | | OGB-W | ogb | 1 |

Client Carbon Resources c/o Rock Logic
Address P.O. Box 544
CEDAREDGE, CO 81413
City State Zip
Phone 435-851-9044 Fax
Contact Brad Lindsay
E-mail lindsay.brad@gmail.com
Project Name SCOFIELD BASELINE
Project Number/P.O.#
Sampler Name Brad Lindsay

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# CHAIN OF CUSTODY

Lab Sample Set # 69428
Page 1 of 1

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 (2+) 3 3+ 4

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TABLE #3 ON FILE | | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mud Creek | 12-22-05 / 12:30 | W | 6 | ✓ | | | | | | | | | | |
| Culfer Spring | 12-22-05 / 1:00 | W | 6 | ✓ | | | | | | | | | | |
| Eagle Outlet | 12-22-05 / 9:00 | W | 6 | ✓ | | | | | | | | | | |
| Angle Spring | 12-22-05 / 11:00 | W | 6 | ✓ | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

Please indicate tests needed below

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 16:10 | PRINT NAME REBEKAH WINKLER |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:
SAMPLES NOT FIELD FILTERED

PLEASE E-MAIL:
- PDF INVOICE
- PDF REPORT
- EXCEL REPORT

THANKS

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes:
3 Temperature 4°C
4 Received Broken/Leaking (Improperly Sealed) Y (N)
Notes:
5 Properly Preserved Y N
Notes:
6 Received Within Holding Times Y N
Notes:

COC Tape Was:
1 Present on Outer Package Y (N) NA
2 Unbroken on Outer Package Y N (NA)
3 Present on Sample Y (N) NA
4 Unbroken on Sample Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record? Y (N)
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

## Preservation Check Sheet

Sample Set: 69428

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Cyanide | pH >12 NaOH | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Sulfide | pH > 9 NaOH, ZnAC | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOC[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| T PO4[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 $H_2SO_4$ in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 $H_2SO_4$ in a B.R.

Frequency: All samples requiring preservation

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Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-01C

Field Sample ID: Eagle Outlook

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 9/13/2005 12:30:29 PM | 6010B | 0.050 | **2.2** |
| Manganese | mg/L | 9/15/2005 4:55:51 PM | 6020 | 0.0050 | **0.16** |

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by: _____
Laboratory Supervisor

Report Date: September 20, 2005



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID:
L67580-02C

Field Sample ID:
Sulfur Springs

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 9/13/2005 12:46:15 PM | 6010B | 0.050 | **0.30** |
| Manganese | mg/L | 9/15/2005 5:15:53 PM | 6020 | 0.0050 | **0.048** |

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by: _____
Laboratory Supervisor

Report Date: September 20, 2005



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Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-03C

Field Sample ID: Angle Spring

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 9/13/2005 12:50:09 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 9/15/2005 5:20:53 PM | 6020 | 0.0050 | < 0.0050 |

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by: _____
Laboratory Supervisor

Report Date: September 20, 2005



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Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-04C

Field Sample ID: Mud Creek

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 9/13/2005 12:54:10 PM | 6010B | 0.050 | **0.15** |
| Manganese | mg/L | 9/15/2005 5:25:54 PM | 6020 | 0.0050 | **0.023** |

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Released by: _____
Laboratory Supervisor

Report Date: September 20, 2005



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-01D

Field Sample ID: Eagle Outlook

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 9/15/2005 3:51:52 PM | 6010B | 0.10 | **0.24** |
| Arsenic | mg/L | 9/15/2005 3:55:01 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 9/15/2005 3:51:52 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 9/15/2005 3:55:01 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 9/15/2005 3:51:52 PM | 6010B | 10 | **71** [1] |
| Copper | mg/L | 9/15/2005 3:55:01 PM | 6020 | 0.0040 | < 0.0040 |
| Hardness (as CaCO3) | mg/L | 9/15/2005 | 2340B | 10 | **250** |
| Iron | mg/L | 9/15/2005 3:51:52 PM | 6010B | 0.050 | **1.3** |
| Lead | mg/L | 9/15/2005 3:55:01 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 9/15/2005 3:51:52 PM | 6010B | 10 | **17** |
| Manganese | mg/L | 9/15/2005 3:55:01 PM | 6020 | 0.0050 | **0.15** |
| Molybdenum | mg/L | 9/15/2005 3:51:52 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 9/15/2005 3:51:52 PM | 6010B | 1.0 | **2.6** |
| Selenium | mg/L | 9/15/2005 3:55:01 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 9/15/2005 3:51:52 PM | 6010B | 1.0 | **6.9** |
| Zinc | mg/L | 9/15/2005 3:55:01 PM | 6020 | 0.010 | **0.019** |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

Released by: _____
Laboratory Supervisor

Report Date: September 20, 2005



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-02D

Field Sample ID: Sulfur Springs

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 9/15/2005 4:07:42 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 9/15/2005 4:14:59 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 9/15/2005 4:07:42 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 9/15/2005 4:14:59 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 9/15/2005 4:07:42 PM | 6010B | 10 | **82** |
| Copper | mg/L | 9/15/2005 4:14:59 PM | 6020 | 0.0040 | < 0.0040 |
| Hardness (as CaCO3) | mg/L | 9/15/2005 | 2340B | 10 | **340** |
| Iron | mg/L | 9/15/2005 4:07:42 PM | 6010B | 0.050 | **0.15** |
| Lead | mg/L | 9/15/2005 4:14:59 PM | 6020 | 0.0050 | **0.0070** |
| Magnesium | mg/L | 9/15/2005 4:07:42 PM | 6010B | 10 | **31** |
| Manganese | mg/L | 9/15/2005 4:14:59 PM | 6020 | 0.0050 | **0.055** |
| Molybdenum | mg/L | 9/15/2005 4:07:42 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 9/15/2005 4:07:42 PM | 6010B | 1.0 | **4.2** |
| Selenium | mg/L | 9/15/2005 4:14:59 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 9/15/2005 4:07:42 PM | 6010B | 1.0 | **7.6** |
| Zinc | mg/L | 9/15/2005 4:14:59 PM | 6020 | 0.010 | **0.038** |

Released by: _____
Laboratory Supervisor

Report Date: September 20, 2005



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-03D

Field Sample ID: Angle Spring

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 9/15/2005 4:11:37 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 9/15/2005 4:19:59 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 9/15/2005 4:11:37 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 9/15/2005 4:19:59 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 9/15/2005 4:11:37 PM | 6010B | 10 | **96** |
| Copper | mg/L | 9/15/2005 4:19:59 PM | 6020 | 0.0040 | < 0.0040 |
| Hardness (as CaCO3) | mg/L | 9/15/2005 | 2340B | 10 | **310** |
| Iron | mg/L | 9/15/2005 4:11:37 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 9/15/2005 4:19:59 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 9/15/2005 4:11:37 PM | 6010B | 10 | **17** |
| Manganese | mg/L | 9/15/2005 4:19:59 PM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 9/15/2005 4:11:37 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 9/15/2005 4:11:37 PM | 6010B | 1.0 | **1.4** |
| Selenium | mg/L | 9/15/2005 4:19:59 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 9/15/2005 4:11:37 PM | 6010B | 1.0 | **9.4** |
| Zinc | mg/L | 9/15/2005 4:19:59 PM | 6020 | 0.010 | < 0.010 |

Released by: _____
Laboratory Supervisor

Report Date: September 20, 2005



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# INORGANIC ANALYSIS REPORT

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Salt Lake City, Utah
84115

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Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-04D

Field Sample ID: Mud Creek

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 9/15/2005 4:15:37 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 9/15/2005 4:24:59 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 9/15/2005 4:15:37 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 9/15/2005 4:24:59 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 9/15/2005 4:15:37 PM | 6010B | 10 | **83** |
| Copper | mg/L | 9/15/2005 4:24:59 PM | 6020 | 0.0040 | < 0.0040 |
| Hardness (as CaCO3) | mg/L | 9/15/2005 | 2340B | 10 | **410** |
| Iron | mg/L | 9/15/2005 4:15:37 PM | 6010B | 0.050 | **0.066** |
| Lead | mg/L | 9/15/2005 4:24:59 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 9/15/2005 4:15:37 PM | 6010B | 10 | **49** |
| Manganese | mg/L | 9/15/2005 4:24:59 PM | 6020 | 0.0050 | **0.020** |
| Molybdenum | mg/L | 9/15/2005 4:15:37 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 9/15/2005 4:15:37 PM | 6010B | 1.0 | **7.3** |
| Selenium | mg/L | 9/15/2005 4:24:59 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 9/15/2005 4:15:37 PM | 6010B | 10 | **34** |
| Zinc | mg/L | 9/15/2005 4:24:59 PM | 6020 | 0.010 | < 0.010 |

Released by: _____
Laboratory Supervisor

Report Date: September 20, 2005



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-01

Field Sample ID: Eagle Outlook

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 09/09/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 09/08/05 | 2320B | 10 | **220** |
| Ammonia (as N) | mg/L | 09/08/05 | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 09/08/05 | 2320B | 10 | **220** |
| Carbonate (As CaCO3) | mg/L | 09/08/05 | 2320B | 10 | < 10 |
| Chloride | mg/L | 09/13/05 9:11 am | 300.0 | 10 | **11** |
| Hardness (as CaCO3) | mg/L | 09/15/05 | 2340B | 10 | **250** |
| Nitrate (as N) | mg/L | 08/07/05 12:52 pm | 353.2 | 0.010 | **0.018** |
| Nitrite (as N) | mg/L | 09/07/05 12:52 pm | 353.2 | 0.010 | **0.024** |
| Oil & Grease | mg/L | 09/07/05 | EPA 1664 | 3.0 | **4.0** |
| Phosphate, ortho (as P) | mg/L | 09/08/05 8:12 am | 365.1 | 0.060 | < 0.060 [1]@ |
| Settable Solids | ml/L | 09/07/05 2:00 pm | 2540F | 0.10 | **0.10** |
| Sulfate | mg/L | 09/13/05 9:11 am | 300.0 | 10 | **22** |
| TDS | mg/L | 09/09/05 | 160.1 | 10 | **220** |
| TSS | mg/L | 09/07/05 | 160.2 | 3.0 | **100** |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
@ High RPD due to suspected matrix interference.

Released by: _____
Laboratory Supervisor

Report Date: September 20, 2005



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-02

Field Sample ID: Sulfur Springs

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 09/09/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 09/08/05 | 2320B | 10 | **350** |
| Ammonia (as N) | mg/L | 09/08/05 | 350.1 | 0.050 | **0.44** |
| Bicarbonate (As CaCO3) | mg/L | 09/08/05 | 2320B | 10 | **350** |
| Carbonate (As CaCO3) | mg/L | 09/08/05 | 2320B | 10 | < 10 |
| Chloride | mg/L | 09/13/05 10:18 am | 300.0 | 1.0 | **6.8** |
| Hardness (as CaCO3) | mg/L | 09/15/05 | 2340B | 10 | **340** |
| Nitrate (as N) | mg/L | 08/07/05 12:52 pm | 353.2 | 0.010 | **0.012** |
| Nitrite (as N) | mg/L | 09/07/05 12:52 pm | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 09/07/05 | EPA 1664 | 3.0 | **4.7** |
| Phosphate, ortho (as P) | mg/L | 09/08/05 8:12 am | 365.1 | 0.060 | < 0.060 |
| Settable Solids | ml/L | 09/07/05 2:00 pm | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 09/13/05 10:18 am | 300.0 | 10 | **45** |
| TDS | mg/L | 09/09/05 | 160.1 | 10 | **360** |
| TSS | mg/L | 09/07/05 | 160.2 | 3.0 | **15** |

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Laboratory Supervisor

Report Date: September 20, 2005



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-03

Field Sample ID: Angle Spring

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 09/09/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 09/08/05 | 2320B | 10 | **300** |
| Ammonia (as N) | mg/L | 09/08/05 | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 09/08/05 | 2320B | 10 | **300** |
| Carbonate (As CaCO3) | mg/L | 09/08/05 | 2320B | 10 | < 10 |
| Chloride | mg/L | 09/13/05 11:24 am | 300.0 | 10 | **21** |
| Hardness (as CaCO3) | mg/L | 09/15/05 | 2340B | 10 | **310** |
| Nitrate (as N) | mg/L | 08/07/05 12:52 pm | 353.2 | 0.010 | **0.97** |
| Nitrite (as N) | mg/L | 09/07/05 12:52 pm | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 09/07/05 | EPA 1664 | 3.0 | **4.6** |
| Phosphate, ortho (as P) | mg/L | 09/08/05 8:12 am | 365.1 | 0.060 | < 0.060 |
| Settable Solids | ml/L | 09/07/05 2:00 pm | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 09/13/05 11:24 am | 300.0 | 10 | **15** |
| TDS | mg/L | 09/09/05 | 160.1 | 10 | **340** |
| TSS | mg/L | 09/07/05 | 160.2 | 3.0 | < 3.0 |

Released by: _____
Laboratory Supervisor

Report Date: September 20, 2005



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Whiskey Creek Mining Services
Date Sampled: September 6, 2005
Project: Scofield Baseline

Contact: Brad Lindsay
Date Received: September 7, 2005

Lab Sample ID: L67580-04

Field Sample ID: Mud Creek

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 09/09/05 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 09/08/05 | 2320B | 10 | **230** |
| Ammonia (as N) | mg/L | 09/08/05 | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 09/08/05 | 2320B | 10 | **230** |
| Carbonate (As CaCO3) | mg/L | 09/08/05 | 2320B | 10 | < 10 |
| Chloride | mg/L | 09/14/05 2:11 am | 300.0 | 10 | **17** |
| Hardness (as CaCO3) | mg/L | 09/15/05 | 2340B | 10 | **410** |
| Nitrate (as N) | mg/L | 08/07/05 12:52 pm | 353.2 | 0.010 | **0.22** |
| Nitrite (as N) | mg/L | 09/07/05 12:52 pm | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 09/07/05 | EPA 1664 | 3.0 | **4.8** |
| Phosphate, ortho (as P) | mg/L | 09/08/05 8:12 am | 365.1 | 0.060 | < 0.060 |
| Settable Solids | ml/L | 09/07/05 2:00 pm | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 09/14/05 2:11 am | 300.0 | 100 | **250** |
| TDS | mg/L | 09/09/05 | 160.1 | 10 | **580** |
| TSS | mg/L | 09/07/05 | 160.2 | 3.0 | **8.0** |

Released by: _____
Laboratory Supervisor

Report Date: September 20, 2005



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# American West Analytical Labs

## WORK ORDER Summary

*07-Sep-05*

**Work Order** L67580

**Client ID:** WALKIN **QC Level:** 1

**Project:** Carbon Resources / Whiskey Creek **Location:** HOK UT

**Comments:** QCLevel: 1

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L67580-01A | Eagle Outlook | 9/6/2005 10:15:00 AM | 9/7/2005 | 9/21/2005 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 9/21/2005 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 9/21/2005 | | TSS-W | ww - tss/tds/ss | 1 |
| L67580-01B | | | | 9/21/2005 | | 2320B-ALK-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | 300.0-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | ACIDITY-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | NO2-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | NO3-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | PO4-O | sept 7 - wc | 1 |
| L67580-01C | | | | 9/21/2005 | | 3005A-ICPMS | sept 7 - metals | 1 |
| | | | | 9/21/2005 | | 6020-W | sept 7 - metals | 1 |
| | | | | 9/21/2005 | | ICP-W | sept 7 - metals | 1 |
| L67580-01D | | | | 9/21/2005 | Aqueous-Dissolved | 3005A-Diss | sept 7 - dis met | 1 |
| | | | | 9/21/2005 | | 6020-W-DISS | sept 7 - dis met | 1 |
| | | | | 9/21/2005 | | HARD | sept 7 - dis met | 1 |
| | | | | 9/21/2005 | | ICP-W-DIS | sept 7 - dis met | 1 |
| L67580-01E | | | | 9/21/2005 | Aqueous | OGB-W | ogb | 1 |
| L67580-01F | | | | 9/21/2005 | | NH3-W | sept 7 - nh3 | 1 |
| | | | | 9/21/2005 | | NH3-W-PREP | sept 7 - nh3 | 1 |
| L67580-02A | Sulfur Springs | 9/6/2005 11:30:00 AM | | 9/21/2005 | | SS | ww - tss/tds/ss | 1 |
| | | | | 9/21/2005 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 9/21/2005 | | TSS-W | ww - tss/tds/ss | 1 |
| L67580-02B | | | | 9/21/2005 | | 2320B-ALK-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | 300.0-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | ACIDITY-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | NO2-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | NO3-W | sept 7 - wc | 1 |



L67580

# WORK ORDER Summary

*07-Sep-05*

**Work Order** L67580

**Client ID:** WALKIN **QC Level:** 1

**Project:** Carbon Resources / Whiskey Creek **Location:**

**Comments:** QCLevel: 1

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L67580-02B | Sulfur Springs | 9/6/2005 11:30:00 AM | 9/7/2005 | 9/21/2005 | Aqueous | PO4-O | sept 7 - wc | 1 |
| L67580-02C | | | | 9/21/2005 | | 3005A-ICPMS | sept 7 - metals | 1 |
| | | | | 9/21/2005 | | 6020-W | sept 7 - metals | 1 |
| | | | | 9/21/2005 | | ICP-W | sept 7 - metals | 1 |
| L67580-02D | | | | 9/21/2005 | Aqueous-Dissolved | 3005A-Diss | sept 7 - dis met | 1 |
| | | | | 9/21/2005 | | 6020-W-DISS | sept 7 - dis met | 1 |
| | | | | 9/21/2005 | | HARD | sept 7 - dis met | 1 |
| | | | | 9/21/2005 | | ICP-W-DIS | sept 7 - dis met | 1 |
| L67580-02E | | | | 9/21/2005 | Aqueous | OGB-W | ogb | 1 |
| L67580-02F | | | | 9/21/2005 | | NH3-W | sept 7 - nh3 | 1 |
| | | | | 9/21/2005 | | NH3-W-PREP | sept 7 - nh3 | 1 |
| L67580-03A | Angle Spring | 9/6/2005 12:30:00 PM | | 9/21/2005 | | SS | ww - tss/tds/ss | 1 |
| | | | | 9/21/2005 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 9/21/2005 | | TSS-W | ww - tss/tds/ss | 1 |
| L67580-03B | | | | 9/21/2005 | | 2320B-ALK-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | 300.0-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | ACIDITY-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | NO2-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | NO3-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | PO4-O | sept 7 - wc | 1 |
| L67580-03C | | | | 9/21/2005 | | 3005A-ICPMS | sept 7 - metals | 1 |
| | | | | 9/21/2005 | | 6020-W | sept 7 - metals | 1 |
| | | | | 9/21/2005 | | ICP-W | sept 7 - metals | 1 |
| L67580-03D | | | | 9/21/2005 | Aqueous-Dissolved | 3005A-Diss | sept 7 - dis met | 1 |
| | | | | 9/21/2005 | | 6020-W-DISS | sept 7 - dis met | 1 |
| | | | | 9/21/2005 | | HARD | sept 7 - dis met | 1 |
| | | | | 9/21/2005 | | ICP-W-DIS | sept 7 - dis met | 1 |
| L67580-03E | | | | 9/21/2005 | Aqueous | OGB-W | ogb | 1 |

# WORK ORDER Summary

*07-Sep-05*

**Work Order** L67580

**Client ID:** WALKIN **QC Level:** 1

**Project:** Carbon Resources / Whiskey Creek **Location:**

**Comments:** QCLevel: 1

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L67580-03F | Angle Spring | 9/6/2005 12:30:00 PM | 9/7/2005 | 9/21/2005 | Aqueous | NH3-W | sept 7 - nh3 | 1 |
| | | | | 9/21/2005 | | NH3-W-PREP | sept 7 - nh3 | 1 |
| L67580-04A | Mud Creek | 9/6/2005 2:00:00 PM | | 9/21/2005 | | SS | ww - tss/tds/ss | 1 |
| | | | | 9/21/2005 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 9/21/2005 | | TSS-W | ww - tss/tds/ss | 1 |
| L67580-04B | | | | 9/21/2005 | | 2320B-ALK-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | 300.0-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | ACIDITY-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | NO2-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | NO3-W | sept 7 - wc | 1 |
| | | | | 9/21/2005 | | PO4-O | sept 7 - wc | 1 |
| L67580-04C | | | | 9/21/2005 | | 3005A-ICPMS | sept 7 - metals | 1 |
| | | | | 9/21/2005 | | 6020-W | sept 7 - metals | 1 |
| | | | | 9/21/2005 | | ICP-W | sept 7 - metals | 1 |
| L67580-04D | | | | 9/21/2005 | Aqueous-Dissolved | 3005A-Diss | sept 7 - dis met | 1 |
| | | | | 9/21/2005 | | 6020-W-DISS | sept 7 - dis met | 1 |
| | | | | 9/21/2005 | | HARD | sept 7 - dis met | 1 |
| | | | | 9/21/2005 | | ICP-W-DIS | sept 7 - dis met | 1 |
| L67580-04E | | | | 9/21/2005 | Aqueous | OGB-W | ogb | 1 |
| L67580-04F | | | | 9/21/2005 | | NH3-W | sept 7 - nh3 | 1 |
| | | | | 9/21/2005 | | NH3-W-PREP | sept 7 - nh3 | 1 |

Client Carbon Resources - Whiskey Creek

Address _____

City State Zip

Phone 970-835-3715 Fax _____

Contact Brad Lindsay

E-mail lindsay.Brad@gmail.com

Project Name Cofield Baseline

Project Number/P.O.# _____

Sampler Name Brad Lindsay


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# CHAIN OF CUSTODY

Lab Sample Set # 675880

Page _____ of _____

*Turn Around Time (Circle One)*

1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

**Please indicate tests needed below**

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | See Table 3 on file | | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Eagle Outlook | 9-6-05 / 1015 | W | 6 | ✓ | | | | | | | | | | |
| Sulfer Springs | 9-6-05 / 1130 | W | 6 | ✓ | | | | | | | | | | |
| Angle Spring | 9-6-05 / 1230 | W | 6 | ✓ | | | | | | | | | | |
| Mud Creek | 9-6-05 / 1400 | W | 6 | ✓ | | | | | | | | | | |

| Relinquished By: *Signature* | Date | Received By: *Signature* |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 15:30 | PRINT NAME |
| Relinquished By: *Signature* | Date | Received By: *Signature* |
| PRINT NAME | Time | PRINT NAME |

| Relinquished By: *Signature* | Date | Received By: *Signature* |
|---|---|---|
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: *Signature* | Date | Received By: *Signature* Elma Hay |
| PRINT NAME | Time | PRINT NAME Elma Hayward |

Special Instructions:

PLEASE FILTER FOR DISOLVED METALS

ANALYSIS THE SAME AS THE PREVIOUS SET (TABLE 3 SURFACE WATER)

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
*Notes:* UPS

2 Ambient or Chilled
*Notes:*

3 Temperature 3.5°C

4 Received Broken/Leaking (Improperly Sealed)
Y N
*Notes:*

5 Properly Preserved
Y N
*Notes:*

6 Received Within Holding Times
Y N
*Notes:*

COC Tape Was:

1 Present on Outer Package Y N NA

2 Unbroken on Outer Package Y N NA

3 Present on Sample Y N NA

4 Unbroken on Sample Y N NA
*Notes:*

Discrepancies Between Sample Labels and COC Record? Y N
*Notes:*

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | | |
|---|---|---|---|---|
| * | - | Total Dissolved Solids | | mg/l |
| * | - | Total Settleable Solids | | (UPDES) |
| * | - | Total Suspended Solids | | mg/l |
| * | - | Total Hardness ($CaCO_3$) | | mg/l |
| * | - | Total Alkalinity | | mg/l |
| | - | Acidity | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved)[1] | | mg/l |
| * | - | Carbonate | | mg/l |
| * | - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| * | - | Calcium (Dissolved) | | mg/l |
| * | - | Chloride | mg/l | |
| | - | Copper (Dissolved) | | mg/l |
| * | - | Iron (Dissolved) | | mg/l |
| * | - | Iron (Total) | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| * | - | Magnesium (Dissolved) | | mg/l |
| * | - | Manganese (Dissolved) | | mg/l |
| * | - | Manganese (Total) | | mg/l |
| | - | Molybdenum (Dissolved) | | mg/l |
| | - | Ammonia | | mg/l |
| | - | Nitrates | | mg/l |
| | - | Nitrites | | mg/l |
| * | - | Potassium (Dissolved) | | mg/l |
| | - | Phosphates(Ortho) | | mg/l |
| | - | Selenium[1] (Dissolved) | | mg/l |
| * | - | Sodium (Dissolved) | | mg/l |
| * | - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| * | - | Oil & Grease[2] | | mg/l |
| * | - | Cations | | meq/l |
| * | - | Anions | | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

## Preservation Check Sheet

Sample Set: 67580

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Cyanide | pH >12 NaOH | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Sulfide | pH > 9 NaOH, ZnAC | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOC[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| T PO4[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 $H_2SO_4$ in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 $H_2SO_4$ in a B.R.

Frequency: All samples requiring preservation

November 13, 2006

**AMERICAN WEST ANALYTICAL LABORATORIES**

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e-mail: awal@awal-labs.com

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L74688

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 10/31/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-01E
Field Sample ID: **Mud Creek**
Collected: 10/30/2006 1:00:00 PM
Received: 10/31/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/13/2006 1:40:40 PM | 6010B | 0.050 | **0.34** |
| Manganese | mg/L | 11/13/2006 1:40:40 PM | 6010B | 0.0050 | **0.031** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-02E
Field Sample ID: **Sulfer Spring**
Collected: 10/30/2006 2:00:00 PM
Received: 10/31/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/13/2006 1:56:56 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 11/13/2006 1:56:56 PM | 6010B | 0.0050 | **0.030** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-03E
Field Sample ID: **Res-1**
Collected: 10/30/2006 2:30:00 PM
Received: 10/31/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/13/2006 2:00:55 PM | 6010B | 0.050 | **10** |
| Manganese | mg/L | 11/13/2006 2:00:55 PM | 6010B | 0.0050 | **1.1** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-04E
Field Sample ID: **Miller Outlet**
Collected: 10/30/2006 3:00:00 PM
Received: 10/31/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/13/2006 2:04:52 PM | 6010B | 0.050 | **1.5** |
| Manganese | mg/L | 11/13/2006 2:04:52 PM | 6010B | 0.0050 | **0.077** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-01F
Field Sample ID: **Mud Creek**
Collected: 10/30/2006 1:00:00 PM
Received: 10/31/2006

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Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 11/13/2006 1:01:17 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 11/6/2006 12:41:08 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 11/13/2006 1:01:17 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 11/6/2006 12:41:08 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 11/13/2006 12:20:17 PM | 6010B | 10 | **67** | [2] * |
| Copper | mg/L | 11/6/2006 12:41:08 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 11/13/2006 1:01:17 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 11/6/2006 12:41:08 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 11/13/2006 12:20:17 PM | 6010B | 10 | **42** | * |
| Manganese | mg/L | 11/6/2006 12:41:08 PM | 6020 | 0.0050 | **0.019** | |
| Molybdenum | mg/L | 11/13/2006 1:01:17 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 11/13/2006 1:01:17 PM | 6010B | 1.0 | **6.9** | |
| Selenium | mg/L | 11/6/2006 12:41:08 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 11/13/2006 1:01:17 PM | 6010B | 1.0 | **36** | [1] |
| Zinc | mg/L | 11/6/2006 12:41:08 PM | 6020 | 0.010 | **0.020** | |

*[2] Analyte concentration is too high for accurate spike recovery.*

** The reporting limits were raised due to high analyte concentration.*

*[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-02F
Field Sample ID: **Sulfer Spring**
Collected: 10/30/2006 2:00:00 PM
Received: 10/31/2006


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Laboratory Director

Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 11/13/2006 1:17:25 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 11/6/2006 1:08:07 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 11/13/2006 1:17:25 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 11/6/2006 1:08:07 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 11/13/2006 12:37:59 PM | 6010B | 10 | **89** | * |
| Copper | mg/L | 11/6/2006 1:08:07 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 11/13/2006 1:17:25 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 11/6/2006 1:08:07 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 11/13/2006 12:37:59 PM | 6010B | 10 | **37** | * |
| Manganese | mg/L | 11/6/2006 1:08:07 PM | 6020 | 0.0050 | **0.032** | |
| Molybdenum | mg/L | 11/13/2006 1:17:25 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 11/13/2006 1:17:25 PM | 6010B | 1.0 | **5.1** | |
| Selenium | mg/L | 11/6/2006 1:08:07 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 11/13/2006 1:17:25 PM | 6010B | 1.0 | **8.9** | |
| Zinc | mg/L | 11/6/2006 1:08:07 PM | 6020 | 0.010 | < 0.010 | |

** The reporting limits were raised due to high analyte concentration.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-03F
Field Sample ID: **Res-1**
Collected: 10/30/2006 2:30:00 PM
Received: 10/31/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 11/13/2006 1:21:25 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 11/6/2006 1:13:31 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 11/13/2006 1:21:25 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 11/6/2006 1:13:31 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 11/13/2006 12:41:56 PM | 6010B | 10 | 71 | * |
| Copper | mg/L | 11/6/2006 1:13:31 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 11/13/2006 1:21:25 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 11/6/2006 1:13:31 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 11/13/2006 12:41:56 PM | 6010B | 10 | 33 | * |
| Manganese | mg/L | 11/6/2006 1:13:31 PM | 6020 | 0.0050 | 0.29 | |
| Molybdenum | mg/L | 11/13/2006 1:21:25 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 11/13/2006 1:21:25 PM | 6010B | 1.0 | 4.8 | |
| Selenium | mg/L | 11/6/2006 1:13:31 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 11/13/2006 1:21:25 PM | 6010B | 1.0 | 26 | |
| Zinc | mg/L | 11/6/2006 1:13:31 PM | 6020 | 0.010 | < 0.010 | |

** The reporting limits were raised due to high analyte concentration.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-04F
Field Sample ID: **Miller Outlet**
Collected: 10/30/2006 3:00:00 PM
Received: 10/31/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 11/13/2006 1:25:22 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 11/6/2006 1:18:51 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 11/13/2006 1:25:22 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 11/6/2006 1:18:51 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 11/13/2006 12:45:51 PM | 6010B | 10 | **80** | * |
| Copper | mg/L | 11/6/2006 1:18:51 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 11/13/2006 1:25:22 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 11/6/2006 1:18:51 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 11/13/2006 12:45:51 PM | 6010B | 10 | **17** | * |
| Manganese | mg/L | 11/6/2006 1:18:51 PM | 6020 | 0.0050 | **0.016** | |
| Molybdenum | mg/L | 11/13/2006 1:25:22 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 11/13/2006 1:25:22 PM | 6010B | 1.0 | **2.1** | |
| Selenium | mg/L | 11/6/2006 1:18:51 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 11/13/2006 1:25:22 PM | 6010B | 1.0 | **6.2** | |
| Zinc | mg/L | 11/6/2006 1:18:51 PM | 6020 | 0.010 | < 0.010 | |

** The reporting limits were raised due to high analyte concentration.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-01
Field Sample ID: **Mud Creek**
Collected: 10/30/2006 1:00:00 PM
Received: 10/31/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 11/1/2006 6:00:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 11/1/2006 6:00:00 AM | 2320B | 20 | **230** |
| Ammonia (as N) | mg/L | 11/3/2006 2:01:00 PM | 350.1 | 0.050 | < 0.050 [1] |
| Bicarbonate (As CaCO3) | mg/L | 11/1/2006 6:00:00 AM | 2320B | 20 | **210** |
| Carbonate (As CaCO3) | mg/L | 11/1/2006 6:00:00 AM | 2320B | 20 | **28** |
| Chloride | mg/L | 11/9/2006 12:55:43 AM | 300.0 | 10 | **17** |
| Hardness (as CaCO3) | mg/L | 11/13/2006 | 2340B | 10 | **340** |
| Nitrate (as N) | mg/L | 11/1/2006 9:28:00 AM | 353.2 | 0.010 | **0.13** [1] |
| Nitrite (as N) | mg/L | 11/1/2006 9:28:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/1/2006 1:15:00 PM | EPA 1664 | 3.0 | **3.3** |
| Phosphate, ortho (as P) | mg/L | 11/1/2006 8:46:00 AM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 11/1/2006 | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 11/9/2006 12:55:43 AM | 300.0 | 100 | **160** |
| TDS | mg/L | 11/1/2006 2:00:00 PM | 160.1 | 20 | **460** |
| TSS | mg/L | 11/1/2006 4:00:00 PM | 160.2 | 3.0 | **14** |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-02
Field Sample ID: **Sulfer Spring**
Collected: 10/30/2006 2:00:00 PM
Received: 10/31/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 11/1/2006 6:00:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 11/1/2006 6:00:00 AM | 2320B | 20 | **350** |
| Ammonia (as N) | mg/L | 11/3/2006 2:01:00 PM | 350.1 | 0.050 | **0.064** |
| Bicarbonate (As CaCO3) | mg/L | 11/1/2006 6:00:00 AM | 2320B | 20 | **350** |
| Carbonate (As CaCO3) | mg/L | 11/1/2006 6:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 11/9/2006 3:08:41 AM | 300.0 | 1.0 | **6.5** |
| Hardness (as CaCO3) | mg/L | 11/13/2006 | 2340B | 10 | **380** |
| Nitrate (as N) | mg/L | 11/1/2006 9:28:00 AM | 353.2 | 0.010 | **0.019** |
| Nitrite (as N) | mg/L | 11/1/2006 9:28:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/1/2006 1:15:00 PM | EPA 1664 | 3.0 | **3.7** |
| Phosphate, ortho (as P) | mg/L | 11/1/2006 8:46:00 AM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 11/1/2006 | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 11/9/2006 3:08:41 AM | 300.0 | 10 | **46** |
| TDS | mg/L | 11/1/2006 2:00:00 PM | 160.1 | 20 | **360** |
| TSS | mg/L | 11/1/2006 4:00:00 PM | 160.2 | 3.0 | < 3.0 |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-03
Field Sample ID: **Res-1**
Collected: 10/30/2006 2:30:00 PM
Received: 10/31/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 11/1/2006 6:00:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 11/1/2006 6:00:00 AM | 2320B | 20 | **260** |
| Ammonia (as N) | mg/L | 11/3/2006 2:01:00 PM | 350.1 | 0.050 | **0.073** |
| Bicarbonate (As CaCO3) | mg/L | 11/1/2006 6:00:00 AM | 2320B | 20 | **260** |
| Carbonate (As CaCO3) | mg/L | 11/1/2006 6:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 11/9/2006 4:48:25 AM | 300.0 | 10 | **20** |
| Hardness (as CaCO3) | mg/L | 11/13/2006 | 2340B | 10 | **310** |
| Nitrate (as N) | mg/L | 11/1/2006 9:28:00 AM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 11/1/2006 9:28:00 AM | 353.2 | 0.010 | **0.024** |
| Oil & Grease | mg/L | 11/1/2006 1:15:00 PM | EPA 1664 | 3.0 | **3.9** |
| Phosphate, ortho (as P) | mg/L | 11/1/2006 8:46:00 AM | 365.1 | 0.050 | **0.059** |
| Settable Solids | ml/L | 11/1/2006 | 160.5 | 0.10 | **1.5** |
| Sulfate | mg/L | 11/9/2006 4:48:25 AM | 300.0 | 10 | **74** |
| TDS | mg/L | 11/1/2006 2:00:00 PM | 160.1 | 20 | **400** |
| TSS | mg/L | 11/1/2006 4:00:00 PM | 160.2 | 3.0 | **430** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74688-04
Field Sample ID: **Miller Outlet**
Collected: 10/30/2006 3:00:00 PM
Received: 10/31/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 11/1/2006 6:00:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 11/1/2006 6:00:00 AM | 2320B | 20 | **260** |
| Ammonia (as N) | mg/L | 11/3/2006 2:01:00 PM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 11/1/2006 6:00:00 AM | 2320B | 20 | **250** |
| Carbonate (As CaCO3) | mg/L | 11/1/2006 6:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 11/9/2006 6:28:10 AM | 300.0 | 1.0 | **9.7** |
| Hardness (as CaCO3) | mg/L | 11/13/2006 | 2340B | 10 | **270** |
| Nitrate (as N) | mg/L | 11/1/2006 9:28:00 AM | 353.2 | 0.010 | **0.24** |
| Nitrite (as N) | mg/L | 11/1/2006 9:28:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/1/2006 1:15:00 PM | EPA 1664 | 3.0 | **4.1** |
| Phosphate, ortho (as P) | mg/L | 11/1/2006 8:46:00 AM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 11/1/2006 | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 11/9/2006 6:28:10 AM | 300.0 | 10 | **25** |
| TDS | mg/L | 11/1/2006 2:00:00 PM | 160.1 | 20 | **310** |
| TSS | mg/L | 11/1/2006 4:00:00 PM | 160.2 | 3.0 | **51** |




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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-31458 | Arsenic | mg/L | 6020 | 0.2177 | 0.2 | 0 | 109 | 80-120 | | | | 11/6/2006 |
| LCS-31458 | Cadmium | mg/L | 6020 | 0.2096 | 0.2 | 0 | 105 | 80-120 | | | | 11/6/2006 |
| LCS-31458 | Copper | mg/L | 6020 | 0.2105 | 0.2 | 0 | 105 | 80-120 | | | | 11/6/2006 |
| LCS-31458 | Lead | mg/L | 6020 | 0.2040 | 0.2 | 0 | 102 | 80-120 | | | | 11/6/2006 |
| LCS-31458 | Manganese | mg/L | 6020 | 0.2204 | 0.2 | 0 | 110 | 80-120 | | | | 11/6/2006 |
| LCS-31458 | Selenium | mg/L | 6020 | 0.1967 | 0.2 | 0 | 98.4 | 80-120 | | | | 11/6/2006 |
| LCS-31458 | Zinc | mg/L | 6020 | 1.071 | 1 | 0.003383 | 107 | 80-120 | | | | 11/6/2006 |
| LCS-31426 | Iron | mg/L | 6010B | 1.092 | 1 | 0 | 109 | 75-125 | | | | 11/13/2006 |
| LCS-31426 | Manganese | mg/L | 6010B | 0.2229 | 0.2 | 0 | 111 | 75-125 | | | | 11/13/2006 |
| LCS-31458 | Aluminum | mg/L | 6010B | 1.042 | 1 | 0 | 104 | 75-125 | | | | 11/13/2006 |
| LCS-31458 | Boron | mg/L | 6010B | 1.097 | 1 | 0 | 110 | 75-125 | | | | 11/13/2006 |
| LCS-31458 | Calcium | mg/L | 6010B | 10.58 | 10 | 0 | 106 | 75-125 | | | | 11/13/2006 |
| LCS-31458 | Iron | mg/L | 6010B | 1.099 | 1 | 0 | 110 | 75-125 | | | | 11/13/2006 |
| LCS-31458 | Magnesium | mg/L | 6010B | 10.97 | 10 | 0 | 110 | 75-125 | | | | 11/13/2006 |
| LCS-31458 | Molybdenum | mg/L | 6010B | 0.2180 | 0.2 | 0 | 109 | 75-125 | | | | 11/13/2006 |
| LCS-31458 | Potassium | mg/L | 6010B | 10.59 | 10 | 0 | 106 | 75-125 | | | | 11/13/2006 |
| LCS-31458 | Sodium | mg/L | 6010B | 9.689 | 10 | 0 | 96.9 | 75-125 | | | | 11/13/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

**Dept:** ME

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-31458 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 11/6/2006 |
| MB-31458 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 11/6/2006 |
| MB-31458 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 11/6/2006 |
| MB-31458 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 11/6/2006 |
| MB-31458 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 11/6/2006 |
| MB-31458 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 11/6/2006 |
| MB-31458 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 11/6/2006 |
| MB-31426 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 11/13/2006 |
| MB-31426 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 11/13/2006 |
| MB-31458 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 11/13/2006 |
| MB-31458 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 11/13/2006 |
| MB-31458 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/13/2006 |
| MB-31458 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 11/13/2006 |
| MB-31458 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/13/2006 |
| MB-31458 | Molybdenum | mg/L | 6010B | < 0.10 | | | | - | | | | 11/13/2006 |
| MB-31458 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/13/2006 |
| MB-31458 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/13/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L74688-01FMS | Arsenic | mg/L | 6020 | 0.2242 | 0.2 | 0 | 112 | 70-130 | | | | 11/6/2006 |
| L74688-01FMS | Cadmium | mg/L | 6020 | 0.2164 | 0.2 | 0 | 108 | 70-130 | | | | 11/6/2006 |
| L74688-01FMS | Copper | mg/L | 6020 | 0.2078 | 0.2 | 0 | 104 | 70-130 | | | | 11/6/2006 |
| L74688-01FMS | Lead | mg/L | 6020 | 0.2060 | 0.2 | 0 | 103 | 70-130 | | | | 11/6/2006 |
| L74688-01FMS | Manganese | mg/L | 6020 | 0.2418 | 0.2 | 0.01915 | 111 | 70-130 | | | | 11/6/2006 |
| L74688-01FMS | Selenium | mg/L | 6020 | 0.2027 | 0.2 | 0 | 101 | 70-130 | | | | 11/6/2006 |
| L74688-01FMS | Zinc | mg/L | 6020 | 1.119 | 1 | 0.02046 | 110 | 70-130 | | | | 11/6/2006 |
| L74688-01EMS | Iron | mg/L | 6010B | 1.442 | 1 | 0.342 | 110 | 75-125 | | | | 11/13/2006 |
| L74688-01EMS | Manganese | mg/L | 6010B | 0.2500 | 0.2 | 0.0312 | 109 | 75-125 | | | | 11/13/2006 |
| L74688-01FMS | Calcium | mg/L | 6010B | 79.89 | 10 | 67.04 | 129 | 75-125 | | | 2 | 11/13/2006 |
| L74688-01FMS | Magnesium | mg/L | 6010B | 53.40 | 10 | 42.39 | 110 | 75-125 | | | | 11/13/2006 |
| L74688-01FMS | Aluminum | mg/L | 6010B | 1.058 | 1 | 0.03809 | 102 | 75-125 | | | | 11/13/2006 |
| L74688-01FMS | Boron | mg/L | 6010B | 1.240 | 1 | 0.1239 | 112 | 75-125 | | | | 11/13/2006 |
| L74688-01FMS | Iron | mg/L | 6010B | 1.068 | 1 | 0.0109 | 106 | 75-125 | | | | 11/13/2006 |
| L74688-01FMS | Molybdenum | mg/L | 6010B | 0.2144 | 0.2 | 0 | 107 | 75-125 | | | | 11/13/2006 |
| L74688-01FMS | Potassium | mg/L | 6010B | 17.44 | 10 | 6.94 | 105 | 75-125 | | | | 11/13/2006 |
| L74688-01FMS | Sodium | mg/L | 6010B | 46.59 | 10 | 35.58 | 110 | 75-125 | | | | 11/13/2006 |

[2] Analyte concentration is too high for accurate spike recovery.



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L74688-01FMSD | Arsenic | mg/L | 6020 | 0.2264 | 0.2 | 0 | 113 | 70-130 | 0.944 | 20 | | 11/6/2006 |
| L74688-01FMSD | Cadmium | mg/L | 6020 | 0.2174 | 0.2 | 0 | 109 | 70-130 | 0.450 | 20 | | 11/6/2006 |
| L74688-01FMSD | Copper | mg/L | 6020 | 0.2092 | 0.2 | 0 | 105 | 70-130 | 0.663 | 20 | | 11/6/2006 |
| L74688-01FMSD | Lead | mg/L | 6020 | 0.2090 | 0.2 | 0 | 105 | 70-130 | 1.47 | 20 | | 11/6/2006 |
| L74688-01FMSD | Manganese | mg/L | 6020 | 0.2440 | 0.2 | 0.01915 | 112 | 70-130 | 0.872 | 20 | | 11/6/2006 |
| L74688-01FMSD | Selenium | mg/L | 6020 | 0.2050 | 0.2 | 0 | 103 | 70-130 | 1.14 | 20 | | 11/6/2006 |
| L74688-01FMSD | Zinc | mg/L | 6020 | 1.093 | 1 | 0.02046 | 107 | 70-130 | 2.38 | 20 | | 11/6/2006 |
| L74688-01EMSD | Iron | mg/L | 6010B | 1.536 | 1 | 0.342 | 119 | 75-125 | 6.28 | 20 | | 11/13/2006 |
| L74688-01EMSD | Manganese | mg/L | 6010B | 0.2511 | 0.2 | 0.0312 | 110 | 75-125 | 0.443 | 20 | | 11/13/2006 |
| L74688-01FMSD | Calcium | mg/L | 6010B | 79.97 | 10 | 67.04 | 129 | 75-125 | 0.0949 | 20 | [2] | 11/13/2006 |
| L74688-01FMSD | Magnesium | mg/L | 6010B | 52.80 | 10 | 42.39 | 104 | 75-125 | 1.13 | 20 | | 11/13/2006 |
| L74688-01FMSD | Aluminum | mg/L | 6010B | 1.083 | 1 | 0.03809 | 104 | 75-125 | 2.32 | 20 | | 11/13/2006 |
| L74688-01FMSD | Boron | mg/L | 6010B | 1.300 | 1 | 0.1239 | 118 | 75-125 | 4.72 | 20 | | 11/13/2006 |
| L74688-01FMSD | Iron | mg/L | 6010B | 1.136 | 1 | 0.0109 | 112 | 75-125 | 6.17 | 20 | | 11/13/2006 |
| L74688-01FMSD | Molybdenum | mg/L | 6010B | 0.2156 | 0.2 | 0 | 108 | 75-125 | 0.578 | 20 | | 11/13/2006 |
| L74688-01FMSD | Potassium | mg/L | 6010B | 19.04 | 10 | 6.94 | 121 | 75-125 | 8.78 | 20 | | 11/13/2006 |
| L74688-01FMSD | Sodium | mg/L | 6010B | 50.80 | 10 | 35.58 | 152 | 75-125 | 8.64 | 20 | [1] | 11/13/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
[2] Analyte concentration is too high for accurate spike recovery.



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L74425-01ADUP | TDS | mg/L | 160.1 | 252.0 | 0 | 250 | | - | 0.797 | 20 | | 11/1/2006 |
| L74426-05ADUP | TDS | mg/L | 160.1 | 956.0 | 0 | 968 | | - | 1.25 | 20 | | 11/1/2006 |
| L74688-04ADUP | TDS | mg/L | 160.1 | 312.0 | 0 | 308 | | - | 1.29 | 20 | | 11/1/2006 |
| L74699-01CDUP | TDS | mg/L | 160.1 | 7700 | 0 | 7200 | | - | 6.71 | 20 | | 11/1/2006 |
| L74688-01ADUP | TSS | mg/L | 160.2 | 15.00 | 0 | 14 | | - | 6.90 | 20 | | 11/1/2006 |
| L74697-02ADUP | TSS | mg/L | 160.2 | 6.000 | 0 | 8 | | - | 28.6 | 20 | * | 11/1/2006 |

* High RPD due to low analyte concentration. In this range, high RPD's may be expected.



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R63329 | Alkalinity,(As CaCO3) | mg/L | 2320B | 49880 | 50000 | 0 | 99.8 | 90-110 | | | | 11/1/2006 |
| LCS-R63681 | Chloride | mg/L | 300.0 | 4.971 | 5 | 0 | 99.4 | 90-110 | | | | 11/8/2006 |
| LCS-R63681 | Sulfate | mg/L | 300.0 | 5.221 | 5 | 0 | 104 | 90-110 | | | | 11/8/2006 |
| LCS-R63328 | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 11/1/2006 |
| LCS-31422 | Ammonia (as N) | mg/L | 350.1 | 0.9860 | 1 | 0 | 98.6 | 90-110 | | | | 11/3/2006 |
| LCS-63342 | Nitrite (as N) | mg/L | 353.2 | 1.035 | 1 | 0 | 104 | 90-110 | | | | 11/1/2006 |
| LCS-63347 | Nitrate (as N) | mg/L | 353.2 | 0.9450 | 1 | 0 | 94.5 | 90-110 | | | | 11/1/2006 |
| LCS-R63385 | Oil & Grease | mg/L | EPA 1664 | 42.20 | 40 | 0 | 106 | 79-114 | | | | 11/1/2006 |
| LCS-63337 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9820 | 1 | 0 | 98.2 | 90-110 | | | | 11/1/2006 |
| LCS-R63439 | TDS | mg/L | 160.1 | 200.0 | 205 | 0 | 97.6 | 80-120 | | | | 11/1/2006 |
| LCS-R63412 | TSS | mg/L | 160.2 | 105.0 | 100 | 0 | 105 | 80-120 | | | | 11/1/2006 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R63329 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 11/1/2006 |
| MB-R63329 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 11/1/2006 |
| MB-R63329 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 11/1/2006 |
| MB-R63681 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 11/8/2006 |
| MB-R63681 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 11/8/2006 |
| MB-R63328 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 11/1/2006 |
| MB-31422 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 11/3/2006 |
| MB-63342 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 11/1/2006 |
| MB-63347 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 11/1/2006 |
| MB-R63385 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 11/1/2006 |
| MB-63337 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 11/1/2006 |
| MB-R63439 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 11/1/2006 |
| MB-R63412 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 11/1/2006 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L74688-03BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 366.0 | 100 | 263 | 103 | 80-120 | | | | 11/1/2006 |
| L74695-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 372.0 | 100 | 273 | 99.0 | 80-120 | | | | 11/1/2006 |
| L74688-01BMS | Chloride | mg/L | 300.0 | 67.26 | 50 | 17.46 | 99.6 | 90-110 | | | | 11/9/2006 |
| L74688-01BMS | Sulfate | mg/L | 300.0 | 681.4 | 500 | 158.6 | 105 | 90-110 | | | | 11/9/2006 |
| L74688-02BMS | Acidity | mg/L | 305.1 | 46.00 | 50 | 0 | 92.0 | 80-120 | | | | 11/1/2006 |
| L74688-01CMS | Ammonia (as N) | mg/L | 350.1 | 0.9200 | 1 | 0 | 92.0 | 90-110 | | | | 11/3/2006 |
| L74688-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.059 | 1 | 0 | 106 | 90-110 | | | | 11/1/2006 |
| L74688-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.040 | 1 | 0.131 | 90.9 | 90-110 | | | | 11/1/2006 |
| L74688-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9590 | 1 | 0 | 95.9 | 90-110 | | | | 11/1/2006 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L74688-03BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 372.0 | 100 | 263 | 109 | 80-120 | 1.63 | 10 | | 11/1/2006 |
| L74695-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 375.0 | 100 | 273 | 102 | 80-120 | 0.803 | 10 | | 11/1/2006 |
| L74688-01BMSD | Chloride | mg/L | 300.0 | 66.94 | 50 | 17.46 | 99.0 | 90-110 | 0.463 | 20 | | 11/9/2006 |
| L74688-01BMSD | Sulfate | mg/L | 300.0 | 681.2 | 500 | 158.6 | 105 | 90-110 | 0.0324 | 20 | | 11/9/2006 |
| L74688-02BMSD | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | 8.33 | 20 | | 11/1/2006 |
| L74688-01CMSD | Ammonia (as N) | mg/L | 350.1 | 0.8970 | 1 | 0 | 89.7 | 90-110 | 2.53 | 10 | [1] | 11/3/2006 |
| L74688-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.048 | 1 | 0 | 105 | 90-110 | 1.04 | 10 | | 11/1/2006 |
| L74688-01BMSD | Nitrate (as N) | mg/L | 353.2 | 0.9950 | 1 | 0.131 | 86.4 | 90-110 | 4.42 | 10 | [1] | 11/1/2006 |
| L74688-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9990 | 1 | 0 | 99.9 | 90-110 | 4.09 | 10 | | 11/1/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R63385 | Oil & Grease | mg/L | EPA 1664 | 39.90 | 40 | 0 | 99.8 | 79-114 | | | | 11/1/2006 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74688
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R63385 | Oil & Grease | mg/L | EPA 1664 | 40.00 | 40 | 0 | 100 | 79-114 | 0.250 | 18 | | 11/1/2006 |



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# American West Analytical Labs

## WORK ORDER Summary

*31-Oct-06*

**Work Order** L74688

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: 2+ HOK-DB

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L74688-01A | Mud Creek | 10/30/2006 1:00:00 PM | 10/31/2006 | 11/14/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 11/14/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/14/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L74688-01B | | | | 11/14/2006 | | 2320B-ALK-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | 300.0-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | ACIDITY-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | NO2-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | NO3-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | PO4-O | oct 31 - wc | 1 |
| L74688-01C | | | | 11/14/2006 | | NH3-W | oct 31 - nh3 | 1 |
| | | | | 11/14/2006 | | NH3-W-PREP | oct 31 - nh3 | 1 |
| L74688-01D | | | | 11/14/2006 | | OGB-W | ogb | 1 |
| L74688-01E | | | | 11/14/2006 | | 3005A-ICPMS | oct 31 - met | 1 |
| | | | | 11/14/2006 | | ICP-W | oct 31 - met | 1 |
| L74688-01F | | | | 11/14/2006 | Aqueous-Dissolved | 3005A-Diss | oct 31 - met | 1 |
| | | | | 11/14/2006 | | 6020-W-DISS | oct 31 - met | 1 |
| | | | | 11/14/2006 | | HARD | oct 31 - met | 1 |
| | | | | 11/14/2006 | | ICP-W-DIS | oct 31 - met | 1 |
| L74688-02A | Sulfer Spring | 10/30/2006 2:00:00 PM | | 11/14/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 11/14/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/14/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L74688-02B | | | | 11/14/2006 | | 2320B-ALK-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | 300.0-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | ACIDITY-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | NO2-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | NO3-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | PO4-O | oct 31 - wc | 1 |

# WORK ORDER Summary

*31-Oct-06*

**Work Order** L74688

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L74688-02C | Sulfer Spring | 10/30/2006 2:00:00 PM | 10/31/2006 | 11/14/2006 | Aqueous | NH3-W | oct 31 - nh3 | 1 |
| | | | | 11/14/2006 | | NH3-W-PREP | oct 31 - nh3 | 1 |
| L74688-02D | | | | 11/14/2006 | | OGB-W | ogb | 1 |
| L74688-02E | | | | 11/14/2006 | | 3005A-ICPMS | oct 31 - met | 1 |
| | | | | 11/14/2006 | | ICP-W | oct 31 - met | 1 |
| L74688-02F | | | | 11/14/2006 | Aqueous-Dissolved | 3005A-Diss | oct 31 - met | 1 |
| | | | | 11/14/2006 | | 6020-W-DISS | oct 31 - met | 1 |
| | | | | 11/14/2006 | | HARD | oct 31 - met | 1 |
| | | | | 11/14/2006 | | ICP-W-DIS | oct 31 - met | 1 |
| L74688-03A | Res-1 | 10/30/2006 2:30:00 PM | | 11/14/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 11/14/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/14/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L74688-03B | | | | 11/14/2006 | | 2320B-ALK-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | 300.0-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | ACIDITY-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | NO2-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | NO3-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | PO4-O | oct 31 - wc | 1 |
| L74688-03C | | | | 11/14/2006 | | NH3-W | oct 31 - nh3 | 1 |
| | | | | 11/14/2006 | | NH3-W-PREP | oct 31 - nh3 | 1 |
| L74688-03D | | | | 11/14/2006 | | OGB-W | ogb | 1 |
| L74688-03E | | | | 11/14/2006 | | 3005A-ICPMS | oct 31 - met | 1 |
| | | | | 11/14/2006 | | ICP-W | oct 31 - met | 1 |
| L74688-03F | | | | 11/14/2006 | Aqueous-Dissolved | 3005A-Diss | oct 31 - met | 1 |
| | | | | 11/14/2006 | | 6020-W-DISS | oct 31 - met | 1 |
| | | | | 11/14/2006 | | HARD | oct 31 - met | 1 |
| | | | | 11/14/2006 | | ICP-W-DIS | oct 31 - met | 1 |
| L74688-04A | Miller Outlet | 10/30/2006 3:00:00 PM | | 11/14/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |

# WORK ORDER Summary

*31-Oct-06*

**Work Order** L74688

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L74688-04A | Miller Outlet | 10/30/2006 3:00:00 PM | 10/31/2006 | 11/14/2006 | Aqueous | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/14/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L74688-04B | | | | 11/14/2006 | | 2320B-ALK-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | 300.0-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | ACIDITY-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | NO2-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | NO3-W | oct 31 - wc | 1 |
| | | | | 11/14/2006 | | PO4-O | oct 31 - wc | 1 |
| L74688-04C | | | | 11/14/2006 | | NH3-W | oct 31 - nh3 | 1 |
| | | | | 11/14/2006 | | NH3-W-PREP | oct 31 - nh3 | 1 |
| L74688-04D | | | | 11/14/2006 | | OGB-W | ogb | 1 |
| L74688-04E | | | | 11/14/2006 | | 3005A-ICPMS | oct 31 - met | 1 |
| | | | | 11/14/2006 | | ICP-W | oct 31 - met | 1 |
| L74688-04F | | | | 11/14/2006 | Aqueous-Dissolved | 3005A-Diss | oct 31 - met | 1 |
| | | | | 11/14/2006 | | 6020-W-DISS | oct 31 - met | 1 |
| | | | | 11/14/2006 | | HARD | oct 31 - met | 1 |
| | | | | 11/14/2006 | | ICP-W-DIS | oct 31 - met | 1 |

Client Carbon Resources / Rock Logic

Address PO Box 544

Cedaredge CO 81413

City State Zip

Phone 435-851-9044 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield baseline

Project Number/P.O.#

Sampler Name Brad Lindsay


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# CHAIN OF CUSTODY

Lab Sample Set # 74688

Page 1 of 1

Turn Around Time (Circle One)

| 1 day | 2 day | 3 day | 4 day | 5 day | Standard |
|---|---|---|---|---|---|
| QC | 1 | 2 | 2+ | 3 | 3+ | 4 |

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | Table 3 | COMMENTS |
|---|---|---|---|---|---|
| Mud Creek | 10-30-06 13:00 | W | 6 | ✓ | |
| Cutler Spring | 10-30-06 14:00 | W | 6 | ✓ | |
| Res-1 | 10-30-06 14:30 | W | 6 | ✓ | |
| Miller Outlet | 10-30-06 15:00 | W | 6 | ✓ | |

Please indicate tests needed below

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 16:30 | PRINT NAME UPS |
| Relinquished By: Signature | Date 10/31/06 | Received By: Signature |
| PRINT NAME | Time 16:17 | PRINT NAME ABBEY WINKLER |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

Please filter for dissolved metals

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes:

3 Temperature 5.5°C

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 74688

## Preservation Check Sheet

| | | | Sample Set Extension and pH | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

December 13, 2006

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L75142

Dear Brad Lindsay:

American West Analytical Labs received 2 samples on 11/29/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75142-01E
Field Sample ID: **Mud Creek**
Collected: 11/27/2006 3:45:00 PM
Received: 11/29/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 12/11/2006 11:38:57 AM | 6010B | 0.050 | **0.30** |
| Manganese | mg/L | 12/11/2006 11:38:57 AM | 6010B | 0.0050 | **0.026** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75142-02E
Field Sample ID: **Sulfer Spring**
Collected: 11/27/2006 4:10:00 PM
Received: 11/29/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 12/11/2006 11:43:09 AM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 12/11/2006 11:43:09 AM | 6010B | 0.0050 | **0.030** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75142-01F
Field Sample ID: **Mud Creek**
Collected: 11/27/2006 3:45:00 PM
Received: 11/29/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 12/13/2006 10:44:42 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 11/30/2006 10:49:53 AM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 12/11/2006 12:17:59 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 11/30/2006 10:49:53 AM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 12/13/2006 10:21:20 AM | 6010B | 10 | **89** * |
| Copper | mg/L | 11/30/2006 10:49:53 AM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 12/11/2006 12:17:59 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 11/30/2006 10:49:53 AM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 12/11/2006 12:17:59 PM | 6010B | 1.0 | **44** |
| Manganese | mg/L | 11/30/2006 10:49:53 AM | 6020 | 0.0050 | **0.023** |
| Molybdenum | mg/L | 12/11/2006 12:17:59 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 12/11/2006 12:17:59 PM | 6010B | 1.0 | **7.6** |
| Selenium | mg/L | 11/30/2006 10:49:53 AM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 12/13/2006 10:44:42 AM | 6010B | 1.0 | **42** |
| Zinc | mg/L | 11/30/2006 10:49:53 AM | 6020 | 0.010 | < 0.010 |

** The reporting limits were raised due to high analyte concentration.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75142-02F
Field Sample ID: **Sulfer Spring**
Collected: 11/27/2006 4:10:00 PM
Received: 11/29/2006


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Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 12/13/2006 10:48:35 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 11/30/2006 10:55:16 AM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 12/11/2006 12:26:20 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 11/30/2006 10:55:16 AM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 12/13/2006 10:25:15 AM | 6010B | 10 | **93** | * |
| Copper | mg/L | 11/30/2006 10:55:16 AM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 12/11/2006 12:26:20 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 11/30/2006 10:55:16 AM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 12/11/2006 12:26:20 PM | 6010B | 1.0 | **38** | [1] |
| Manganese | mg/L | 11/30/2006 10:55:16 AM | 6020 | 0.0050 | **0.032** | |
| Molybdenum | mg/L | 12/11/2006 12:26:20 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 12/11/2006 12:26:20 PM | 6010B | 1.0 | **5.2** | |
| Selenium | mg/L | 11/30/2006 10:55:16 AM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 12/13/2006 10:48:35 AM | 6010B | 1.0 | **9.0** | |
| Zinc | mg/L | 11/30/2006 10:55:16 AM | 6020 | 0.010 | < 0.010 | |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

* *The reporting limits were raised due to high analyte concentration.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75142-01
Field Sample ID: **Mud Creek**
Collected: 11/27/2006 3:45:00 PM
Received: 11/29/2006


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Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 11/29/2006 11:30:00 AM | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 11/29/2006 10:40:00 AM | 2320B | 20 | **250** | |
| Ammonia (as N) | mg/L | 12/1/2006 12:10:00 PM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 11/29/2006 10:40:00 AM | 2320B | 20 | **220** | |
| Carbonate (As CaCO3) | mg/L | 11/29/2006 10:40:00 AM | 2320B | 20 | **31** | |
| Chloride | mg/L | 11/29/2006 6:24:53 PM | 300.0 | 10 | **15** | |
| Hardness (as CaCO3) | mg/L | 12/13/2006 | 2340B | 10 | **400** | |
| Nitrate (as N) | mg/L | 11/29/2006 11:13:00 AM | 353.2 | 0.010 | **0.26** | [1]@ |
| Nitrite (as N) | mg/L | 11/29/2006 11:13:00 AM | 353.2 | 0.010 | < 0.010 | [1]@ |
| Oil & Grease | mg/L | 11/29/2006 10:15:00 AM | EPA 1664 | 3.0 | **3.4** | |
| Phosphate, ortho (as P) | mg/L | 11/29/2006 12:51:00 PM | 365.1 | 0.050 | < 0.050 | |
| Settable Solids | ml/L | 11/29/2006 1:45:00 PM | 160.5 | 0.10 | < 0.10 | |
| Sulfate | mg/L | 11/29/2006 6:24:53 PM | 300.0 | 100 | **160** | |
| TDS | mg/L | 12/1/2006 3:45:00 PM | 160.1 | 20 | **490** | |
| TSS | mg/L | 11/29/2006 3:30:00 PM | 160.2 | 3.0 | **13** | |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*
*@ High RPD due to suspected matrix interference.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75142-02
Field Sample ID: **Sulfer Spring**
Collected: 11/27/2006 4:10:00 PM
Received: 11/29/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 11/29/2006 11:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 11/29/2006 10:40:00 AM | 2320B | 20 | **350** |
| Ammonia (as N) | mg/L | 12/1/2006 12:10:00 PM | 350.1 | 0.050 | **0.084** |
| Bicarbonate (As CaCO3) | mg/L | 11/29/2006 10:40:00 AM | 2320B | 20 | **350** |
| Carbonate (As CaCO3) | mg/L | 11/29/2006 10:40:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 11/29/2006 8:37:51 PM | 300.0 | 1.0 | **6.1** |
| Hardness (as CaCO3) | mg/L | 12/13/2006 | 2340B | 10 | **390** |
| Nitrate (as N) | mg/L | 11/29/2006 11:13:00 AM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 11/29/2006 11:13:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/29/2006 10:15:00 AM | EPA 1664 | 3.0 | **3.6** |
| Phosphate, ortho (as P) | mg/L | 11/29/2006 12:51:00 PM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 11/29/2006 1:45:00 PM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 11/29/2006 8:37:51 PM | 300.0 | 10 | **43** |
| TDS | mg/L | 12/1/2006 3:45:00 PM | 160.1 | 20 | **350** |
| TSS | mg/L | 11/29/2006 3:30:00 PM | 160.2 | 3.0 | < 3.0 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

**Dept:** ME
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-31858 | Arsenic | mg/L | 6020 | 0.2236 | 0.2 | 0 | 112 | 80-120 | | | | 11/30/2006 |
| LCS-31858 | Cadmium | mg/L | 6020 | 0.2089 | 0.2 | 0 | 104 | 80-120 | | | | 11/30/2006 |
| LCS-31858 | Copper | mg/L | 6020 | 0.2117 | 0.2 | 0 | 106 | 80-120 | | | | 11/30/2006 |
| LCS-31858 | Lead | mg/L | 6020 | 0.2152 | 0.2 | 0 | 108 | 80-120 | | | | 11/30/2006 |
| LCS-31858 | Manganese | mg/L | 6020 | 0.2112 | 0.2 | 0.00154 | 105 | 80-120 | | | | 11/30/2006 |
| LCS-31858 | Selenium | mg/L | 6020 | 0.1907 | 0.2 | 0 | 95.4 | 80-120 | | | | 11/30/2006 |
| LCS-31858 | Zinc | mg/L | 6020 | 1.039 | 1 | 0.005562 | 103 | 80-120 | | | | 11/30/2006 |
| LCS-31861 | Iron | mg/L | 6010B | 1.100 | 1 | 0 | 110 | 75-125 | | | | 12/11/2006 |
| LCS-31861 | Manganese | mg/L | 6010B | 0.2290 | 0.2 | 0 | 114 | 75-125 | | | | 12/11/2006 |
| LCS-31858 | Boron | mg/L | 6010B | 1.189 | 1 | 0 | 119 | 75-125 | | | | 12/11/2006 |
| LCS-31858 | Calcium | mg/L | 6010B | 11.47 | 10 | 0 | 115 | 75-125 | | | | 12/11/2006 |
| LCS-31858 | Iron | mg/L | 6010B | 1.151 | 1 | 0 | 115 | 75-125 | | | | 12/11/2006 |
| LCS-31858 | Magnesium | mg/L | 6010B | 11.28 | 10 | 0 | 113 | 75-125 | | | | 12/11/2006 |
| LCS-31858 | Molybdenum | mg/L | 6010B | 0.2224 | 0.2 | 0 | 111 | 75-125 | | | | 12/11/2006 |
| LCS-31858 | Potassium | mg/L | 6010B | 11.11 | 10 | 0 | 111 | 75-125 | | | | 12/11/2006 |
| LCS-31858 | Aluminum | mg/L | 6010B | 1.165 | 1 | 0 | 116 | 75-125 | | | | 12/13/2006 |
| LCS-31858 | Sodium | mg/L | 6010B | 10.60 | 10 | 0 | 106 | 75-125 | | | | 12/13/2006 |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

**Dept:** ME

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-31858 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 11/30/2006 |
| MB-31858 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 11/30/2006 |
| MB-31858 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 11/30/2006 |
| MB-31858 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 11/30/2006 |
| MB-31858 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 11/30/2006 |
| MB-31858 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 11/30/2006 |
| MB-31858 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 11/30/2006 |
| MB-31861 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 12/11/2006 |
| MB-31858 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 12/11/2006 |
| MB-31858 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/11/2006 |
| MB-31858 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 12/11/2006 |
| MB-31858 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/11/2006 |
| MB-31858 | Molybdenum | mg/L | 6010B | < 0.040 | | | | - | | | | 12/11/2006 |
| MB-31858 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/11/2006 |
| MB-31858 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 12/13/2006 |
| MB-31858 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/13/2006 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

**Dept:** ME
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75142-02FMS | Arsenic | mg/L | 6020 | 0.2269 | 0.2 | 0 | 113 | 70-130 | | | | 11/30/2006 |
| L75142-02FMS | Cadmium | mg/L | 6020 | 0.2086 | 0.2 | 0 | 104 | 70-130 | | | | 11/30/2006 |
| L75142-02FMS | Copper | mg/L | 6020 | 0.2013 | 0.2 | 0 | 101 | 70-130 | | | | 11/30/2006 |
| L75142-02FMS | Lead | mg/L | 6020 | 0.2102 | 0.2 | 0 | 105 | 70-130 | | | | 11/30/2006 |
| L75142-02FMS | Manganese | mg/L | 6020 | 0.2359 | 0.2 | 0.03151 | 102 | 70-130 | | | | 11/30/2006 |
| L75142-02FMS | Selenium | mg/L | 6020 | 0.1967 | 0.2 | 0 | 98.3 | 70-130 | | | | 11/30/2006 |
| L75142-02FMS | Zinc | mg/L | 6020 | 1.019 | 1 | 0.008702 | 101 | 70-130 | | | | 11/30/2006 |
| L75137-01HMS | Iron | mg/L | 6010B | 1.137 | 1 | 0.0105 | 113 | 75-125 | | | | 12/11/2006 |
| L75142-02EMS | Iron | mg/L | 6010B | 1.141 | 1 | 0.016 | 113 | 75-125 | | | | 12/11/2006 |
| L75142-02EMS | Manganese | mg/L | 6010B | 0.2419 | 0.2 | 0.03003 | 106 | 75-125 | | | | 12/11/2006 |
| L75142-02FMS | Boron | mg/L | 6010B | 1.196 | 1 | 0.03563 | 116 | 75-125 | | | | 12/11/2006 |
| L75142-02FMS | Iron | mg/L | 6010B | 1.139 | 1 | 0.00868 | 113 | 75-125 | | | | 12/11/2006 |
| L75142-02FMS | Magnesium | mg/L | 6010B | 46.61 | 10 | 37.9 | 87.2 | 75-125 | | | | 12/11/2006 |
| L75142-02FMS | Molybdenum | mg/L | 6010B | 0.2139 | 0.2 | 0 | 107 | 75-125 | | | | 12/11/2006 |
| L75142-02FMS | Potassium | mg/L | 6010B | 16.32 | 10 | 5.237 | 111 | 75-125 | | | | 12/11/2006 |
| L75142-02FMS | Calcium | mg/L | 6010B | 100.5 | 10 | 92.51 | 80.0 | 75-125 | | | | 12/13/2006 |
| L75142-02FMS | Aluminum | mg/L | 6010B | 1.175 | 1 | 0.06557 | 111 | 75-125 | | | | 12/13/2006 |
| L75142-02FMS | Sodium | mg/L | 6010B | 19.91 | 10 | 9.03 | 109 | 75-125 | | | | 12/13/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

**Dept:** ME
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75142-02FMSD | Arsenic | mg/L | 6020 | 0.2198 | 0.2 | 0 | 110 | 70-130 | 3.18 | 20 | | 11/30/2006 |
| L75142-02FMSD | Cadmium | mg/L | 6020 | 0.2034 | 0.2 | 0 | 102 | 70-130 | 2.55 | 20 | | 11/30/2006 |
| L75142-02FMSD | Copper | mg/L | 6020 | 0.1957 | 0.2 | 0 | 97.9 | 70-130 | 2.78 | 20 | | 11/30/2006 |
| L75142-02FMSD | Lead | mg/L | 6020 | 0.2064 | 0.2 | 0 | 103 | 70-130 | 1.84 | 20 | | 11/30/2006 |
| L75142-02FMSD | Manganese | mg/L | 6020 | 0.2273 | 0.2 | 0.03151 | 97.9 | 70-130 | 3.74 | 20 | | 11/30/2006 |
| L75142-02FMSD | Selenium | mg/L | 6020 | 0.1828 | 0.2 | 0 | 91.4 | 70-130 | 7.34 | 20 | | 11/30/2006 |
| L75142-02FMSD | Zinc | mg/L | 6020 | 0.9925 | 1 | 0.008702 | 98.4 | 70-130 | 2.66 | 20 | | 11/30/2006 |
| L75137-01HMSD | Iron | mg/L | 6010B | 1.127 | 1 | 0.0105 | 112 | 75-125 | 0.935 | 20 | | 12/11/2006 |
| L75142-02EMSD | Iron | mg/L | 6010B | 1.148 | 1 | 0.016 | 113 | 75-125 | 0.572 | 20 | | 12/11/2006 |
| L75142-02EMSD | Manganese | mg/L | 6010B | 0.2405 | 0.2 | 0.03003 | 105 | 75-125 | 0.568 | 20 | | 12/11/2006 |
| L75142-02FMSD | Boron | mg/L | 6010B | 1.207 | 1 | 0.03563 | 117 | 75-125 | 0.934 | 20 | | 12/11/2006 |
| L75142-02FMSD | Iron | mg/L | 6010B | 1.065 | 1 | 0.00868 | 106 | 75-125 | 6.71 | 20 | | 12/11/2006 |
| L75142-02FMSD | Magnesium | mg/L | 6010B | 44.47 | 10 | 37.9 | 65.7 | 75-125 | 4.70 | 20 | [1] | 12/11/2006 |
| L75142-02FMSD | Molybdenum | mg/L | 6010B | 0.2140 | 0.2 | 0 | 107 | 75-125 | 0.0451 | 20 | | 12/11/2006 |
| L75142-02FMSD | Potassium | mg/L | 6010B | 15.42 | 10 | 5.237 | 102 | 75-125 | 5.67 | 20 | | 12/11/2006 |
| L75142-02FMSD | Calcium | mg/L | 6010B | 102.8 | 10 | 92.51 | 102 | 75-125 | 2.21 | 20 | | 12/13/2006 |
| L75142-02FMSD | Aluminum | mg/L | 6010B | 1.187 | 1 | 0.06557 | 112 | 75-125 | 1.03 | 20 | | 12/13/2006 |
| L75142-02FMSD | Sodium | mg/L | 6010B | 19.62 | 10 | 9.03 | 106 | 75-125 | 1.45 | 20 | | 12/13/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

**Dept:** WC
**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75162-01CDUP | TDS | mg/L | 160.1 | 5120 | 0 | 4960 | | - | 3.17 | 20 | | 12/1/2006 |
| L75190-02DDUP | TDS | mg/L | 160.1 | 1116 | 0 | 1088 | | - | 2.54 | 20 | | 12/1/2006 |
| L75193-01DDUP | TDS | mg/L | 160.1 | 1760 | 0 | 1736 | | - | 1.37 | 20 | | 12/1/2006 |
| L75205-01ADUP | TDS | mg/L | 160.1 | 300.0 | 0 | 280 | | - | 6.90 | 20 | | 12/1/2006 |
| L75134-02ADUP | TSS | mg/L | 160.2 | 10.00 | 0 | 10 | | - | 0 | 20 | | 11/29/2006 |
| L75142-02ADUP | TSS | mg/L | 160.2 | < 3.0 | 0 | 0 | | - | 0 | 20 | | 11/29/2006 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

**Dept:** WC
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R64229 | Alkalinity,(As CaCO3) | mg/L | 2320B | 51160 | 50000 | 0 | 102 | 90-110 | | | | 11/29/2006 |
| LCS-R64262 | Chloride | mg/L | 300.0 | 4.848 | 5 | 0 | 97.0 | 90-110 | | | | 11/29/2006 |
| LCS-R64262 | Sulfate | mg/L | 300.0 | 5.435 | 5 | 0 | 109 | 90-110 | | | | 11/29/2006 |
| LCS-R64231 | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 11/29/2006 |
| LCS-31875 | Ammonia (as N) | mg/L | 350.1 | 0.9990 | 1 | 0 | 99.9 | 90-110 | | | | 12/1/2006 |
| LCS-64232 | Nitrite (as N) | mg/L | 353.2 | 1.030 | 1 | 0 | 103 | 90-110 | | | | 11/29/2006 |
| LCS-64234 | Nitrate (as N) | mg/L | 353.2 | 1.024 | 1 | 0 | 102 | 90-110 | | | | 11/29/2006 |
| LCS-R64252 | Oil & Grease | mg/L | EPA 1664 | 40.80 | 40 | 0 | 102 | 79-114 | | | | 11/29/2006 |
| LCS-64243 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9830 | 1 | 0 | 98.3 | 90-110 | | | | 11/29/2006 |
| LCS-R64411 | TDS | mg/L | 160.1 | 200.0 | 205 | 0 | 97.6 | 80-120 | | | | 12/1/2006 |
| LCS-R64274 | TSS | mg/L | 160.2 | 102.0 | 100 | 0 | 102 | 80-120 | | | | 11/29/2006 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R64229 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 11/29/2006 |
| MB-R64229 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 11/29/2006 |
| MB-R64229 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 11/29/2006 |
| MB-R64262 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 11/29/2006 |
| MB-R64262 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 11/29/2006 |
| MB-R64231 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 11/29/2006 |
| MB-31875 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 12/1/2006 |
| MB-64232 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 11/29/2006 |
| MB-64234 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 11/29/2006 |
| MB-R64252 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 11/29/2006 |
| MB-64243 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 11/29/2006 |
| MB-R64411 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 12/1/2006 |
| MB-R64274 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 11/29/2006 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75142-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 351.0 | 100 | 251 | 100 | 80-120 | | | | 11/29/2006 |
| L75142-01BMS | Chloride | mg/L | 300.0 | 63.24 | 50 | 15.48 | 95.5 | 90-110 | | | | 11/29/2006 |
| L75142-01BMS | Sulfate | mg/L | 300.0 | 695.7 | 500 | 161.5 | 107 | 90-110 | | | | 11/29/2006 |
| L75137-01CMS | Chloride | mg/L | 300.0 | 822.7 | 500 | 348.3 | 94.9 | 90-110 | | | | 11/29/2006 |
| L75137-01CMS | Sulfate | mg/L | 300.0 | 737.0 | 500 | 154.9 | 116 | 90-110 | | | [1] | 11/29/2006 |
| L75142-02BMS | Acidity | mg/L | 305.1 | 46.00 | 50 | 0 | 92.0 | 80-120 | | | | 11/29/2006 |
| L75074-01FMS | Ammonia (as N) | mg/L | 350.1 | 2.980 | 1 | 2.062 | 91.8 | 90-110 | | | | 12/1/2006 |
| L75142-01CMS | Ammonia (as N) | mg/L | 350.1 | 1.023 | 1 | 0 | 102 | 90-110 | | | | 12/1/2006 |
| L75142-01BMS | Nitrite (as N) | mg/L | 353.2 | 0.9990 | 1 | 0 | 99.9 | 90-110 | | | | 11/29/2006 |
| L75142-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.195 | 1 | 0.264 | 93.1 | 90-110 | | | | 11/29/2006 |
| L75142-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.067 | 1 | 0 | 107 | 90-110 | | | | 11/29/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

**Dept:** WC
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75142-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 346.0 | 100 | 251 | 95.0 | 80-120 | 1.43 | 10 | | 11/29/2006 |
| L75142-01BMSD | Chloride | mg/L | 300.0 | 63.22 | 50 | 15.48 | 95.5 | 90-110 | 0.0427 | 20 | | 11/29/2006 |
| L75142-01BMSD | Sulfate | mg/L | 300.0 | 689.3 | 500 | 161.5 | 106 | 90-110 | 0.929 | 20 | | 11/29/2006 |
| L75137-01CMSD | Chloride | mg/L | 300.0 | 822.6 | 500 | 348.3 | 94.9 | 90-110 | 0.0120 | 20 | | 11/29/2006 |
| L75137-01CMSD | Sulfate | mg/L | 300.0 | 711.1 | 500 | 154.9 | 111 | 90-110 | 3.57 | 20 | [1] | 11/29/2006 |
| L75142-02BMSD | Acidity | mg/L | 305.1 | 40.00 | 50 | 0 | 80.0 | 80-120 | 14.0 | 20 | | 11/29/2006 |
| L75074-01FMSD | Ammonia (as N) | mg/L | 350.1 | 3.014 | 1 | 2.062 | 95.2 | 90-110 | 1.13 | 10 | | 12/1/2006 |
| L75142-01CMSD | Ammonia (as N) | mg/L | 350.1 | 1.025 | 1 | 0 | 103 | 90-110 | 0.195 | 10 | | 12/1/2006 |
| L75142-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.140 | 1 | 0 | 114 | 90-110 | 13.2 | 10 | [1]@ | 11/29/2006 |
| L75142-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.417 | 1 | 0.264 | 115 | 90-110 | 17.0 | 10 | [1]@ | 11/29/2006 |
| L75142-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.081 | 1 | 0 | 108 | 90-110 | 1.30 | 10 | | 11/29/2006 |

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R64252 | Oil & Grease | mg/L | EPA 1664 | 38.40 | 40 | 0 | 96.0 | 79-114 | | | | 11/29/2006 |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75142
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R64252 | Oil & Grease | mg/L | EPA 1664 | 40.60 | 40 | 0 | 102 | 79-114 | 5.57 | 18 | | 11/29/2006 |



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# American West Analytical Labs

## WORK ORDER Summary

*29-Nov-06*

**Work Order** L75142

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L75142-01A | Mud Creek | 11/27/2006 3:45:00 PM | 11/29/2006 | 12/13/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 12/13/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 12/13/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L75142-01B | | | | 12/13/2006 | | 2320B-ALK-W | Nov. 29 - wc | 1 |
| | | | | 12/13/2006 | | 300.0-W | Nov. 29 - wc | 1 |
| | | | | 12/13/2006 | | ACIDITY-W | Nov. 29 - wc | 1 |
| | | | | 12/13/2006 | | NO2-W | Nov. 29 - wc | 1 |
| | | | | 12/13/2006 | | NO3-W | Nov. 29 - wc | 1 |
| | | | | 12/13/2006 | | PO4-O | Nov. 29 - wc | 1 |
| L75142-01C | | | | 12/13/2006 | | NH3-W | Nov. 29 - nh3 | 1 |
| | | | | 12/13/2006 | | NH3-W-PREP | Nov. 29 - nh3 | 1 |
| L75142-01D | | | | 12/13/2006 | | OGB-W | OGBFridge | 1 |
| L75142-01E | | | | 12/13/2006 | | 3005A-ICPMS | Nov. 29 - met | 1 |
| | | | | 12/13/2006 | | ICP-W | Nov. 29 - met | 1 |
| L75142-01F | | | | 12/13/2006 | Aqueous-Dissolved | 3005A-Diss | Nov. 29 - met | 1 |
| | | | | 12/13/2006 | | 6020-W-DISS | Nov. 29 - met | 1 |
| | | | | 12/13/2006 | | HARD | Nov. 29 - met | 1 |
| | | | | 12/13/2006 | | ICP-W-DIS | Nov. 29 - met | 1 |
| L75142-02A | Sulfer Spring | 11/27/2006 4:10:00 PM | | 12/13/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 12/13/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 12/13/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L75142-02B | | | | 12/13/2006 | | 2320B-ALK-W | Nov. 29 - wc | 1 |
| | | | | 12/13/2006 | | 300.0-W | Nov. 29 - wc | 1 |
| | | | | 12/13/2006 | | ACIDITY-W | Nov. 29 - wc | 1 |
| | | | | 12/13/2006 | | NO2-W | Nov. 29 - wc | 1 |
| | | | | 12/13/2006 | | NO3-W | Nov. 29 - wc | 1 |
| | | | | 12/13/2006 | | PO4-O | Nov. 29 - wc | 1 |

# WORK ORDER Summary

*29-Nov-06*

**Work Order** L75142

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L75142-02C | Sulfer Spring | 11/27/2006 4:10:00 PM | 11/29/2006 | 12/13/2006 | Aqueous | NH3-W | Nov. 29 - nh3 | 1 |
| | | | | 12/13/2006 | | NH3-W-PREP | Nov. 29 - nh3 | 1 |
| L75142-02D | | | | 12/13/2006 | | OGB-W | OGBFridge | 1 |
| L75142-02E | | | | 12/13/2006 | | 3005A-ICPMS | Nov. 29 - met | 1 |
| | | | | 12/13/2006 | | ICP-W | Nov. 29 - met | 1 |
| L75142-02F | | | | 12/13/2006 | Aqueous-Dissolved | 3005A-Diss | Nov. 29 - met | 1 |
| | | | | 12/13/2006 | | 6020-W-DISS | Nov. 29 - met | 1 |
| | | | | 12/13/2006 | | HARD | Nov. 29 - met | 1 |
| | | | | 12/13/2006 | | ICP-W-DIS | Nov. 29 - met | 1 |

Client Carbon Resources | Rock Logic
Address PO Box 544
Cedaredge CO 81413
City State Zip
Phone 935-851-9044 Fax
Contact Brad Lindsay
E-mail lindsay.brad@gmail.com
Project Name Scofield Baseline
Project Number/P.O.#
Sampler Name Brad Lindsay

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# CHAIN OF CUSTODY

Lab Sample Set # 25142
Page of

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | table 3 | COMMENTS |
|---|---|---|---|---|---|
| Mud Creek | 11-27-06 ~~15:45~~ 15:45 | W | 6 | ✓ | |
| Sulfer Spring | 11-27-06 16:10 | W | 6 | ✓ | |
| ~~Res-1~~ | ~~11-27-06~~ | ~~W~~ | ~~6~~ | ~~✓~~ | |
| ~~Miller Outlet~~ | ~~11-27-06 16:45~~ | ~~W~~ | ~~6~~ | ~~✓~~ | |

Please indicate tests needed below

LABORATORY USE ONLY

SAMPLES WERE:
1 (Shipped) or hand delivered
Notes: UPS
2 Ambient or (Chilled)
Notes: on ice
3 Temperature 0.5°
4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:
5 (Properly) Preserved
Y N
Notes:
6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:
1 Present on Outer Package
(Y) N NA
2 Unbroken on Outer Package
(Y) N NA
3 Present on Sample
Y N (NA)
4 Unbroken on Sample
Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME Brad Lindsay BRAD LINDSAY | Time 14:30 | PRINT NAME UPS |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date 11/29/06 | Received By: Signature |
| PRINT NAME | Time 1001 | PRINT NAME Elma Hanks |

Special Instructions:

* please filter for dissolved metals
need to filter

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 75142

## Preservation Check Sheet

| | | | Sample Set Extension and pH | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

December 14, 2006

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Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L75205

Dear Brad Lindsay:

American West Analytical Labs received 1 sample on 12/1/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75205-01E
Field Sample ID: **Miller Outlet**
Collected: 11/28/2006 5:00:00 PM
Received: 12/1/2006

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## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 12/13/2006 2:19:34 PM | 6010B | 0.050 | **1.4** |
| Manganese | mg/L | 12/13/2006 2:19:34 PM | 6010B | 0.0050 | **0.082** |

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer



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# INORGANIC ANALYSIS REPORT

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L75205-01F
Field Sample ID: **Miller Outlet**
Collected: 11/28/2006 5:00:00 PM
Received: 12/1/2006

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 12/13/2006 12:58:57 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 12/5/2006 1:44:14 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 12/13/2006 12:58:57 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 12/5/2006 1:44:14 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 12/13/2006 12:03:46 PM | 6010B | 10 | **94** | [2] * |
| Copper | mg/L | 12/5/2006 1:44:14 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 12/13/2006 12:58:57 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 12/5/2006 1:44:14 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 12/13/2006 12:58:57 PM | 6010B | 1.0 | **18** | |
| Manganese | mg/L | 12/5/2006 1:44:14 PM | 6020 | 0.0050 | **0.024** | |
| Molybdenum | mg/L | 12/13/2006 12:58:57 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 12/13/2006 12:58:57 PM | 6010B | 1.0 | **2.1** | |
| Selenium | mg/L | 12/5/2006 1:44:14 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 12/14/2006 10:19:49 AM | 6010B | 1.0 | **6.8** | |
| Zinc | mg/L | 12/5/2006 1:44:14 PM | 6020 | 0.010 | **0.011** | |

[2] *Analyte concentration is too high for accurate spike recovery.*
* *The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75205-01
Field Sample ID: **Miller Outlet**
Collected: 11/28/2006 5:00:00 PM
Received: 12/1/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 12/4/2006 10:00:00 AM | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 12/4/2006 7:44:00 AM | 2320B | 20 | **260** | |
| Ammonia (as N) | mg/L | 12/5/2006 8:56:00 AM | 350.1 | 0.050 | **0.097** | |
| Bicarbonate (As CaCO3) | mg/L | 12/4/2006 7:44:00 AM | 2320B | 20 | **260** | |
| Carbonate (As CaCO3) | mg/L | 12/4/2006 7:44:00 AM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 12/2/2006 5:43:10 AM | 300.0 | 5.0 | **9.7** | |
| Hardness (as CaCO3) | mg/L | 12/13/2006 | 2340B | 10 | **310** | |
| Nitrate (as N) | mg/L | 12/1/2006 4:09:00 PM | 353.2 | 0.010 | **0.65** | H |
| Nitrite (as N) | mg/L | 12/1/2006 4:09:00 PM | 353.2 | 0.010 | < 0.010 | [1]@H |
| Oil & Grease | mg/L | 12/4/2006 1:00:00 PM | EPA 1664 | 3.0 | **3.1** | |
| Phosphate, ortho (as P) | mg/L | 12/1/2006 1:05:00 PM | 365.1 | 0.050 | < 0.050 | H |
| Settable Solids | ml/L | 12/1/2006 1:00:00 PM | 160.5 | 0.10 | < 0.10 | |
| Sulfate | mg/L | 12/2/2006 5:43:10 AM | 300.0 | 5.0 | **24** | |
| TDS | mg/L | 12/1/2006 3:45:00 PM | 160.1 | 20 | **280** | |
| TSS | mg/L | 12/1/2006 5:15:00 PM | 160.2 | 3.0 | **47** | |

*H - Sample was received outside of holding time.*
*[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*
*@ High RPD due to suspected matrix interference.*




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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-31930 | Arsenic | mg/L | 6020 | 0.2143 | 0.2 | 0 | 107 | 80-120 | | | | 12/5/2006 |
| LCS-31930 | Cadmium | mg/L | 6020 | 0.2102 | 0.2 | 0 | 105 | 80-120 | | | | 12/5/2006 |
| LCS-31930 | Copper | mg/L | 6020 | 0.2101 | 0.2 | 0 | 105 | 80-120 | | | | 12/5/2006 |
| LCS-31930 | Lead | mg/L | 6020 | 0.2068 | 0.2 | 0 | 103 | 80-120 | | | | 12/5/2006 |
| LCS-31930 | Manganese | mg/L | 6020 | 0.2105 | 0.2 | 0 | 105 | 80-120 | | | | 12/5/2006 |
| LCS-31930 | Selenium | mg/L | 6020 | 0.2056 | 0.2 | 0 | 103 | 80-120 | | | | 12/5/2006 |
| LCS-31930 | Zinc | mg/L | 6020 | 1.052 | 1 | 0.005493 | 105 | 80-120 | | | | 12/5/2006 |
| LCS-31931 | Iron | mg/L | 6010B | 1.098 | 1 | 0 | 110 | 75-125 | | | | 12/13/2006 |
| LCS-31931 | Manganese | mg/L | 6010B | 0.2129 | 0.2 | 0 | 106 | 75-125 | | | | 12/13/2006 |
| LCS-31930 | Aluminum | mg/L | 6010B | 1.151 | 1 | 0 | 115 | 75-125 | | | | 12/13/2006 |
| LCS-31930 | Boron | mg/L | 6010B | 1.089 | 1 | 0 | 109 | 75-125 | | | | 12/13/2006 |
| LCS-31930 | Calcium | mg/L | 6010B | 10.99 | 10 | 0 | 110 | 75-125 | | | | 12/13/2006 |
| LCS-31930 | Iron | mg/L | 6010B | 1.111 | 1 | 0 | 111 | 75-125 | | | | 12/13/2006 |
| LCS-31930 | Magnesium | mg/L | 6010B | 11.04 | 10 | 0 | 110 | 75-125 | | | | 12/13/2006 |
| LCS-31930 | Molybdenum | mg/L | 6010B | 0.2096 | 0.2 | 0 | 105 | 75-125 | | | | 12/13/2006 |
| LCS-31930 | Potassium | mg/L | 6010B | 10.67 | 10 | 0 | 107 | 75-125 | | | | 12/13/2006 |
| LCS-31930 | Sodium | mg/L | 6010B | 10.64 | 10 | 0 | 106 | 75-125 | | | | 12/13/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

**Dept:** ME

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-31930 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 12/5/2006 |
| MB-31930 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 12/5/2006 |
| MB-31930 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 12/5/2006 |
| MB-31930 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 12/5/2006 |
| MB-31930 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 12/5/2006 |
| MB-31930 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 12/5/2006 |
| MB-31930 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 12/5/2006 |
| MB-31931 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 12/13/2006 |
| MB-31931 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 12/13/2006 |
| MB-31930 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 12/13/2006 |
| MB-31930 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 12/13/2006 |
| MB-31930 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/13/2006 |
| MB-31930 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 12/13/2006 |
| MB-31930 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/13/2006 |
| MB-31930 | Molybdenum | mg/L | 6010B | < 0.040 | | | | - | | | | 12/13/2006 |
| MB-31930 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/13/2006 |
| MB-31930 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 12/13/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75205-01FMS | Arsenic | mg/L | 6020 | 0.2184 | 0.2 | 0 | 109 | 70-130 | | | | 12/5/2006 |
| L75205-01FMS | Cadmium | mg/L | 6020 | 0.2084 | 0.2 | 0 | 104 | 70-130 | | | | 12/5/2006 |
| L75205-01FMS | Copper | mg/L | 6020 | 0.2036 | 0.2 | 0 | 102 | 70-130 | | | | 12/5/2006 |
| L75205-01FMS | Lead | mg/L | 6020 | 0.2019 | 0.2 | 0 | 101 | 70-130 | | | | 12/5/2006 |
| L75205-01FMS | Manganese | mg/L | 6020 | 0.2292 | 0.2 | 0.02417 | 103 | 70-130 | | | | 12/5/2006 |
| L75205-01FMS | Selenium | mg/L | 6020 | 0.2090 | 0.2 | 0.001478 | 104 | 70-130 | | | | 12/5/2006 |
| L75205-01FMS | Zinc | mg/L | 6020 | 1.054 | 1 | 0.0106 | 104 | 70-130 | | | | 12/5/2006 |
| L75205-01EMS | Iron | mg/L | 6010B | 2.508 | 1 | 1.448 | 106 | 75-125 | | | | 12/13/2006 |
| L75205-01EMS | Manganese | mg/L | 6010B | 0.2888 | 0.2 | 0.08233 | 103 | 75-125 | | | | 12/13/2006 |
| L75205-01FMS | Calcium | mg/L | 6010B | 100.6 | 10 | 93.92 | 66.6 | 75-125 | | | 2 | 12/13/2006 |
| L75205-01FMS | Aluminum | mg/L | 6010B | 1.139 | 1 | 0.0592 | 108 | 75-125 | | | | 12/13/2006 |
| L75205-01FMS | Boron | mg/L | 6010B | 1.104 | 1 | 0.0154 | 109 | 75-125 | | | | 12/13/2006 |
| L75205-01FMS | Iron | mg/L | 6010B | 1.099 | 1 | 0.00789 | 109 | 75-125 | | | | 12/13/2006 |
| L75205-01FMS | Magnesium | mg/L | 6010B | 27.41 | 10 | 17.84 | 95.7 | 75-125 | | | | 12/13/2006 |
| L75205-01FMS | Molybdenum | mg/L | 6010B | 0.2032 | 0.2 | 0 | 102 | 75-125 | | | | 12/13/2006 |
| L75205-01FMS | Potassium | mg/L | 6010B | 12.99 | 10 | 2.094 | 109 | 75-125 | | | | 12/13/2006 |
| L75205-01FMS | Sodium | mg/L | 6010B | 17.78 | 10 | 6.8 | 110 | 75-125 | | | | 12/14/2006 |

[2] Analyte concentration is too high for accurate spike recovery.



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Kyle F. Gross
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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75205-01FMSD | Arsenic | mg/L | 6020 | 0.2196 | 0.2 | 0 | 110 | 70-130 | 0.537 | 20 | | 12/5/2006 |
| L75205-01FMSD | Cadmium | mg/L | 6020 | 0.2129 | 0.2 | 0 | 106 | 70-130 | 2.11 | 20 | | 12/5/2006 |
| L75205-01FMSD | Copper | mg/L | 6020 | 0.2147 | 0.2 | 0 | 107 | 70-130 | 5.31 | 20 | | 12/5/2006 |
| L75205-01FMSD | Lead | mg/L | 6020 | 0.2101 | 0.2 | 0 | 105 | 70-130 | 3.99 | 20 | | 12/5/2006 |
| L75205-01FMSD | Manganese | mg/L | 6020 | 0.2375 | 0.2 | 0.02417 | 107 | 70-130 | 3.55 | 20 | | 12/5/2006 |
| L75205-01FMSD | Selenium | mg/L | 6020 | 0.2164 | 0.2 | 0.001478 | 107 | 70-130 | 3.46 | 20 | | 12/5/2006 |
| L75205-01FMSD | Zinc | mg/L | 6020 | 1.064 | 1 | 0.0106 | 105 | 70-130 | 0.927 | 20 | | 12/5/2006 |
| L75205-01EMSD | Iron | mg/L | 6010B | 2.551 | 1 | 1.448 | 110 | 75-125 | 1.71 | 20 | | 12/13/2006 |
| L75205-01EMSD | Manganese | mg/L | 6010B | 0.2863 | 0.2 | 0.08233 | 102 | 75-125 | 0.871 | 20 | | 12/13/2006 |
| L75205-01FMSD | Calcium | mg/L | 6010B | 101.4 | 10 | 93.92 | 75.0 | 75-125 | 0.824 | 20 | 2 | 12/13/2006 |
| L75205-01FMSD | Aluminum | mg/L | 6010B | 1.159 | 1 | 0.0592 | 110 | 75-125 | 1.73 | 20 | | 12/13/2006 |
| L75205-01FMSD | Boron | mg/L | 6010B | 1.119 | 1 | 0.0154 | 110 | 75-125 | 1.35 | 20 | | 12/13/2006 |
| L75205-01FMSD | Iron | mg/L | 6010B | 1.098 | 1 | 0.00789 | 109 | 75-125 | 0.140 | 20 | | 12/13/2006 |
| L75205-01FMSD | Magnesium | mg/L | 6010B | 27.42 | 10 | 17.84 | 95.8 | 75-125 | 0.0426 | 20 | | 12/13/2006 |
| L75205-01FMSD | Molybdenum | mg/L | 6010B | 0.2091 | 0.2 | 0 | 105 | 75-125 | 2.85 | 20 | | 12/13/2006 |
| L75205-01FMSD | Potassium | mg/L | 6010B | 12.82 | 10 | 2.094 | 107 | 75-125 | 1.36 | 20 | | 12/13/2006 |
| L75205-01FMSD | Sodium | mg/L | 6010B | 17.64 | 10 | 6.8 | 108 | 75-125 | 0.794 | 20 | | 12/14/2006 |

[2] Analyte concentration is too high for accurate spike recovery.



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75162-01CDUP | TDS | mg/L | 160.1 | 5120 | 0 | 4960 | | - | 3.17 | 20 | | 12/1/2006 |
| L75190-02DDUP | TDS | mg/L | 160.1 | 1116 | 0 | 1088 | | - | 2.54 | 20 | | 12/1/2006 |
| L75193-01DDUP | TDS | mg/L | 160.1 | 1760 | 0 | 1736 | | - | 1.37 | 20 | | 12/1/2006 |
| L75205-01ADUP | TDS | mg/L | 160.1 | 300.0 | 0 | 280 | | - | 6.90 | 20 | | 12/1/2006 |
| L75196-01ADUP | TSS | mg/L | 160.2 | < 3.0 | 0 | 0 | | - | 0 | 20 | | 12/1/2006 |
| L75205-01ADUP | TSS | mg/L | 160.2 | 48.00 | 0 | 47 | | - | 2.11 | 20 | | 12/1/2006 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R64377 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50740 | 50000 | 0 | 101 | 90-110 | | | | 12/4/2006 |
| LCS-R64386 | Chloride | mg/L | 300.0 | 5.015 | 5 | 0 | 100 | 90-110 | | | | 12/1/2006 |
| LCS-R64386 | Sulfate | mg/L | 300.0 | 5.327 | 5 | 0 | 107 | 90-110 | | | | 12/1/2006 |
| LCS-R64393 | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 12/4/2006 |
| LCS-31900 | Ammonia (as N) | mg/L | 350.1 | 1.006 | 1 | 0 | 101 | 90-110 | | | | 12/5/2006 |
| LCS-64336 | Nitrite (as N) | mg/L | 353.2 | 1.051 | 1 | 0 | 105 | 90-110 | | | | 12/1/2006 |
| LCS-64337 | Nitrate (as N) | mg/L | 353.2 | 1.007 | 1 | 0 | 101 | 90-110 | | | | 12/1/2006 |
| LCS-R64408 | Oil & Grease | mg/L | EPA 1664 | 42.90 | 40 | 0 | 107 | 79-114 | | | | 12/4/2006 |
| LCS-64321 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9870 | 1 | 0 | 98.7 | 90-110 | | | | 12/1/2006 |
| LCS-R64411 | TDS | mg/L | 160.1 | 200.0 | 205 | 0 | 97.6 | 80-120 | | | | 12/1/2006 |
| LCS-R64389 | TSS | mg/L | 160.2 | 100.0 | 100 | 0 | 100 | 80-120 | | | | 12/1/2006 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R64377 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 12/4/2006 |
| MB-R64377 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 12/4/2006 |
| MB-R64377 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 12/4/2006 |
| MB-R64386 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 12/1/2006 |
| MB-R64386 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 12/1/2006 |
| MB-R64393 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 12/4/2006 |
| MB-31900 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 12/5/2006 |
| MB-64336 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 12/1/2006 |
| MB-64337 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 12/1/2006 |
| MB-R64408 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 12/4/2006 |
| MB-64321 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 12/1/2006 |
| MB-R64411 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 12/1/2006 |
| MB-R64389 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 12/1/2006 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75190-02CMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 617.0 | 100 | 511 | 106 | 80-120 | | | | 12/4/2006 |
| L75193-01CMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 471.0 | 100 | 375 | 96.0 | 80-120 | | | | 12/4/2006 |
| L75205-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 359.0 | 100 | 263 | 96.0 | 80-120 | | | | 12/4/2006 |
| L75190-02CMS | Chloride | mg/L | 300.0 | 862.7 | 500 | 348.2 | 103 | 90-110 | | | | 12/1/2006 |
| L75190-02CMS | Sulfate | mg/L | 300.0 | 63.57 | 50 | 17.35 | 92.4 | 90-110 | | | | 12/1/2006 |
| L75193-01CMS | Sulfate | mg/L | 300.0 | 832.6 | 500 | 227.3 | 121 | 90-110 | | | [1] | 12/2/2006 |
| L75205-01BMS | Chloride | mg/L | 300.0 | 35.42 | 25 | 9.667 | 103 | 90-110 | | | | 12/2/2006 |
| L75205-01BMS | Sulfate | mg/L | 300.0 | 49.31 | 25 | 24.08 | 101 | 90-110 | | | | 12/2/2006 |
| L75205-01BMS | Acidity | mg/L | 305.1 | 46.00 | 50 | 0 | 92.0 | 80-120 | | | | 12/4/2006 |
| L75190-02FMS | Ammonia (as N) | mg/L | 350.1 | 12.09 | 1 | 10.87 | 122 | 90-110 | | | [2] | 12/5/2006 |
| L75193-01FMS | Ammonia (as N) | mg/L | 350.1 | 0.9900 | 1 | 0 | 99.0 | 90-110 | | | | 12/5/2006 |
| L75205-01CMS | Ammonia (as N) | mg/L | 350.1 | 1.060 | 1 | 0.097 | 96.3 | 90-110 | | | | 12/5/2006 |
| L75205-01BMS | Nitrite (as N) | mg/L | 353.2 | 0.9400 | 1 | 0.007 | 93.3 | 90-110 | | | H | 12/1/2006 |
| L75190-02CMS | Nitrate (as N) | mg/L | 353.2 | 0.9380 | 1 | 0 | 93.8 | 90-110 | | | | 12/1/2006 |
| L75193-01CMS | Nitrate (as N) | mg/L | 353.2 | 5.240 | 1 | 4.271 | 96.9 | 90-110 | | | | 12/1/2006 |
| L75205-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.569 | 1 | 0.653 | 91.6 | 90-110 | | | H | 12/1/2006 |
| L75205-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.109 | 1 | 0.03 | 108 | 90-110 | | | H | 12/1/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

[2] Analyte concentration is too high for accurate spike recovery.

H - Sample was received outside of holding time.



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75190-02CMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 612.0 | 100 | 511 | 101 | 80-120 | 0.814 | 10 | | 12/4/2006 |
| L75193-01CMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 476.0 | 100 | 375 | 101 | 80-120 | 1.06 | 10 | | 12/4/2006 |
| L75205-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 356.0 | 100 | 263 | 93.0 | 80-120 | 0.839 | 10 | | 12/4/2006 |
| L75190-02CMSD | Chloride | mg/L | 300.0 | 860.1 | 500 | 348.2 | 102 | 90-110 | 0.298 | 20 | | 12/1/2006 |
| L75190-02CMSD | Sulfate | mg/L | 300.0 | 63.16 | 50 | 17.35 | 91.6 | 90-110 | 0.650 | 20 | | 12/1/2006 |
| L75193-01CMSD | Sulfate | mg/L | 300.0 | 795.2 | 500 | 227.3 | 114 | 90-110 | 4.59 | 20 | [1] | 12/2/2006 |
| L75205-01BMSD | Chloride | mg/L | 300.0 | 35.21 | 25 | 9.667 | 102 | 90-110 | 0.592 | 20 | | 12/2/2006 |
| L75205-01BMSD | Sulfate | mg/L | 300.0 | 48.85 | 25 | 24.08 | 99.1 | 90-110 | 0.925 | 20 | | 12/2/2006 |
| L75205-01BMSD | Acidity | mg/L | 305.1 | 48.00 | 50 | 0 | 96.0 | 80-120 | 4.26 | 20 | | 12/4/2006 |
| L75190-02FMSD | Ammonia (as N) | mg/L | 350.1 | 12.15 | 1 | 10.87 | 128 | 90-110 | 0.495 | 10 | [2] | 12/5/2006 |
| L75193-01FMSD | Ammonia (as N) | mg/L | 350.1 | 1.031 | 1 | 0 | 103 | 90-110 | 4.06 | 10 | | 12/5/2006 |
| L75205-01CMSD | Ammonia (as N) | mg/L | 350.1 | 1.032 | 1 | 0.097 | 93.5 | 90-110 | 2.68 | 10 | | 12/5/2006 |
| L75205-01BMSD | Nitrite (as N) | mg/L | 353.2 | 0.8250 | 1 | 0.007 | 81.8 | 90-110 | 13.0 | 10 | [1]@H | 12/1/2006 |
| L75190-02CMSD | Nitrate (as N) | mg/L | 353.2 | 0.9500 | 1 | 0 | 95.0 | 90-110 | 1.27 | 10 | | 12/1/2006 |
| L75193-01CMSD | Nitrate (as N) | mg/L | 353.2 | 5.332 | 1 | 4.271 | 106 | 90-110 | 1.74 | 10 | | 12/1/2006 |
| L75205-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.604 | 1 | 0.653 | 95.1 | 90-110 | 2.21 | 10 | H | 12/1/2006 |
| L75205-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.086 | 1 | 0.03 | 106 | 90-110 | 2.10 | 10 | H | 12/1/2006 |

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

[2] Analyte concentration is too high for accurate spike recovery.

H - Sample was received outside of holding time.



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R64408 | Oil & Grease | mg/L | EPA 1664 | 39.10 | 40 | 0 | 97.8 | 79-114 | | | | 12/4/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75205
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R64408 | Oil & Grease | mg/L | EPA 1664 | 39.80 | 40 | 0 | 99.5 | 79-114 | 1.77 | 18 | | 12/4/2006 |



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# American West Analytical Labs

## WORK ORDER Summary

*01-Dec-06*

**Work Order** L75205

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L75205-01A | Miller Outlet | 11/28/2006 5:00:00 PM | 12/1/2006 | 12/15/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 12/15/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 12/15/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L75205-01B | | | | 12/15/2006 | | 2320B-ALK-W | dec 1 - wc | 1 |
| | | | | 12/15/2006 | | 300.0-W | dec 1 - wc | 1 |
| | | | | 12/15/2006 | | ACIDITY-W | dec 1 - wc | 1 |
| | | | | 12/15/2006 | | NO2-W | dec 1 - wc | 1 |
| | | | | 12/15/2006 | | NO3-W | dec 1 - wc | 1 |
| | | | | 12/15/2006 | | PO4-O | dec 1 - wc | 1 |
| L75205-01C | | | | 12/15/2006 | | NH3-W | dec 1 - nh3 | 1 |
| | | | | 12/15/2006 | | NH3-W-PREP | dec 1 - nh3 | 1 |
| L75205-01D | | | | 12/15/2006 | | OGB-W | OGBFridge | 1 |
| L75205-01E | | | | 12/15/2006 | | 3005A-ICPMS | dec 1 - met | 1 |
| | | | | 12/15/2006 | | ICP-W | dec 1 - met | 1 |
| L75205-01F | | | | 12/15/2006 | Aqueous-Dissolved | 3005A-Diss | dec 1 - met | 1 |
| | | | | 12/15/2006 | | 6020-W-DISS | dec 1 - met | 1 |
| | | | | 12/15/2006 | | HARD | dec 1 - met | 1 |
| | | | | 12/15/2006 | | ICP-W-DIS | dec 1 - met | 1 |

Client CARBON RESOURCES / ROCK LOGIC

Address PO BOX 544

CEDAREDGE CO 81413
City State Zip

Phone 435-851-9044 Fax

Contact BRAD LINDSAY

E-mail lindsay.brad@gmail.com

Project Name Scofield BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY

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# CHAIN OF CUSTODY

Lab Sample Set # 75205

Page _____ of _____

Turn Around Time (Circle One)

| 1 day | 2 day | 3 day | 4 day | 5 day | Standard |
|---|---|---|---|---|---|
| QC | 1 | 2 | 2+ | 3 | 3+ | 4 |

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TABLE 3 | | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MILLER OUTLET | 11-28-06/17:00 | W | 6 | X | | | | | | | | | | |

Please indicate tests needed below

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 9:30 | PRINT NAME UPS |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date 12/1/06 | Received By: Signature |
| PRINT NAME | Time 1000 | PRINT NAME Tina Hayward |

Special Instructions:

PLEASE FILTER FOR

DISOLVED METALS

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
Notes: UPS

2 Ambient or (Chilled)
Notes:

3 Temperature 2.5°

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Notes:

6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:

1 Present on Outer Package
(Y) N NA

2 Unbroken on Outer Package
(Y) N NA

3 Present on Sample
Y N (NA)

4 Unbroken on Sample
Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 75205

## Preservation Check Sheet

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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January 09, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX

RE: Scofield Baseline

Lab Set ID: L75586

Dear Brad Lindsay:

American West Analytical Labs received 3 samples on 12/28/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75586-01E
Field Sample ID: **Mud Creek**
Collected: 12/26/2006 5:45:00 PM
Received: 12/28/2006

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**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 1/3/2007 1:24:16 PM | 6010B | 0.050 | **0.58** |
| Manganese | mg/L | 1/3/2007 1:24:16 PM | 6010B | 0.0050 | **0.040** |

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L75586-02E
Field Sample ID: **Sulfur Spring**
Collected: 12/26/2006 5:20:00 PM
Received: 12/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 1/3/2007 1:32:21 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 1/3/2007 1:32:21 PM | 6010B | 0.0050 | **0.026** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75586-03E
Field Sample ID: **Miller Outlet**
Collected: 12/26/2006 5:00:00 PM
Received: 12/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 1/3/2007 1:48:40 PM | 6010B | 0.050 | **2.1** |
| Manganese | mg/L | 1/3/2007 1:48:40 PM | 6010B | 0.0050 | **0.11** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L75586-01F
Field Sample ID: **Mud Creek**
Collected: 12/26/2006 5:45:00 PM
Received: 12/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 1/5/2007 4:04:07 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 1/3/2007 11:43:58 AM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 1/5/2007 4:04:07 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 1/3/2007 11:43:58 AM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 1/5/2007 10:54:30 AM | 6010B | 10 | **76** | * |
| Copper | mg/L | 1/3/2007 11:43:58 AM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 1/5/2007 4:04:07 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 1/3/2007 11:43:58 AM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 1/5/2007 10:54:30 AM | 6010B | 10 | **44** | * |
| Manganese | mg/L | 1/3/2007 11:43:58 AM | 6020 | 0.0050 | **0.016** | |
| Molybdenum | mg/L | 1/5/2007 4:04:07 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 1/5/2007 4:04:07 PM | 6010B | 1.0 | **7.6** | |
| Selenium | mg/L | 1/3/2007 11:43:58 AM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 1/5/2007 10:54:30 AM | 6010B | 10 | **45** | * |
| Zinc | mg/L | 1/3/2007 11:43:58 AM | 6020 | 0.010 | < 0.010 | |

** The reporting limits were raised due to high analyte concentration.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L75586-02F
Field Sample ID: **Sulfur Spring**
Collected: 12/26/2006 5:20:00 PM
Received: 12/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 1/5/2007 4:19:57 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 1/3/2007 12:21:42 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 1/5/2007 4:19:57 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 1/3/2007 12:21:42 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 1/5/2007 11:06:17 AM | 6010B | 10 | **93** | * |
| Copper | mg/L | 1/3/2007 12:21:42 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 1/5/2007 4:19:57 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 1/3/2007 12:21:42 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 1/5/2007 11:06:17 AM | 6010B | 10 | **36** | * |
| Manganese | mg/L | 1/3/2007 12:21:42 PM | 6020 | 0.0050 | **0.029** | |
| Molybdenum | mg/L | 1/5/2007 4:19:57 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 1/5/2007 4:19:57 PM | 6010B | 1.0 | **5.5** | |
| Selenium | mg/L | 1/3/2007 12:21:42 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 1/5/2007 4:19:57 PM | 6010B | 1.0 | **9.1** | |
| Zinc | mg/L | 1/3/2007 12:21:42 PM | 6020 | 0.010 | < 0.010 | |

** The reporting limits were raised due to high analyte concentration.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L75586-03F
Field Sample ID: **Miller Outlet**
Collected: 12/26/2006 5:00:00 PM
Received: 12/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 1/5/2007 4:23:52 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 1/3/2007 12:27:06 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 1/5/2007 4:23:52 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 1/3/2007 12:27:06 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 1/5/2007 11:10:12 AM | 6010B | 10 | **95** | * |
| Copper | mg/L | 1/3/2007 12:27:06 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 1/5/2007 4:23:52 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 1/3/2007 12:27:06 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 1/5/2007 11:10:12 AM | 6010B | 10 | **17** | * |
| Manganese | mg/L | 1/3/2007 12:27:06 PM | 6020 | 0.0050 | **0.023** | |
| Molybdenum | mg/L | 1/5/2007 4:23:52 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 1/5/2007 4:23:52 PM | 6010B | 1.0 | **1.8** | |
| Selenium | mg/L | 1/3/2007 12:27:06 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 1/5/2007 4:23:52 PM | 6010B | 1.0 | **7.1** | |
| Zinc | mg/L | 1/3/2007 12:27:06 PM | 6020 | 0.010 | **0.029** | |

** The reporting limits were raised due to high analyte concentration.*




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# INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L75586-01
Field Sample ID: **Mud Creek**
Collected: 12/26/2006 5:45:00 PM
Received: 12/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 1/2/2007 7:00:00 AM | 305.1 | 15 | < 15 | |
| Alkalinity,(AsCaCO3) | mg/L | 1/2/2007 6:40:00 AM | 2320B | 20 | **240** | |
| Ammonia (as N) | mg/L | 12/29/2006 1:11:00 PM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 1/2/2007 6:40:00 AM | 2320B | 20 | **220** | |
| Carbonate (As CaCO3) | mg/L | 1/2/2007 6:40:00 AM | 2320B | 20 | **21** | |
| Chloride | mg/L | 1/2/2007 12:21:10 PM | 300.0 | 5.0 | **16** | |
| Hardness (as CaCO3) | mg/L | 1/5/2007 | 2340B | 10 | **370** | |
| Nitrate (as N) | mg/L | 12/28/2006 11:26:00 AM | 353.2 | 0.010 | **0.30** | 1 |
| Nitrite (as N) | mg/L | 12/28/2006 11:26:00 AM | 353.2 | 0.010 | < 0.010 | 1 |
| Oil & Grease | mg/L | 12/29/2006 12:45:00 PM | EPA1664 | 3.0 | **3.5** | |
| Phosphate, ortho (as P) | mg/L | 12/28/2006 1:10:00 PM | 365.1 | 0.050 | < 0.050 | 1 |
| SettableSolids | ml/L | 12/28/2006 | 160.5 | 0.10 | **0.10** | |
| Sulfate | mg/L | 1/2/2007 12:21:10 PM | 300.0 | 50 | **150** | 1 |
| TDS | mg/L | 12/29/2006 3:00:00 PM | 160.1 | 20 | **490** | |
| TSS | mg/L | 12/28/2006 3:20:00 PM | 160.2 | 3.0 | **33** | |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*




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# INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L75586-02
Field Sample ID: **SulfurSpring**
Collected: 12/26/2006 5:20:00 PM
Received: 12/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 1/2/2007 7:00:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(AsCaCO3) | mg/L | 1/2/2007 6:40:00 AM | 2320B | 20 | **340** |
| Ammonia (as N) | mg/L | 12/29/2006 1:11:00 PM | 350.1 | 0.050 | **0.093** |
| Bicarbonate (As CaCO3) | mg/L | 1/2/2007 6:40:00 AM | 2320B | 20 | **340** |
| Carbonate (As CaCO3) | mg/L | 1/2/2007 6:40:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 1/2/2007 4:14:07 AM | 300.0 | 1.0 | **6.5** |
| Hardness (as CaCO3) | mg/L | 1/5/2007 | 2340B | 10 | **380** |
| Nitrate (as N) | mg/L | 12/28/2006 11:26:00 AM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 12/28/2006 11:26:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 12/29/2006 12:45:00 PM | EPA1664 | 3.0 | **3.3** |
| Phosphate, ortho (as P) | mg/L | 12/28/2006 1:10:00 PM | 365.1 | 0.050 | < 0.050 |
| SettableSolids | ml/L | 12/28/2006 | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 1/2/2007 4:14:07 AM | 300.0 | 5.0 | **42** |
| TDS | mg/L | 12/29/2006 3:00:00 PM | 160.1 | 20 | **370** |
| TSS | mg/L | 12/28/2006 3:20:00 PM | 160.2 | 3.0 | < 3.0 |



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# INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L75586-03
Field Sample ID: **Miller Outlet**
Collected: 12/26/2006 5:00:00 PM
Received: 12/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 1/2/2007 7:00:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(AsCaCO3) | mg/L | 1/2/2007 6:40:00 AM | 2320B | 20 | **280** |
| Ammonia (as N) | mg/L | 12/29/2006 1:11:00 PM | 350.1 | 0.050 | **0.067** |
| Bicarbonate (As CaCO3) | mg/L | 1/2/2007 6:40:00 AM | 2320B | 20 | **270** |
| Carbonate (As CaCO3) | mg/L | 1/2/2007 6:40:00 AM | 2320B | 10 | **10** |
| Chloride | mg/L | 1/2/2007 5:53:58 AM | 300.0 | 2.0 | **11** |
| Hardness (as CaCO3) | mg/L | 1/5/2007 | 2340B | 10 | **310** |
| Nitrate (as N) | mg/L | 12/28/2006 11:26:00 AM | 353.2 | 0.010 | **0.82** |
| Nitrite (as N) | mg/L | 12/28/2006 11:26:00 AM | 353.2 | 0.010 | **0.011** |
| Oil & Grease | mg/L | 12/29/2006 12:45:00 PM | EPA1664 | 3.0 | **4.8** |
| Phosphate, ortho (as P) | mg/L | 12/28/2006 1:10:00 PM | 365.1 | 0.050 | **< 0.050** |
| SettableSolids | ml/L | 12/28/2006 | 160.5 | 0.10 | **0.10** |
| Sulfate | mg/L | 1/2/2007 5:53:58 AM | 300.0 | 5.0 | **20** |
| TDS | mg/L | 12/29/2006 3:00:00 PM | 160.1 | 20 | **300** |
| TSS | mg/L | 12/28/2006 3:20:00 PM | 160.2 | 3.0 | **75** |




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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

**Dept:** ME
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-32334 | Arsenic | mg/L | 6020 | 0.2227 | 0.2 | 0 | 111 | 80-120 | | | | 1/3/2007 |
| LCS-32334 | Cadmium | mg/L | 6020 | 0.2153 | 0.2 | 0 | 108 | 80-120 | | | | 1/3/2007 |
| LCS-32334 | Copper | mg/L | 6020 | 0.2103 | 0.2 | 0 | 105 | 80-120 | | | | 1/3/2007 |
| LCS-32334 | Lead | mg/L | 6020 | 0.2026 | 0.2 | 0 | 101 | 80-120 | | | | 1/3/2007 |
| LCS-32334 | Manganese | mg/L | 6020 | 0.2101 | 0.2 | 0 | 105 | 80-120 | | | | 1/3/2007 |
| LCS-32334 | Selenium | mg/L | 6020 | 0.2087 | 0.2 | 0 | 104 | 80-120 | | | | 1/3/2007 |
| LCS-32334 | Zinc | mg/L | 6020 | 1.097 | 1 | 0.004632 | 109 | 80-120 | | | | 1/3/2007 |
| LCS-32335 | Iron | mg/L | 6010B | 1.016 | 1 | 0 | 102 | 75-125 | | | | 1/3/2007 |
| LCS-32335 | Manganese | mg/L | 6010B | 0.1913 | 0.2 | 0 | 95.7 | 75-125 | | | | 1/3/2007 |
| LCS-32334 | Aluminum | mg/L | 6010B | 1.018 | 1 | 0 | 102 | 75-125 | | | | 1/5/2007 |
| LCS-32334 | Boron | mg/L | 6010B | 1.067 | 1 | 0 | 107 | 75-125 | | | | 1/5/2007 |
| LCS-32334 | Calcium | mg/L | 6010B | 10.57 | 10 | 0 | 106 | 75-125 | | | | 1/5/2007 |
| LCS-32334 | Magnesium | mg/L | 6010B | 10.36 | 10 | 0 | 104 | 75-125 | | | | 1/5/2007 |
| LCS-32334 | Molybdenum | mg/L | 6010B | 0.2067 | 0.2 | 0 | 103 | 75-125 | | | | 1/5/2007 |
| LCS-32334 | Potassium | mg/L | 6010B | 10.11 | 10 | 0 | 101 | 75-125 | | | | 1/5/2007 |
| LCS-32334 | Sodium | mg/L | 6010B | 10.92 | 10 | 0 | 109 | 75-125 | | | | 1/5/2007 |
| LCS-32334 | Iron | mg/L | 6010B | 1.070 | 1 | 0 | 107 | 75-125 | | | | 1/5/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

**Dept:** ME
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-32334 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 1/3/2007 |
| MB-32334 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 1/3/2007 |
| MB-32334 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 1/3/2007 |
| MB-32334 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 1/3/2007 |
| MB-32334 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 1/3/2007 |
| MB-32334 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 1/3/2007 |
| MB-32334 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 1/3/2007 |
| MB-32335 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 1/3/2007 |
| MB-32335 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 1/3/2007 |
| MB-32334 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 1/5/2007 |
| MB-32334 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 1/5/2007 |
| MB-32334 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 1/5/2007 |
| MB-32334 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 1/5/2007 |
| MB-32334 | Molybdenum | mg/L | 6010B | < 0.040 | | | | - | | | | 1/5/2007 |
| MB-32334 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 1/5/2007 |
| MB-32334 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 1/5/2007 |
| MB-32334 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 1/5/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

**Dept:** ME
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75586-01FMS | Arsenic | mg/L | 6020 | 0.2258 | 0.2 | 0 | 113 | 70-130 | | | | 1/3/2007 |
| L75586-01FMS | Cadmium | mg/L | 6020 | 0.2137 | 0.2 | 0 | 107 | 70-130 | | | | 1/3/2007 |
| L75586-01FMS | Copper | mg/L | 6020 | 0.2171 | 0.2 | 0 | 109 | 70-130 | | | | 1/3/2007 |
| L75586-01FMS | Lead | mg/L | 6020 | 0.2028 | 0.2 | 0 | 101 | 70-130 | | | | 1/3/2007 |
| L75586-01FMS | Manganese | mg/L | 6020 | 0.2315 | 0.2 | 0.01555 | 108 | 70-130 | | | | 1/3/2007 |
| L75586-01FMS | Selenium | mg/L | 6020 | 0.2098 | 0.2 | 0 | 105 | 70-130 | | | | 1/3/2007 |
| L75586-01FMS | Zinc | mg/L | 6020 | 1.077 | 1 | 0.003491 | 107 | 70-130 | | | | 1/3/2007 |
| L75586-02EMS | Iron | mg/L | 6010B | 1.020 | 1 | 0.01167 | 101 | 75-125 | | | | 1/3/2007 |
| L75586-02EMS | Manganese | mg/L | 6010B | 0.2129 | 0.2 | 0.02627 | 93.3 | 75-125 | | | | 1/3/2007 |
| L75586-01FMS | Calcium | mg/L | 6010B | 83.35 | 10 | 75.74 | 76.1 | 75-125 | | | | 1/5/2007 |
| L75586-01FMS | Magnesium | mg/L | 6010B | 53.07 | 10 | 44.43 | 86.4 | 75-125 | | | | 1/5/2007 |
| L75586-01FMS | Sodium | mg/L | 6010B | 52.62 | 10 | 44.7 | 79.3 | 75-125 | | | | 1/5/2007 |
| L75586-01FMS | Aluminum | mg/L | 6010B | 1.073 | 1 | 0 | 107 | 75-125 | | | | 1/5/2007 |
| L75586-01FMS | Boron | mg/L | 6010B | 1.362 | 1 | 0.1502 | 121 | 75-125 | | | | 1/5/2007 |
| L75586-01FMS | Iron | mg/L | 6010B | 1.092 | 1 | 0.01152 | 108 | 75-125 | | | | 1/5/2007 |
| L75586-01FMS | Molybdenum | mg/L | 6010B | 0.2234 | 0.2 | 0 | 112 | 75-125 | | | | 1/5/2007 |
| L75586-01FMS | Potassium | mg/L | 6010B | 20.03 | 10 | 7.64 | 124 | 75-125 | | | | 1/5/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

**Dept:** ME
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75586-01FMSD | Arsenic | mg/L | 6020 | 0.2261 | 0.2 | 0 | 113 | 70-130 | 0.120 | 20 | | 1/3/2007 |
| L75586-01FMSD | Cadmium | mg/L | 6020 | 0.2123 | 0.2 | 0 | 106 | 70-130 | 0.640 | 20 | | 1/3/2007 |
| L75586-01FMSD | Copper | mg/L | 6020 | 0.2170 | 0.2 | 0 | 108 | 70-130 | 0.0838 | 20 | | 1/3/2007 |
| L75586-01FMSD | Lead | mg/L | 6020 | 0.2059 | 0.2 | 0 | 103 | 70-130 | 1.52 | 20 | | 1/3/2007 |
| L75586-01FMSD | Manganese | mg/L | 6020 | 0.2335 | 0.2 | 0.01555 | 109 | 70-130 | 0.843 | 20 | | 1/3/2007 |
| L75586-01FMSD | Selenium | mg/L | 6020 | 0.2105 | 0.2 | 0 | 105 | 70-130 | 0.322 | 20 | | 1/3/2007 |
| L75586-01FMSD | Zinc | mg/L | 6020 | 1.080 | 1 | 0.003491 | 108 | 70-130 | 0.254 | 20 | | 1/3/2007 |
| L75586-02EMSD | Iron | mg/L | 6010B | 0.9799 | 1 | 0.01167 | 96.8 | 75-125 | 4.00 | 20 | | 1/3/2007 |
| L75586-02EMSD | Manganese | mg/L | 6010B | 0.2012 | 0.2 | 0.02627 | 87.4 | 75-125 | 5.66 | 20 | | 1/3/2007 |
| L75586-01FMSD | Calcium | mg/L | 6010B | 86.20 | 10 | 75.74 | 105 | 75-125 | 3.36 | 20 | | 1/5/2007 |
| L75586-01FMSD | Magnesium | mg/L | 6010B | 53.67 | 10 | 44.43 | 92.4 | 75-125 | 1.13 | 20 | | 1/5/2007 |
| L75586-01FMSD | Sodium | mg/L | 6010B | 54.31 | 10 | 44.7 | 96.2 | 75-125 | 3.16 | 20 | | 1/5/2007 |
| L75586-01FMSD | Aluminum | mg/L | 6010B | 0.9916 | 1 | 0 | 99.2 | 75-125 | 7.84 | 20 | | 1/5/2007 |
| L75586-01FMSD | Boron | mg/L | 6010B | 1.285 | 1 | 0.1502 | 113 | 75-125 | 5.86 | 20 | | 1/5/2007 |
| L75586-01FMSD | Iron | mg/L | 6010B | 1.103 | 1 | 0.01152 | 109 | 75-125 | 0.986 | 20 | | 1/5/2007 |
| L75586-01FMSD | Molybdenum | mg/L | 6010B | 0.2131 | 0.2 | 0 | 107 | 75-125 | 4.70 | 20 | | 1/5/2007 |
| L75586-01FMSD | Potassium | mg/L | 6010B | 20.08 | 10 | 7.64 | 124 | 75-125 | 0.255 | 20 | | 1/5/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75568-03DDUP | TDS | mg/L | 160.1 | 1752 | 0 | 1784 | | - | 1.81 | 20 | | 12/29/2006 |
| L75586-03ADUP | TDS | mg/L | 160.1 | 292.0 | 0 | 304 | | - | 4.03 | 20 | | 12/29/2006 |
| L75595-01BDUP | TDS | mg/L | 160.1 | 5820 | 0 | 5880 | | - | 1.03 | 20 | | 12/29/2006 |
| L75573-02ADUP | TSS | mg/L | 160.2 | 520.0 | 0 | 515 | | - | 0.966 | 20 | | 12/28/2006 |
| L75578-02ADUP | TSS | mg/L | 160.2 | 8.000 | 0 | 8 | | - | 0 | 20 | | 12/28/2006 |
| L75586-02ADUP | TSS | mg/L | 160.2 | < 3.0 | 0 | 0 | | - | 0 | 20 | | 12/28/2006 |
| L75595-01ADUP | TSS | mg/L | 160.2 | 29.00 | 0 | 27 | | - | 7.14 | 20 | | 12/28/2006 |



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Kyle F. Gross
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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R65146 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50740 | 50000 | 0 | 101 | 90-110 | | | | 1/2/2007 |
| LCS-R65183 | Chloride | mg/L | 300.0 | 5.088 | 5 | 0.033 | 101 | 90-110 | | | | 1/2/2007 |
| LCS-R65183 | Sulfate | mg/L | 300.0 | 4.874 | 5 | 0 | 97.5 | 90-110 | | | | 1/2/2007 |
| LCS-R65147 | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 1/2/2007 |
| LCS-32308 | Ammonia (as N) | mg/L | 350.1 | 0.9950 | 1 | 0 | 99.5 | 90-110 | | | | 12/29/2006 |
| LCS-65090 | Nitrite (as N) | mg/L | 353.2 | 1.025 | 1 | 0 | 103 | 90-110 | | | | 12/28/2006 |
| LCS-65091 | Nitrate (as N) | mg/L | 353.2 | 0.9820 | 1 | 0 | 98.2 | 90-110 | | | | 12/28/2006 |
| LCS-R65130 | Oil & Grease | mg/L | EPA 1664 | 44.00 | 40 | 0 | 110 | 79-114 | | | | 12/29/2006 |
| LCS-65093 | Phosphate, ortho (as P) | mg/L | 365.1 | 1.063 | 1 | 0 | 106 | 90-110 | | | | 12/28/2006 |
| LCS-R65179 | TDS | mg/L | 160.1 | 200.0 | 205 | 0 | 97.6 | 80-120 | | | | 12/29/2006 |
| LCS-R65140 | TSS | mg/L | 160.2 | 104.0 | 100 | 0 | 104 | 80-120 | | | | 12/28/2006 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

**Dept:** WC
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R65146 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 1/2/2007 |
| MB-R65146 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 1/2/2007 |
| MB-R65146 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 1/2/2007 |
| MB-R65183 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 1/2/2007 |
| MB-R65183 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 1/2/2007 |
| MB-R65147 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 1/2/2007 |
| MB-32308 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 12/29/2006 |
| MB-65090 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 12/28/2006 |
| MB-65091 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 12/28/2006 |
| MB-R65130 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 12/29/2006 |
| MB-65093 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 12/28/2006 |
| MB-R65179 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 12/29/2006 |
| MB-SPLP-32279 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 12/29/2006 |
| MB-R65140 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 12/28/2006 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

**Dept:** WC
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75586-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 347.0 | 100 | 244 | 103 | 80-120 | | | | 1/2/2007 |
| L75586-01BMS | Chloride | mg/L | 300.0 | 40.56 | 25 | 15.53 | 100 | 90-110 | | | | 1/2/2007 |
| L75586-01BMS | Sulfate | mg/L | 300.0 | 418.3 | 250 | 149 | 108 | 90-110 | | | | 1/2/2007 |
| L75586-01BMS | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 1/2/2007 |
| L75586-01CMS | Ammonia (as N) | mg/L | 350.1 | 0.9900 | 1 | 0 | 99.0 | 90-110 | | | | 12/29/2006 |
| L75586-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.071 | 1 | 0 | 107 | 90-110 | | | | 12/28/2006 |
| L75586-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.393 | 1 | 0.304 | 109 | 90-110 | | | | 12/28/2006 |
| L75586-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.291 | 1 | 0 | 129 | 90-110 | | | [1] | 12/28/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75586-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 342.0 | 100 | 244 | 98.0 | 80-120 | 1.45 | 10 | | 1/2/2007 |
| L75586-01BMSD | Chloride | mg/L | 300.0 | 40.54 | 25 | 15.53 | 100 | 90-110 | 0.0543 | 20 | | 1/2/2007 |
| L75586-01BMSD | Sulfate | mg/L | 300.0 | 428.1 | 250 | 149 | 112 | 90-110 | 2.33 | 20 | 1 | 1/2/2007 |
| L75586-01BMSD | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | 0 | 20 | | 1/2/2007 |
| L75586-01CMSD | Ammonia (as N) | mg/L | 350.1 | 0.9970 | 1 | 0 | 99.7 | 90-110 | 0.705 | 10 | | 12/29/2006 |
| L75586-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.109 | 1 | 0 | 111 | 90-110 | 3.49 | 10 | 1 | 12/28/2006 |
| L75586-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.450 | 1 | 0.304 | 115 | 90-110 | 4.01 | 10 | 1 | 12/28/2006 |
| L75586-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.251 | 1 | 0 | 125 | 90-110 | 3.15 | 10 | 1 | 12/28/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R65130 | Oil & Grease | mg/L | EPA 1664 | 41.30 | 40 | 0 | 103 | 79-114 | | | | 12/29/2006 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L75586
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R65130 | Oil & Grease | mg/L | EPA 1664 | 40.80 | 40 | 0 | 102 | 79-114 | 1.22 | 18 | | 12/29/2006 |



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# American West Analytical Labs

## WORK ORDER Summary

*28-Dec-06*

**Work Order** L75586

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** HK.L RW

**Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

DB

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L75586-01A | Mud Creek | 12/26/2006 5:45:00 PM | 12/28/2006 | 1/12/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 1/12/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 1/12/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L75586-01B | | | | 1/12/2007 | | 2320B-ALK-W | Dec 28 - wc | 1 |
| | | | | 1/12/2007 | | 300.0-W | Dec 28 - wc | 1 |
| | | | | 1/12/2007 | | ACIDITY-W | Dec 28 - wc | 1 |
| | | | | 1/12/2007 | | NO2-W | Dec 28 - wc | 1 |
| | | | | 1/12/2007 | | NO3-W | Dec 28 - wc | 1 |
| | | | | 1/12/2007 | | PO4-O | Dec 28 - wc | 1 |
| L75586-01C | | | | 1/12/2007 | | NH3-W | Dec. 28 - nh3 | 1 |
| | | | | 1/12/2007 | | NH3-W-PREP | Dec. 28 - nh3 | 1 |
| L75586-01D | | | | 1/12/2007 | | OGB-W | OGBFridge | 1 |
| L75586-01E | | | | 1/12/2007 | | 3005A-ICPMS | Dec. 28 - met | 1 |
| | | | | 1/12/2007 | | ICP-W | Dec. 28 - met | 1 |
| L75586-01F | | | | 1/12/2007 | Aqueous-Dissolved | 3005A-Diss | Dec. 28 - met | 1 |
| | | | | 1/12/2007 | | 6020-W-DISS | Dec. 28 - met | 1 |
| | | | | 1/12/2007 | | HARD | Dec. 28 - met | 1 |
| | | | | 1/12/2007 | | ICP-W-DIS | Dec. 28 - met | 1 |
| L75586-02A | Sulfur Spring | 12/26/2006 5:20:00 PM | | 1/12/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 1/12/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 1/12/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L75586-02B | | | | 1/12/2007 | | 2320B-ALK-W | Dec 28 - wc | 1 |
| | | | | 1/12/2007 | | 300.0-W | Dec 28 - wc | 1 |
| | | | | 1/12/2007 | | ACIDITY-W | Dec 28 - wc | 1 |
| | | | | 1/12/2007 | | NO2-W | Dec 28 - wc | 1 |
| | | | | 1/12/2007 | | NO3-W | Dec 28 - wc | 1 |
| | | | | 1/12/2007 | | PO4-O | Dec 28 - wc | 1 |

# WORK ORDER Summary

*28-Dec-06*

**Work Order** L75586

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L75586-02C | Sulfur Spring | 12/26/2006 5:20:00 PM | 12/28/2006 | 1/12/2007 | Aqueous | NH3-W | Dec. 28 - nh3 | 1 |
| | | | | 1/12/2007 | | NH3-W-PREP | Dec. 28 - nh3 | 1 |
| L75586-02D | | | | 1/12/2007 | | OGB-W | OGBFridge | 1 |
| L75586-02E | | | | 1/12/2007 | | 3005A-ICPMS | Dec. 28 - met | 1 |
| | | | | 1/12/2007 | | ICP-W | Dec. 28 - met | 1 |
| L75586-02F | | | | 1/12/2007 | Aqueous-Dissolved | 3005A-Diss | Dec. 28 - met | 1 |
| | | | | 1/12/2007 | | 6020-W-DISS | Dec. 28 - met | 1 |
| | | | | 1/12/2007 | | HARD | Dec. 28 - met | 1 |
| | | | | 1/12/2007 | | ICP-W-DIS | Dec. 28 - met | 1 |
| L75586-03A | Miller Outlet | 12/26/2006 5:00:00 PM | | 1/12/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 1/12/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 1/12/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L75586-03B | | | | 1/12/2007 | | 2320B-ALK-W | Dec 28 - wc | 1 |
| | | | | 1/12/2007 | | 300.0-W | Dec 28 - wc | 1 |
| | | | | 1/12/2007 | | ACIDITY-W | Dec 28 - wc | 1 |
| | | | | 1/12/2007 | | NO2-W | Dec 28 - wc | 1 |
| | | | | 1/12/2007 | | NO3-W | Dec 28 - wc | 1 |
| | | | | 1/12/2007 | | PO4-O | Dec 28 - wc | 1 |
| L75586-03C | | | | 1/12/2007 | | NH3-W | Dec. 28 - nh3 | 1 |
| | | | | 1/12/2007 | | NH3-W-PREP | Dec. 28 - nh3 | 1 |
| L75586-03D | | | | 1/12/2007 | | OGB-W | OGBFridge | 1 |
| L75586-03E | | | | 1/12/2007 | | 3005A-ICPMS | Dec. 28 - met | 1 |
| | | | | 1/12/2007 | | ICP-W | Dec. 28 - met | 1 |
| L75586-03F | | | | 1/12/2007 | Aqueous-Dissolved | 3005A-Diss | Dec. 28 - met | 1 |
| | | | | 1/12/2007 | | 6020-W-DISS | Dec. 28 - met | 1 |
| | | | | 1/12/2007 | | HARD | Dec. 28 - met | 1 |
| | | | | 1/12/2007 | | ICP-W-DIS | Dec. 28 - met | 1 |

Client Carbon Resources / Rock Logic Consulting
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Cedaredge Co 81413
City State Zip
Phone 435-851-9044 Fax
Contact Brad Lindsay
E-mail Lindsay.brad@gmail.com
Project Name Scofield baseline
Project Number/P.O.#
Sampler Name Brad Lindsay

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# CHAIN OF CUSTODY

Lab Sample Set # 75586
Page _____ of _____

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | Please indicate tests needed below: Table | | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mud Creek | 12-26-06 17:45 | W | 6 | 3 | | | | | | | | | | |
| Sulfur Spring | 12-26-06 17:20 | W | 6 | 3 | | | | | | | | | | |
| Miller Outlet | 12-26-06 17:00 | W | 6 | 3 | | | | | | | | | | |

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 16:00 | PRINT NAME UPS |
| Relinquished By: Signature UPS | Date | Received By: Signature Denise Bruun 12/28/06 |
| PRINT NAME | Time | PRINT NAME Denise Bruun 9:33 |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:
please filter for dissolved metals

LABORATORY USE ONLY

SAMPLES WERE:
1 (Shipped) or hand delivered
Notes: UPS
2 Ambient or (Chilled)
Notes:
3 Temperature 0.5°
4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:
5 Properly Preserved
(Y) N
Notes:
6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:
1 Present on Outer Package
(Y) N NA
2 Unbroken on Outer Package
(Y) N NA
3 Present on Sample
Y (N) NA
4 Unbroken on Sample
Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 75586

## Preservation Check Sheet

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested.
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

**AMERICAN WEST ANALYTICAL LABORATORIES**

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February 06, 2006

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L69847

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 1/23/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-01F
Field Sample ID: **Angle Spring**
Collected: 1/22/2006 6:00:00 PM
Received: 1/23/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 2/4/2006 3:47:42 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 1/31/2006 12:03:47 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 2/4/2006 3:47:42 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 1/31/2006 12:03:47 PM | 6020 | 0.0040 | **0.088** |
| Calcium | mg/L | 2/4/2006 3:47:42 PM | 6010B | 10 | **100** |
| Copper | mg/L | 1/31/2006 12:03:47 PM | 6020 | 0.0040 | **0.020** |
| Iron | mg/L | 2/4/2006 3:47:42 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 1/31/2006 12:03:47 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 2/4/2006 3:47:42 PM | 6010B | 10 | **19** |
| Manganese | mg/L | 1/31/2006 12:03:47 PM | 6020 | 0.0050 | **0.012** |
| Molybdenum | mg/L | 2/4/2006 3:47:42 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 2/4/2006 3:47:42 PM | 6010B | 1.0 | **1.5** |
| Selenium | mg/L | 1/31/2006 12:03:47 PM | 6020 | 0.0050 | **0.052** |
| Sodium | mg/L | 2/4/2006 3:47:42 PM | 6010B | 1.0 | **9.4** |
| Zinc | mg/L | 1/31/2006 12:03:47 PM | 6020 | 0.010 | **0.091** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L69847-02F
Field Sample ID: **Eagle Outlet**
Collected: 1/23/2006 8:30:00 AM
Received: 1/23/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 2/4/2006 4:03:28 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 1/31/2006 12:09:10 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 2/4/2006 4:03:28 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 1/31/2006 12:09:10 PM | 6020 | 0.0040 | **0.053** |
| Calcium | mg/L | 2/4/2006 4:03:28 PM | 6010B | 10 | **98** |
| Copper | mg/L | 1/31/2006 12:09:10 PM | 6020 | 0.0040 | **0.0063** |
| Iron | mg/L | 2/4/2006 4:03:28 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 1/31/2006 12:09:10 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 2/4/2006 4:03:28 PM | 6010B | 10 | **17** |
| Manganese | mg/L | 1/31/2006 12:09:10 PM | 6020 | 0.0050 | **0.071** |
| Molybdenum | mg/L | 2/4/2006 4:03:28 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 2/4/2006 4:03:28 PM | 6010B | 1.0 | **1.9** |
| Selenium | mg/L | 1/31/2006 12:09:10 PM | 6020 | 0.0050 | **0.031** |
| Sodium | mg/L | 2/4/2006 4:03:28 PM | 6010B | 1.0 | **6.6** |
| Zinc | mg/L | 1/31/2006 12:09:10 PM | 6020 | 0.010 | **0.090** |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L69847-03F
Field Sample ID: **Sulfur Spring**
Collected: 1/23/2006 9:00:00 AM
Received: 1/23/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 2/4/2006 4:07:22 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 1/31/2006 12:14:30 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 2/4/2006 4:07:22 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 1/31/2006 12:14:30 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 2/4/2006 4:07:22 PM | 6010B | 10 | **89** |
| Copper | mg/L | 1/31/2006 12:14:30 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 2/4/2006 4:07:22 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 1/31/2006 12:14:30 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 2/4/2006 4:07:22 PM | 6010B | 10 | **36** |
| Manganese | mg/L | 1/31/2006 12:14:30 PM | 6020 | 0.0050 | **0.030** |
| Molybdenum | mg/L | 2/4/2006 4:07:22 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 2/4/2006 4:07:22 PM | 6010B | 1.0 | **4.7** |
| Selenium | mg/L | 1/31/2006 12:14:30 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 2/4/2006 4:07:22 PM | 6010B | 1.0 | **8.4** |
| Zinc | mg/L | 1/31/2006 12:14:30 PM | 6020 | 0.010 | **0.029** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-04F
Field Sample ID: **Mud Creek**
Collected: 1/23/2006 9:30:00 AM
Received: 1/23/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 2/4/2006 4:11:17 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 1/31/2006 12:25:17 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 2/4/2006 4:11:17 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 1/31/2006 12:25:17 PM | 6020 | 0.0040 | **0.053** [1] |
| Calcium | mg/L | 2/4/2006 4:11:17 PM | 6010B | 10 | **100** |
| Copper | mg/L | 1/31/2006 12:25:17 PM | 6020 | 0.0040 | **0.0070** |
| Iron | mg/L | 2/4/2006 4:11:17 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 1/31/2006 12:25:17 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 2/4/2006 4:11:17 PM | 6010B | 10 | **58** |
| Manganese | mg/L | 1/31/2006 12:25:17 PM | 6020 | 0.0050 | **0.037** |
| Molybdenum | mg/L | 2/4/2006 4:11:17 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 2/4/2006 4:11:17 PM | 6010B | 1.0 | **9.1** |
| Selenium | mg/L | 1/31/2006 12:25:17 PM | 6020 | 0.0050 | **0.033** |
| Sodium | mg/L | 2/4/2006 4:11:17 PM | 6010B | 1.0 | **50** |
| Zinc | mg/L | 1/31/2006 12:25:17 PM | 6020 | 0.010 | **0.063** |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-01E
Field Sample ID: **Angle Spring**
Collected: 1/22/2006 6:00:00 PM
Received: 1/23/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 1/27/2006 1:06:04 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 1/30/2006 2:30:36 PM | 6020 | 0.0050 | < 0.0050 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-02E
Field Sample ID: **Eagle Outlet**
Collected: 1/23/2006 8:30:00 AM
Received: 1/23/2006

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**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 1/27/2006 1:09:58 PM | 6010B | 0.050 | **1.4** |
| Manganese | mg/L | 1/30/2006 2:36:00 PM | 6020 | 0.0050 | **0.14** |

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-03E
Field Sample ID: **Sulfur Spring**
Collected: 1/23/2006 9:00:00 AM
Received: 1/23/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 1/27/2006 1:13:56 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 1/30/2006 2:41:25 PM | 6020 | 0.0050 | **0.032** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-04E
Field Sample ID: **Mud Creek**
Collected: 1/23/2006 9:30:00 AM
Received: 1/23/2006

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Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 1/27/2006 1:21:43 PM | 6010B | 0.050 | **0.11** |
| Manganese | mg/L | 1/30/2006 2:52:14 PM | 6020 | 0.0050 | **0.030** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-01
Field Sample ID: **Angle Spring**
Collected: 1/22/2006 6:00:00 PM
Received: 1/23/2006


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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 01/24/06 | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 01/24/06 | 2320B | 10 | **300** | |
| Ammonia (as N) | mg/L | 02/01/06 | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 01/24/06 | 2320B | 10 | **300** | |
| Carbonate (As CaCO3) | mg/L | 01/24/06 | 2320B | 10 | < 10 | |
| Chloride | mg/L | 01/27/06 | 300.0 | 10 | **33** | [1] |
| Hardness (as CaCO3) | mg/L | 01/27/06 | 2340B | 10 | **330** | |
| Nitrate (as N) | mg/L | 01/24/06 12:05 pm | 353.2 | 0.010 | **1.1** | [1@] |
| Nitrite (as N) | mg/L | 01/24/06 12:05 pm | 353.2 | 0.010 | < 0.010 | |
| Oil & Grease | mg/L | 01/24/06 | EPA 1664 | 3.0 | **4.8** | |
| Phosphate, ortho (as P) | mg/L | 01/24/06 8:43 am | 365.1 | 0.050 | < 0.050 | |
| Settable Solids | ml/L | 01/24/06 10:45 am | 160.5 | 0.10 | < 0.10 | |
| Sulfate | mg/L | 01/27/06 | 300.0 | 2.0 | **16** | |
| TDS | mg/L | 01/24/06 | 160.1 | 10 | **350** | |
| TSS | mg/L | 01/24/06 | 160.2 | 3.0 | < 3.0 | |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

*@ High RPD due to suspected matrix interference.*




All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L69847-02
Field Sample ID: **Eagle Outlet**
Collected: 1/23/2006 8:30:00 AM
Received: 1/23/2006


**AMERICAN WEST ANALYTICAL LABORATORIES**

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Salt Lake City, Utah
84115

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Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 01/24/06 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 01/24/06 | 2320B | 10 | **300** |
| Ammonia (as N) | mg/L | 02/01/06 | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 01/24/06 | 2320B | 10 | **300** |
| Carbonate (As CaCO3) | mg/L | 01/24/06 | 2320B | 10 | < 10 |
| Chloride | mg/L | 01/27/06 | 300.0 | 2.0 | **10** |
| Hardness (as CaCO3) | mg/L | 01/27/06 | 2340B | 10 | **310** |
| Nitrate (as N) | mg/L | 01/24/06 12:05 pm | 353.2 | 0.010 | **0.67** |
| Nitrite (as N) | mg/L | 01/24/06 12:05 pm | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 01/24/06 | EPA 1664 | 3.0 | **3.9** |
| Phosphate, ortho (as P) | mg/L | 01/24/06 8:43 am | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 01/24/06 10:45 am | 160.5 | 0.10 | **0.10** |
| Sulfate | mg/L | 01/27/06 | 300.0 | 10 | **26** |
| TDS | mg/L | 01/24/06 | 160.1 | 10 | **310** |
| TSS | mg/L | 01/24/06 | 160.2 | 3.0 | **58** |




All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L69847-03
Field Sample ID: **Sulfur Spring**
Collected: 1/23/2006 9:00:00 AM
Received: 1/23/2006


**AMERICAN WEST ANALYTICAL LABORATORIES**

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 01/24/06 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 01/24/06 | 2320B | 10 | **350** |
| Ammonia (as N) | mg/L | 02/01/06 | 350.1 | 0.050 | **0.059** |
| Bicarbonate (As CaCO3) | mg/L | 01/24/06 | 2320B | 10 | **350** |
| Carbonate (As CaCO3) | mg/L | 01/24/06 | 2320B | 10 | < 10 |
| Chloride | mg/L | 01/27/06 | 300.0 | 1.0 | **6.4** |
| Hardness (as CaCO3) | mg/L | 01/27/06 | 2340B | 10 | **360** |
| Nitrate (as N) | mg/L | 01/24/06 12:05 pm | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 01/24/06 12:05 pm | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 01/24/06 | EPA 1664 | 3.0 | **4.3** |
| Phosphate, ortho (as P) | mg/L | 01/24/06 8:43 am | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 01/24/06 10:45 am | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 01/27/06 | 300.0 | 10 | **44** |
| TDS | mg/L | 01/24/06 | 160.1 | 10 | **380** |
| TSS | mg/L | 01/24/06 | 160.2 | 3.0 | < 3.0 |




All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L69847-04
Field Sample ID: **Mud Creek**
Collected: 1/23/2006 9:30:00 AM
Received: 1/23/2006


**AMERICAN WEST ANALYTICAL LABORATORIES**

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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 01/24/06 | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 01/24/06 | 2320B | 10 | **280** |
| Ammonia (as N) | mg/L | 02/01/06 | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 01/24/06 | 2320B | 10 | **280** |
| Carbonate (As CaCO3) | mg/L | 01/24/06 | 2320B | 10 | < 10 |
| Chloride | mg/L | 01/27/06 | 300.0 | 5.0 | **16** |
| Hardness (as CaCO3) | mg/L | 01/27/06 | 2340B | 10 | **480** |
| Nitrate (as N) | mg/L | 01/24/06 12:05 pm | 353.2 | 0.010 | **0.44** |
| Nitrite (as N) | mg/L | 01/24/06 12:05 pm | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 01/24/06 | EPA 1664 | 3.0 | **4.8** |
| Phosphate, ortho (as P) | mg/L | 01/24/06 8:43 am | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 01/24/06 10:45 am | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 01/27/06 | 300.0 | 50 | **290** |
| TDS | mg/L | 01/24/06 | 160.1 | 10 | **720** |
| TSS | mg/L | 01/24/06 | 160.2 | 3.0 | **4.0** * |

** High RPD due to low analyte concentration. In this range, high RPD's may be expected.*




All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

**Dept:** ME
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Oualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-26894 | Manganese | mg/L | 6020 | 0.1892 | 0.2 | 0 | 94.6 | 85-115 | | | | 1/30/2006 |
| LCS-26893 | Arsenic | mg/L | 6020 | 0.2183 | 0.2 | 0 | 109 | 85-115 | | | | 1/31/2006 |
| LCS-26893 | Cadmium | mg/L | 6020 | 0.2271 | 0.2 | 0 | 114 | 85-115 | | | | 1/31/2006 |
| LCS-26893 | Copper | mg/L | 6020 | 0.1986 | 0.2 | 0 | 99.3 | 85-115 | | | | 1/31/2006 |
| LCS-26893 | Lead | mg/L | 6020 | 0.1934 | 0.2 | 0 | 96.7 | 85-115 | | | | 1/31/2006 |
| LCS-26893 | Manganese | mg/L | 6020 | 0.2011 | 0.2 | 0 | 101 | 85-115 | | | | 1/31/2006 |
| LCS-26893 | Selenium | mg/L | 6020 | 0.2298 | 0.2 | 0 | 115 | 85-115 | | | | 1/31/2006 |
| LCS-26893 | Zinc | mg/L | 6020 | 1.047 | 1 | 0 | 105 | 85-115 | | | | 1/31/2006 |
| LCS-26894 | Iron | mg/L | 6010B | 0.9996 | 1 | 0 | 100 | 75-125 | | | | 1/27/2006 |
| LCS-27019 | Aluminum | mg/L | 6010B | 1.042 | 1 | 0 | 104 | 75-125 | | | | 2/4/2006 |
| LCS-27019 | Boron | mg/L | 6010B | 1.040 | 1 | 0 | 104 | 75-125 | | | | 2/4/2006 |
| LCS-27019 | Calcium | mg/L | 6010B | 10.36 | 10 | 0 | 104 | 75-125 | | | | 2/4/2006 |
| LCS-27019 | Iron | mg/L | 6010B | 1.053 | 1 | 0 | 105 | 75-125 | | | | 2/4/2006 |
| LCS-27019 | Magnesium | mg/L | 6010B | 10.25 | 10 | 0 | 102 | 75-125 | | | | 2/4/2006 |
| LCS-27019 | Molybdenum | mg/L | 6010B | 0.2060 | 0.2 | 0 | 103 | 75-125 | | | | 2/4/2006 |
| LCS-27019 | Potassium | mg/L | 6010B | 9.939 | 10 | 0 | 99.4 | 75-125 | | | | 2/4/2006 |
| LCS-27019 | Sodium | mg/L | 6010B | 9.789 | 10 | 0 | 97.9 | 75-125 | | | | 2/4/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

**Dept:** ME
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Oualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-26894 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 1/30/2006 |
| MB-26893 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 1/31/2006 |
| MB-26893 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 1/31/2006 |
| MB-26893 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 1/31/2006 |
| MB-26893 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 1/31/2006 |
| MB-26893 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 1/31/2006 |
| MB-26893 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 1/31/2006 |
| MB-26893 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 1/31/2006 |
| MB-26894 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 1/27/2006 |
| MB-27019 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 2/4/2006 |
| MB-27019 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 2/4/2006 |
| MB-27019 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 2/4/2006 |
| MB-27019 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 2/4/2006 |
| MB-27019 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 2/4/2006 |
| MB-27019 | Molybdenum | mg/L | 6010B | < 0.10 | | | | - | | | | 2/4/2006 |
| MB-27019 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 2/4/2006 |
| MB-27019 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 2/4/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

**Dept:** ME
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Oualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L69847-04EMS | Manganese | mg/L | 6020 | 0.2128 | 0.2 | 0.03037 | 91.2 | 70-130 | | | | 1/30/2006 |
| L69847-04FMS | Arsenic | mg/L | 6020 | 0.2017 | 0.2 | 0.00126 | 100 | 70-130 | | | | 1/31/2006 |
| L69847-04FMS | Cadmium | mg/L | 6020 | 0.1859 | 0.2 | 0.05297 | 66.5 | 70-130 | | | [1] | 1/31/2006 |
| L69847-04FMS | Copper | mg/L | 6020 | 0.1749 | 0.2 | 0.006976 | 83.9 | 70-130 | | | | 1/31/2006 |
| L69847-04FMS | Lead | mg/L | 6020 | 0.1797 | 0.2 | 0.001615 | 89.0 | 70-130 | | | | 1/31/2006 |
| L69847-04FMS | Manganese | mg/L | 6020 | 0.2066 | 0.2 | 0.03657 | 85.0 | 70-130 | | | | 1/31/2006 |
| L69847-04FMS | Selenium | mg/L | 6020 | 0.1973 | 0.2 | 0.03324 | 82.1 | 70-130 | | | | 1/31/2006 |
| L69847-04FMS | Zinc | mg/L | 6020 | 0.9630 | 1 | 0.06329 | 90.0 | 70-130 | | | | 1/31/2006 |
| L69847-04EMS | Iron | mg/L | 6010B | 1.106 | 1 | 0.1096 | 99.7 | 75-125 | | | | 1/27/2006 |
| L69847-01FMS | Aluminum | mg/L | 6010B | 1.066 | 1 | 0.09681 | 96.9 | 75-125 | | | | 2/4/2006 |
| L69847-01FMS | Boron | mg/L | 6010B | 1.023 | 1 | 0 | 102 | 75-125 | | | | 2/4/2006 |
| L69847-01FMS | Calcium | mg/L | 6010B | 110.1 | 10 | 101.5 | 86.0 | 75-125 | | | | 2/4/2006 |
| L69847-01FMS | Iron | mg/L | 6010B | 1.021 | 1 | 0.01913 | 100 | 75-125 | | | | 2/4/2006 |
| L69847-01FMS | Magnesium | mg/L | 6010B | 26.85 | 10 | 19.26 | 75.9 | 75-125 | | | | 2/4/2006 |
| L69847-01FMS | Molybdenum | mg/L | 6010B | 0.1930 | 0.2 | 0 | 96.5 | 75-125 | | | | 2/4/2006 |
| L69847-01FMS | Potassium | mg/L | 6010B | 11.43 | 10 | 1.495 | 99.3 | 75-125 | | | | 2/4/2006 |
| L69847-01FMS | Sodium | mg/L | 6010B | 18.76 | 10 | 9.389 | 93.7 | 75-125 | | | | 2/4/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

**Dept:** ME
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Oualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L69847-04EMSD | Manganese | mg/L | 6020 | 0.2193 | 0.2 | 0.03037 | 94.5 | 70-130 | 3.04 | 20 | | 1/30/2006 |
| L69847-04FMSD | Arsenic | mg/L | 6020 | 0.2138 | 0.2 | 0.00126 | 106 | 70-130 | 5.81 | 20 | | 1/31/2006 |
| L69847-04FMSD | Cadmium | mg/L | 6020 | 0.1994 | 0.2 | 0.05297 | 73.2 | 70-130 | 6.99 | 20 | | 1/31/2006 |
| L69847-04FMSD | Copper | mg/L | 6020 | 0.1842 | 0.2 | 0.006976 | 88.6 | 70-130 | 5.19 | 20 | | 1/31/2006 |
| L69847-04FMSD | Lead | mg/L | 6020 | 0.1916 | 0.2 | 0.001615 | 95.0 | 70-130 | 6.39 | 20 | | 1/31/2006 |
| L69847-04FMSD | Manganese | mg/L | 6020 | 0.2213 | 0.2 | 0.03657 | 92.4 | 70-130 | 6.85 | 20 | | 1/31/2006 |
| L69847-04FMSD | Selenium | mg/L | 6020 | 0.2086 | 0.2 | 0.03324 | 87.7 | 70-130 | 5.53 | 20 | | 1/31/2006 |
| L69847-04FMSD | Zinc | mg/L | 6020 | 1.020 | 1 | 0.06329 | 95.7 | 70-130 | 5.77 | 20 | | 1/31/2006 |
| L69847-04EMSD | Iron | mg/L | 6010B | 1.114 | 1 | 0.1096 | 100 | 75-125 | 0.720 | 20 | | 1/27/2006 |
| L69847-01FMSD | Aluminum | mg/L | 6010B | 1.104 | 1 | 0.09681 | 101 | 75-125 | 3.54 | 20 | | 2/4/2006 |
| L69847-01FMSD | Boron | mg/L | 6010B | 1.026 | 1 | 0 | 103 | 75-125 | 0.257 | 20 | | 2/4/2006 |
| L69847-01FMSD | Calcium | mg/L | 6010B | 112.0 | 10 | 101.5 | 105 | 75-125 | 1.71 | 20 | | 2/4/2006 |
| L69847-01FMSD | Iron | mg/L | 6010B | 1.022 | 1 | 0.01913 | 100 | 75-125 | 0.120 | 20 | | 2/4/2006 |
| L69847-01FMSD | Magnesium | mg/L | 6010B | 28.41 | 10 | 19.26 | 91.5 | 75-125 | 5.65 | 20 | | 2/4/2006 |
| L69847-01FMSD | Molybdenum | mg/L | 6010B | 0.2018 | 0.2 | 0 | 101 | 75-125 | 4.47 | 20 | | 2/4/2006 |
| L69847-01FMSD | Potassium | mg/L | 6010B | 11.59 | 10 | 1.495 | 101 | 75-125 | 1.44 | 20 | | 2/4/2006 |
| L69847-01FMSD | Sodium | mg/L | 6010B | 19.29 | 10 | 9.389 | 99.0 | 75-125 | 2.82 | 20 | | 2/4/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

**Dept:** WC
**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Oualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L69847-01BDUP | Chloride | mg/L | 300.0 | 32.31 | 0 | 33.08 | | - | 2.35 | 20 | | 1/27/2006 |
| L69847-01BDUP | Sulfate | mg/L | 300.0 | 15.26 | 0 | 15.94 | | - | 4.37 | 20 | | 1/27/2006 |
| L69847-04ADUP | TDS | mg/L | 160.1 | 692.0 | 0 | 720 | | - | 3.97 | 20 | | 1/24/2006 |
| L69847-04ADUP | TSS | mg/L | 160.2 | 5.000 | 0 | 4 | | - | 22.2 | 20 | * | 1/24/2006 |
| L69859-02ADUP | TSS | mg/L | 160.2 | 405.0 | 0 | 415 | | - | 2.44 | 20 | | 1/24/2006 |
| L69860-03ADUP | TSS | mg/L | 160.2 | 3.000 | 0 | 4 | | - | 28.6 | 20 | * | 1/24/2006 |

* High RPD due to low analyte concentration. In this range, high RPD's may be expected.

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

**Dept:** WC
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R54275 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50740 | 50000 | 0 | 101 | 90-110 | | | | 1/24/2006 |
| LCS-R54412 | Chloride | mg/L | 300.0 | 4.851 | 5 | 0 | 97.0 | 90-110 | | | | 1/27/2006 |
| LCS-R54412 | Sulfate | mg/L | 300.0 | 4.974 | 5 | 0 | 99.5 | 90-110 | | | | 1/27/2006 |
| LCS-R54277 | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 1/24/2006 |
| LCS-26985 | Ammonia (as N) | mg/L | 350.1 | 0.9790 | 1 | 0 | 97.9 | 90-110 | | | | 2/1/2006 |
| LCS-54291 | Nitrite (as N) | mg/L | 353.2 | 0.9970 | 1 | 0 | 99.7 | 90-110 | | | | 1/24/2006 |
| LCS-54292 | Nitrate (as N) | mg/L | 353.2 | 1.008 | 1 | 0 | 101 | 90-110 | | | | 1/24/2006 |
| LCS-R54355 | Oil & Grease | mg/L | EPA 1664 | 41.60 | 40 | 0 | 104 | 79-114 | | | | 1/24/2006 |
| LCS-54278 | Phosphate, ortho (as P) | mg/L | 365.1 | 1.065 | 1 | 0.009 | 106 | 90-110 | | | | 1/24/2006 |
| LCS-R54343 | TDS | mg/L | 160.1 | 212.0 | 205 | 0 | 103 | 80-120 | | | | 1/24/2006 |
| LCS-R54312 | TSS | mg/L | 160.2 | 100.0 | 100 | 0 | 100 | 80-120 | | | | 1/24/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

**Dept:** WC
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Oualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R54275 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 1/24/2006 |
| MB-R54275 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 1/24/2006 |
| MB-R54275 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 1/24/2006 |
| MB-R54412 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 1/27/2006 |
| MB-R54412 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 1/27/2006 |
| MB-R54277 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 1/24/2006 |
| MB-26985 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 2/1/2006 |
| MB-54291 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 1/24/2006 |
| MB-54292 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 1/24/2006 |
| MB-R54355 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 1/24/2006 |
| MB-54278 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 1/24/2006 |
| MB-R54343 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 1/24/2006 |
| MB-R54312 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 1/24/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

**Dept:** WC
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Oualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L69847-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 397.0 | 100 | 298 | 99.0 | 80-120 | | | | 1/24/2006 |
| L69847-01BMS | Chloride | mg/L | 300.0 | 70.87 | 50 | 33.08 | 75.6 | 90-110 | | | [1] | 1/27/2006 |
| L69847-01BMS | Sulfate | mg/L | 300.0 | 25.82 | 10 | 15.94 | 98.7 | 90-110 | | | | 1/27/2006 |
| L69847-01BMS | Acidity | mg/L | 305.1 | 46.00 | 50 | 0 | 92.0 | 80-120 | | | | 1/24/2006 |
| L69847-01CMS | Ammonia (as N) | mg/L | 350.1 | 0.9720 | 1 | 0 | 97.2 | 90-110 | | | | 2/1/2006 |
| L69847-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.016 | 1 | 0 | 102 | 90-110 | | | | 1/24/2006 |
| L69847-01BMS | Nitrate (as N) | mg/L | 353.2 | 2.598 | 1 | 1.053 | 154 | 90-110 | | | [1] | 1/24/2006 |
| L69847-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.028 | 1 | 0.044 | 98.4 | 90-110 | | | | 1/24/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L69847
Project: Scofield Baseline

**Dept:** WC
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L69847-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 401.0 | 100 | 298 | 103 | 80-120 | 1.00 | 10 | | 1/24/2006 |
| L69847-01BMSD | Chloride | mg/L | 300.0 | 70.36 | 50 | 33.08 | 74.6 | 90-110 | 0.734 | 20 | [1] | 1/27/2006 |
| L69847-01BMSD | Sulfate | mg/L | 300.0 | 25.39 | 10 | 15.94 | 94.4 | 90-110 | 1.68 | 20 | | 1/27/2006 |
| L69847-01BMSD | Acidity | mg/L | 305.1 | 52.00 | 50 | 0 | 104 | 80-120 | 12.2 | 20 | | 1/24/2006 |
| L69847-01CMSD | Ammonia (as N) | mg/L | 350.1 | 0.9440 | 1 | 0 | 94.4 | 90-110 | 2.92 | 10 | | 2/1/2006 |
| L69847-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.015 | 1 | 0 | 102 | 90-110 | 0.0985 | 10 | | 1/24/2006 |
| L69847-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.663 | 1 | 1.053 | 61.0 | 90-110 | 43.9 | 10 | [1]@ | 1/24/2006 |
| L69847-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.027 | 1 | 0.044 | 98.3 | 90-110 | 0.0973 | 10 | | 1/24/2006 |

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

# American West Analytical Labs

## WORK ORDER Summary

*23-Jan-06*

**Work Order** L69847

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ EDD in Excel format

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L69847-01A | Angle Spring | 1/22/2006 6:00:00 PM | 1/23/2006 | 2/6/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 2/6/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 2/6/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L69847-01B | | | | 2/6/2006 | | 2320B-ALK-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | 300.0-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | ACIDITY-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | NO2-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | NO3-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | PO4-O | jan 23 wc | 1 |
| L69847-01C | | | | 2/6/2006 | | NH3-W | jan 23 nh3 | 1 |
| | | | | 2/6/2006 | | NH3-W-PREP | jan 23 nh3 | 1 |
| L69847-01D | | | | 2/6/2006 | | OGB-W | OGBFridge | 1 |
| L69847-01E | | | | 2/6/2006 | | 3005A-ICPMS | jan 23 metals | 1 |
| | | | | 2/6/2006 | | 6020-W | jan 23 metals | 1 |
| | | | | 2/6/2006 | | ICP-W | jan 23 metals | 1 |
| L69847-01F | | | | 2/6/2006 | Aqueous-Dissolved | 3005A-Diss | jan 23 metals | 1 |
| | | | | 2/6/2006 | | 6020-W-DISS | jan 23 metals | 1 |
| | | | | 2/6/2006 | | HARD | jan 23 metals | 1 |
| | | | | 2/6/2006 | | ICP-W-DIS | jan 23 metals | 1 |
| L69847-02A | Eagle Outlet | 1/23/2006 8:30:00 AM | | 2/6/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 2/6/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 2/6/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L69847-02B | | | | 2/6/2006 | | 2320B-ALK-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | 300.0-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | ACIDITY-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | NO2-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | NO3-W | jan 23 wc | 1 |



L69847

# WORK ORDER Summary

*23-Jan-06*

**Work Order** L69847

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ EDD in Excel format

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L69847-02B | Eagle Outlet | 1/23/2006 8:30:00 AM | 1/23/2006 | 2/6/2006 | Aqueous | PO4-O | jan 23 wc | 1 |
| L69847-02C | | | | 2/6/2006 | | NH3-W | jan 23 nh3 | 1 |
| | | | | 2/6/2006 | | NH3-W-PREP | jan 23 nh3 | 1 |
| L69847-02D | | | | 2/6/2006 | | OGB-W | OGBFridge | 1 |
| L69847-02E | | | | 2/6/2006 | | 3005A-ICPMS | jan 23 metals | 1 |
| | | | | 2/6/2006 | | 6020-W | jan 23 metals | 1 |
| | | | | 2/6/2006 | | ICP-W | jan 23 metals | 1 |
| L69847-02F | | | | 2/6/2006 | Aqueous-Dissolved | 3005A-Diss | jan 23 metals | 1 |
| | | | | 2/6/2006 | | 6020-W-DISS | jan 23 metals | 1 |
| | | | | 2/6/2006 | | HARD | jan 23 metals | 1 |
| | | | | 2/6/2006 | | ICP-W-DIS | jan 23 metals | 1 |
| L69847-03A | Sulfur Spring | 1/23/2006 9:00:00 AM | | 2/6/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 2/6/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 2/6/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L69847-03B | | | | 2/6/2006 | | 2320B-ALK-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | 300.0-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | ACIDITY-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | NO2-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | NO3-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | PO4-O | jan 23 wc | 1 |
| L69847-03C | | | | 2/6/2006 | | NH3-W | jan 23 nh3 | 1 |
| | | | | 2/6/2006 | | NH3-W-PREP | jan 23 nh3 | 1 |
| L69847-03D | | | | 2/6/2006 | | OGB-W | OGBFridge | 1 |
| L69847-03E | | | | 2/6/2006 | | 3005A-ICPMS | jan 23 metals | 1 |
| | | | | 2/6/2006 | | 6020-W | jan 23 metals | 1 |
| | | | | 2/6/2006 | | ICP-W | jan 23 metals | 1 |
| L69847-03F | | | | 2/6/2006 | Aqueous-Dissolved | 3005A-Diss | jan 23 metals | 1 |
| | | | | 2/6/2006 | | 6020-W-DISS | jan 23 metals | 1 |

# WORK ORDER Summary

*23-Jan-06*

**Work Order** L69847

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ EDD in Excel format

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L69847-03F | Sulfur Spring | 1/23/2006 9:00:00 AM | 1/23/2006 | 2/6/2006 | Aqueous-Dissolved | HARD | jan 23 metals | 1 |
| | | | | 2/6/2006 | | ICP-W-DIS | jan 23 metals | 1 |
| L69847-04A | Mud Creek | 1/23/2006 9:30:00 AM | | 2/6/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 2/6/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 2/6/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L69847-04B | | | | 2/6/2006 | | 2320B-ALK-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | 300.0-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | ACIDITY-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | NO2-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | NO3-W | jan 23 wc | 1 |
| | | | | 2/6/2006 | | PO4-O | jan 23 wc | 1 |
| L69847-04C | | | | 2/6/2006 | | NH3-W | jan 23 nh3 | 1 |
| | | | | 2/6/2006 | | NH3-W-PREP | jan 23 nh3 | 1 |
| L69847-04D | | | | 2/6/2006 | | OGB-W | OGBFridge | 1 |
| L69847-04E | | | | 2/6/2006 | | 3005A-ICPMS | jan 23 metals | 1 |
| | | | | 2/6/2006 | | 6020-W | jan 23 metals | 1 |
| | | | | 2/6/2006 | | ICP-W | jan 23 metals | 1 |
| L69847-04F | | | | 2/6/2006 | Aqueous-Dissolved | 3005A-Diss | jan 23 metals | 1 |
| | | | | 2/6/2006 | | 6020-W-DISS | jan 23 metals | 1 |
| | | | | 2/6/2006 | | HARD | jan 23 metals | 1 |
| | | | | 2/6/2006 | | ICP-W-DIS | jan 23 metals | 1 |

Client Carbon Resources · Rock Logic

Address 3757 W. Highway 96
Scofield UT
City State Zip

Phone 435·448·9693 Fax 435·448·9693

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield Baseline

Project Number/P.O.#

Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
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(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

# CHAIN OF CUSTODY

Lab Sample Set # 609847

Page _____ of _____

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | see table 3 on file | | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angle Spring | 1·22·06 \| 1800 | W | 6 | ✓ | | | | | | | | | | |
| Eagle Outlet | 1·23·06 \| 0830 | W | 6 | ✓ | | | | | | | | | | |
| Sutter Spring | 1·23·06 \| 0900 | W | 6 | ✓ | | | | | | | | | | |
| Mud Creek | 1·23·06 \| 0930 | W | 6 | ✓ | | | | | | | | | | |

Please indicate tests needed below

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes:

3 Temperature 0.5

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Notes:

6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:
1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 14:00 | PRINT NAME Elena Hayward |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

Please filter for dissolved metals

Analysis the same as the previous set (table 3 surface water)

PLEASE SEND PDF & .XLS

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved)[1] | mg/l |
| | - | Arsenic (Dissolved)[1] | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved)[1] | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved)[1] | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved)[1] | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved)[1] | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved)[1] | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

[1] Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
[2] O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

## Preservation Check Sheet

Sample Set: 609847

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Cyanide | pH >12 NaOH | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Sulfide | pH > 9 NaOH, ZnAC | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOC[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| T PO4[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

Procedure:

1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 $H_2SO_4$ in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 $H_2SO_4$ in a B.R.

Frequency: All samples requiring preservation

March 15, 2006

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L70355

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 2/27/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-01E
Field Sample ID: **Sulfer Spring**
Collected: 2/26/2006 1:45:00 PM
Received: 2/27/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 2/28/2006 4:03:04 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 2/28/2006 4:03:04 PM | 6010B | 0.0050 | **0.030** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-02E
Field Sample ID: **Mud Creek**
Collected: 2/26/2006 2:30:00 PM
Received: 2/27/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 2/28/2006 4:07:26 PM | 6010B | 0.050 | **0.25** |
| Manganese | mg/L | 2/28/2006 4:07:26 PM | 6010B | 0.0050 | **0.031** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-03E
Field Sample ID: **Eagle Outlet**
Collected: 2/26/2006 3:00:00 PM
Received: 2/27/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 2/28/2006 4:11:51 PM | 6010B | 0.050 | **3.2** |
| Manganese | mg/L | 2/28/2006 4:11:51 PM | 6010B | 0.0050 | **0.22** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-04E
Field Sample ID: **Angle Spring**
Collected: 2/26/2006 6:00:00 PM
Received: 2/27/2006

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 2/28/2006 4:20:59 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 2/28/2006 4:20:59 PM | 6010B | 0.0050 | < 0.0050 |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-01F
Field Sample ID: **Sulfer Spring**
Collected: 2/26/2006 1:45:00 PM
Received: 2/27/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 3/7/2006 12:11:32 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 3/10/2006 5:50:42 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 3/7/2006 12:11:32 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 3/10/2006 5:50:42 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 3/7/2006 12:11:32 PM | 6010B | 10 | **93** |
| Copper | mg/L | 3/10/2006 5:50:42 PM | 6020 | 0.0040 | **0.0079** |
| Iron | mg/L | 3/7/2006 12:11:32 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 3/10/2006 5:50:42 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 3/7/2006 12:11:32 PM | 6010B | 1.0 | **36** |
| Manganese | mg/L | 3/13/2006 9:49:33 PM | 6010B | 0.0050 | **0.030** |
| Molybdenum | mg/L | 3/7/2006 12:11:32 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 3/7/2006 12:11:32 PM | 6010B | 1.0 | **5.3** |
| Selenium | mg/L | 3/10/2006 5:50:42 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 3/7/2006 12:11:32 PM | 6010B | 1.0 | **9.6** |
| Zinc | mg/L | 3/10/2006 5:50:42 PM | 6020 | 0.010 | **0.12** |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-02F
Field Sample ID: **Mud Creek**
Collected: 2/26/2006 2:30:00 PM
Received: 2/27/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 3/7/2006 12:15:23 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 3/10/2006 5:56:07 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 3/7/2006 12:15:23 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 3/10/2006 5:56:07 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 3/7/2006 12:15:23 PM | 6010B | 10 | **97** |
| Copper | mg/L | 3/10/2006 5:56:07 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 3/7/2006 12:15:23 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 3/10/2006 5:56:07 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 3/7/2006 12:15:23 PM | 6010B | 1.0 | **55** |
| Manganese | mg/L | 3/10/2006 5:56:07 PM | 6020 | 0.0050 | **0.028** |
| Molybdenum | mg/L | 3/7/2006 12:15:23 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 3/7/2006 12:15:23 PM | 6010B | 1.0 | **9.3** |
| Selenium | mg/L | 3/10/2006 5:56:07 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 3/7/2006 12:15:23 PM | 6010B | 1.0 | **56** |
| Zinc | mg/L | 3/10/2006 5:56:07 PM | 6020 | 0.010 | **0.16** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-03F
Field Sample ID: **Eagle Outlet**
Collected: 2/26/2006 3:00:00 PM
Received: 2/27/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 3/7/2006 12:19:20 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 3/10/2006 6:01:33 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 3/7/2006 12:19:20 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 3/10/2006 6:01:33 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 3/7/2006 12:19:20 PM | 6010B | 10 | **100** |
| Copper | mg/L | 3/10/2006 6:01:33 PM | 6020 | 0.0040 | **0.0046** |
| Iron | mg/L | 3/7/2006 12:19:20 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 3/10/2006 6:01:33 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 3/7/2006 12:19:20 PM | 6010B | 1.0 | **18** |
| Manganese | mg/L | 3/10/2006 6:01:33 PM | 6020 | 0.0050 | **0.065** |
| Molybdenum | mg/L | 3/7/2006 12:19:20 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 3/7/2006 12:19:20 PM | 6010B | 1.0 | **1.7** |
| Selenium | mg/L | 3/10/2006 6:01:33 PM | 6020 | 0.0050 | **0.0057** |
| Sodium | mg/L | 3/7/2006 12:19:20 PM | 6010B | 1.0 | **12** |
| Zinc | mg/L | 3/10/2006 6:01:33 PM | 6020 | 0.010 | **0.070** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-04F
Field Sample ID: **Angle Spring**
Collected: 2/26/2006 6:00:00 PM
Received: 2/27/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 3/7/2006 11:52:51 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 3/10/2006 6:12:24 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 3/7/2006 11:52:51 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 3/10/2006 6:12:24 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 3/7/2006 11:52:51 AM | 6010B | 10 | **100** | [2] |
| Copper | mg/L | 3/10/2006 6:12:24 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 3/7/2006 11:52:51 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 3/10/2006 6:12:24 PM | 6020 | 0.0050 | < 0.0050 | @ |
| Magnesium | mg/L | 3/7/2006 11:52:51 AM | 6010B | 1.0 | **19** | |
| Manganese | mg/L | 3/10/2006 6:12:24 PM | 6020 | 0.0050 | < 0.0050 | |
| Molybdenum | mg/L | 3/7/2006 11:52:51 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 3/7/2006 11:52:51 AM | 6010B | 1.0 | **1.6** | |
| Selenium | mg/L | 3/10/2006 6:12:24 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 3/7/2006 11:52:51 AM | 6010B | 1.0 | **9.9** | |
| Zinc | mg/L | 3/10/2006 6:12:24 PM | 6020 | 0.010 | **0.073** | |

[2] *Analyte concentration is too high for accurate spike recovery.*
*@ - High RPD due to suspected sample non-homogeneity.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-01
Field Sample ID: **Sulfer Spring**
Collected: 2/26/2006 1:45:00 PM
Received: 2/27/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 2/28/2006 10:30:00 AM | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 2/28/2006 10:00:00 AM | 2320B | 10 | **340** | |
| Ammonia (as N) | mg/L | 3/2/2006 3:27:00 PM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 2/28/2006 10:00:00 AM | 2320B | 10 | **340** | |
| Carbonate (As CaCO3) | mg/L | 2/28/2006 10:00:00 AM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 3/1/2006 4:47:33 AM | 300.0 | 1.0 | **6.4** | |
| Hardness (as CaCO3) | mg/L | 3/7/2006 | 2340B | 10 | **380** | |
| Nitrate (as N) | mg/L | 2/27/2006 12:55:00 PM | 353.2 | 0.010 | < 0.010 | |
| Nitrite (as N) | mg/L | 2/27/2006 12:55:00 PM | 353.2 | 0.010 | < 0.010 | [1] |
| Oil & Grease | mg/L | 2/27/2006 | EPA 1664 | 3.0 | **3.5** | |
| Phosphate, ortho (as P) | mg/L | 2/27/2006 1:59:00 PM | 365.1 | 0.050 | < 0.050 | @ |
| Settable Solids | ml/L | 2/27/2006 1:40:00 PM | 160.5 | 0.10 | < 0.10 | |
| Sulfate | mg/L | 3/1/2006 5:20:48 AM | 300.0 | 10 | **43** | |
| TDS | mg/L | 3/3/2006 1:30:00 PM | 160.1 | 10 | **300** | |
| TSS | mg/L | 2/28/2006 3:45:00 PM | 160.2 | 3.0 | < 3.0 | |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*
*@ High RPD due to suspected matrix interference.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-02
Field Sample ID: **Mud Creek**
Collected: 2/26/2006 2:30:00 PM
Received: 2/27/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 2/28/2006 10:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 2/28/2006 10:00:00 AM | 2320B | 10 | **260** |
| Ammonia (as N) | mg/L | 3/2/2006 3:27:00 PM | 350.1 | 0.050 | **0.57** |
| Bicarbonate (As CaCO3) | mg/L | 2/28/2006 10:00:00 AM | 2320B | 10 | **260** |
| Carbonate (As CaCO3) | mg/L | 2/28/2006 10:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 3/1/2006 5:54:02 AM | 300.0 | 5.0 | **22** |
| Hardness (as CaCO3) | mg/L | 3/7/2006 | 2340B | 10 | **470** |
| Nitrate (as N) | mg/L | 2/27/2006 12:55:00 PM | 353.2 | 0.010 | **0.38** |
| Nitrite (as N) | mg/L | 2/27/2006 12:55:00 PM | 353.2 | 0.010 | **0.018** |
| Oil & Grease | mg/L | 2/27/2006 | EPA 1664 | 3.0 | **5.1** |
| Phosphate, ortho (as P) | mg/L | 2/27/2006 1:59:00 PM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 2/27/2006 1:40:00 PM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 3/1/2006 6:27:17 AM | 300.0 | 50 | **250** |
| TDS | mg/L | 3/3/2006 1:30:00 PM | 160.1 | 10 | **570** |
| TSS | mg/L | 2/28/2006 3:45:00 PM | 160.2 | 3.0 | **10** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-03
Field Sample ID: **Eagle Outlet**
Collected: 2/26/2006 3:00:00 PM
Received: 2/27/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 2/28/2006 10:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 2/28/2006 10:00:00 AM | 2320B | 10 | **290** |
| Ammonia (as N) | mg/L | 3/2/2006 3:27:00 PM | 350.1 | 0.050 | **0.16** |
| Bicarbonate (As CaCO3) | mg/L | 2/28/2006 10:00:00 AM | 2320B | 10 | **290** |
| Carbonate (As CaCO3) | mg/L | 2/28/2006 10:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 3/1/2006 7:33:46 AM | 300.0 | 10 | **11** |
| Hardness (as CaCO3) | mg/L | 3/7/2006 | 2340B | 10 | **320** |
| Nitrate (as N) | mg/L | 2/27/2006 12:55:00 PM | 353.2 | 0.010 | **0.69** |
| Nitrite (as N) | mg/L | 2/27/2006 12:55:00 PM | 353.2 | 0.010 | **0.042** |
| Oil & Grease | mg/L | 2/27/2006 | EPA 1664 | 3.0 | **5.6** |
| Phosphate, ortho (as P) | mg/L | 2/27/2006 1:59:00 PM | 365.1 | 0.050 | **0.13** |
| Settable Solids | ml/L | 2/27/2006 1:40:00 PM | 160.5 | 0.10 | **0.10** |
| Sulfate | mg/L | 3/1/2006 7:33:46 AM | 300.0 | 10 | **24** |
| TDS | mg/L | 3/3/2006 1:30:00 PM | 160.1 | 10 | **240** |
| TSS | mg/L | 2/28/2006 3:45:00 PM | 160.2 | 3.0 | **100** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70355-04
Field Sample ID: **Angle Spring**
Collected: 2/26/2006 6:00:00 PM
Received: 2/27/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 2/28/2006 10:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 2/28/2006 10:00:00 AM | 2320B | 10 | **300** |
| Ammonia (as N) | mg/L | 3/2/2006 3:27:00 PM | 350.1 | 0.050 | **0.17** |
| Bicarbonate (As CaCO3) | mg/L | 2/28/2006 10:00:00 AM | 2320B | 10 | **300** |
| Carbonate (As CaCO3) | mg/L | 2/28/2006 10:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 2/28/2006 11:48:25 AM | 300.0 | 10 | **22** |
| Hardness (as CaCO3) | mg/L | 3/7/2006 | 2340B | 10 | **330** |
| Nitrate (as N) | mg/L | 2/27/2006 12:55:00 PM | 353.2 | 0.010 | **1.1** |
| Nitrite (as N) | mg/L | 2/27/2006 12:55:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 2/27/2006 | EPA 1664 | 3.0 | **5.5** |
| Phosphate, ortho (as P) | mg/L | 2/27/2006 1:59:00 PM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 2/27/2006 1:40:00 PM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 2/28/2006 11:48:25 AM | 300.0 | 10 | **14** |
| TDS | mg/L | 3/3/2006 1:30:00 PM | 160.1 | 10 | **240** |
| TSS | mg/L | 2/28/2006 3:45:00 PM | 160.2 | 3.0 | < 3.0 |




All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

**Dept:** ME
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-27336 | Arsenic | mg/L | 6020 | 0.2034 | 0.2 | 0 | 102 | 85-115 | | | | 3/10/2006 |
| LCS-27336 | Cadmium | mg/L | 6020 | 0.2007 | 0.2 | 0 | 100 | 85-115 | | | | 3/10/2006 |
| LCS-27336 | Copper | mg/L | 6020 | 0.1970 | 0.2 | 0 | 98.5 | 85-115 | | | | 3/10/2006 |
| LCS-27336 | Lead | mg/L | 6020 | 0.2046 | 0.2 | 0 | 102 | 85-115 | | | | 3/10/2006 |
| LCS-27336 | Manganese | mg/L | 6020 | 0.1963 | 0.2 | 0 | 98.2 | 85-115 | | | | 3/10/2006 |
| LCS-27336 | Selenium | mg/L | 6020 | 0.2048 | 0.2 | 0 | 102 | 85-115 | | | | 3/10/2006 |
| LCS-27336 | Zinc | mg/L | 6020 | 1.027 | 1 | 0 | 103 | 85-115 | | | | 3/10/2006 |
| LCS-27352 | Iron | mg/L | 6010B | 1.094 | 1 | 0.02847 | 107 | 75-125 | | | | 2/28/2006 |
| LCS-27352 | Manganese | mg/L | 6010B | 0.2040 | 0.2 | 0 | 102 | 75-125 | | | | 2/28/2006 |
| LCS-27336 | Aluminum | mg/L | 6010B | 1.071 | 1 | 0 | 107 | 75-125 | | | | 3/7/2006 |
| LCS-27336 | Boron | mg/L | 6010B | 1.037 | 1 | 0 | 104 | 75-125 | | | | 3/7/2006 |
| LCS-27336 | Calcium | mg/L | 6010B | 10.70 | 10 | 0 | 107 | 75-125 | | | | 3/7/2006 |
| LCS-27336 | Iron | mg/L | 6010B | 1.068 | 1 | 0 | 107 | 75-125 | | | | 3/7/2006 |
| LCS-27336 | Magnesium | mg/L | 6010B | 10.47 | 10 | 0 | 105 | 75-125 | | | | 3/7/2006 |
| LCS-27336 | Molybdenum | mg/L | 6010B | 0.2126 | 0.2 | 0 | 106 | 75-125 | | | | 3/7/2006 |
| LCS-27336 | Potassium | mg/L | 6010B | 10.51 | 10 | 0 | 105 | 75-125 | | | | 3/7/2006 |
| LCS-27336 | Sodium | mg/L | 6010B | 10.69 | 10 | 0 | 107 | 75-125 | | | | 3/7/2006 |
| LCS-27552 | Manganese | mg/L | 6010B | 0.2050 | 0.2 | 0 | 103 | 75-125 | | | | 3/13/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

**Dept:** ME
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-27336 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 3/10/2006 |
| MB-27336 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 3/10/2006 |
| MB-27336 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 3/10/2006 |
| MB-27336 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 3/10/2006 |
| MB-27336 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 3/10/2006 |
| MB-27336 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 3/10/2006 |
| MB-27336 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 3/10/2006 |
| MB-27352 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 2/28/2006 |
| MB-27352 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 2/28/2006 |
| MB-27336 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 3/7/2006 |
| MB-27336 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 3/7/2006 |
| MB-27336 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 3/7/2006 |
| MB-27336 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 3/7/2006 |
| MB-27336 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 3/7/2006 |
| MB-27336 | Molybdenum | mg/L | 6010B | < 0.10 | | | | - | | | | 3/7/2006 |
| MB-27336 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 3/7/2006 |
| MB-27336 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 3/7/2006 |
| MB-27552 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 3/13/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

**Dept:** ME
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70355-04FMS | Arsenic | mg/L | 6020 | 0.2067 | 0.2 | 0 | 103 | 70-130 | | | | 3/10/2006 |
| L70355-04FMS | Cadmium | mg/L | 6020 | 0.2032 | 0.2 | 0 | 102 | 70-130 | | | | 3/10/2006 |
| L70355-04FMS | Copper | mg/L | 6020 | 0.1939 | 0.2 | 0 | 97.0 | 70-130 | | | | 3/10/2006 |
| L70355-04FMS | Lead | mg/L | 6020 | 0.2047 | 0.2 | 0 | 102 | 70-130 | | | | 3/10/2006 |
| L70355-04FMS | Manganese | mg/L | 6020 | 0.2001 | 0.2 | 0 | 100 | 70-130 | | | | 3/10/2006 |
| L70355-04FMS | Selenium | mg/L | 6020 | 0.2191 | 0.2 | 0 | 110 | 70-130 | | | | 3/10/2006 |
| L70355-04FMS | Zinc | mg/L | 6020 | 1.087 | 1 | 0.07298 | 101 | 70-130 | | | | 3/10/2006 |
| L70355-04EMS | Iron | mg/L | 6010B | 1.103 | 1 | 0 | 110 | 75-125 | | | | 2/28/2006 |
| L70355-04EMS | Manganese | mg/L | 6010B | 0.2024 | 0.2 | 0 | 101 | 75-125 | | | | 2/28/2006 |
| L70355-04FMS | Aluminum | mg/L | 6010B | 1.139 | 1 | 0 | 114 | 75-125 | | | | 3/7/2006 |
| L70355-04FMS | Boron | mg/L | 6010B | 1.095 | 1 | 0.01557 | 108 | 75-125 | | | | 3/7/2006 |
| L70355-04FMS | Calcium | mg/L | 6010B | 112.7 | 10 | 101.3 | 114 | 75-125 | | | | 3/7/2006 |
| L70355-04FMS | Iron | mg/L | 6010B | 1.047 | 1 | 0 | 105 | 75-125 | | | | 3/7/2006 |
| L70355-04FMS | Magnesium | mg/L | 6010B | 28.77 | 10 | 18.59 | 102 | 75-125 | | | | 3/7/2006 |
| L70355-04FMS | Molybdenum | mg/L | 6010B | 0.2123 | 0.2 | 0 | 106 | 75-125 | | | | 3/7/2006 |
| L70355-04FMS | Potassium | mg/L | 6010B | 12.55 | 10 | 1.558 | 110 | 75-125 | | | | 3/7/2006 |
| L70355-04FMS | Sodium | mg/L | 6010B | 21.03 | 10 | 9.944 | 111 | 75-125 | | | | 3/7/2006 |
| L70355-01FMS | Manganese | mg/L | 6010B | 0.2331 | 0.2 | 0.03027 | 101 | 75-125 | | | | 3/13/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

**Dept:** ME
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70355-04FMSD | Arsenic | mg/L | 6020 | 0.1992 | 0.2 | 0 | 99.6 | 70-130 | 3.70 | 20 | | 3/10/2006 |
| L70355-04FMSD | Cadmium | mg/L | 6020 | 0.2017 | 0.2 | 0 | 101 | 70-130 | 0.749 | 20 | | 3/10/2006 |
| L70355-04FMSD | Copper | mg/L | 6020 | 0.1936 | 0.2 | 0.001219 | 96.2 | 70-130 | 0.157 | 20 | | 3/10/2006 |
| L70355-04FMSD | Lead | mg/L | 6020 | 0.1939 | 0.2 | 0 | 97.0 | 70-130 | 27.1 | 20 | @ | 3/10/2006 |
| L70355-04FMSD | Manganese | mg/L | 6020 | 0.2005 | 0.2 | 0.003755 | 98.4 | 70-130 | 0.188 | 20 | | 3/10/2006 |
| L70355-04FMSD | Selenium | mg/L | 6020 | 0.2154 | 0.2 | 0.003241 | 106 | 70-130 | 1.73 | 20 | | 3/10/2006 |
| L70355-04FMSD | Zinc | mg/L | 6020 | 1.035 | 1 | 0.07298 | 96.2 | 70-130 | 4.88 | 20 | | 3/10/2006 |
| L70355-04EMSD | Iron | mg/L | 6010B | 1.061 | 1 | 0 | 106 | 75-125 | 3.84 | 20 | | 2/28/2006 |
| L70355-04EMSD | Manganese | mg/L | 6010B | 0.2014 | 0.2 | 0 | 101 | 75-125 | 0.503 | 20 | | 2/28/2006 |
| L70355-04FMSD | Aluminum | mg/L | 6010B | 1.111 | 1 | 0 | 111 | 75-125 | 2.49 | 20 | | 3/7/2006 |
| L70355-04FMSD | Boron | mg/L | 6010B | 1.076 | 1 | 0.01557 | 106 | 75-125 | 1.75 | 20 | | 3/7/2006 |
| L70355-04FMSD | Calcium | mg/L | 6010B | 107.1 | 10 | 101.3 | 58.0 | 75-125 | 5.10 | 20 | 2 | 3/7/2006 |
| L70355-04FMSD | Iron | mg/L | 6010B | 1.076 | 1 | 0 | 108 | 75-125 | 2.73 | 20 | | 3/7/2006 |
| L70355-04FMSD | Magnesium | mg/L | 6010B | 28.52 | 10 | 18.59 | 99.3 | 75-125 | 0.894 | 20 | | 3/7/2006 |
| L70355-04FMSD | Molybdenum | mg/L | 6010B | 0.2136 | 0.2 | 0 | 107 | 75-125 | 0.601 | 20 | | 3/7/2006 |
| L70355-04FMSD | Potassium | mg/L | 6010B | 12.34 | 10 | 1.558 | 108 | 75-125 | 1.66 | 20 | | 3/7/2006 |
| L70355-04FMSD | Sodium | mg/L | 6010B | 20.66 | 10 | 9.944 | 107 | 75-125 | 1.80 | 20 | | 3/7/2006 |
| L70355-01FMSD | Manganese | mg/L | 6010B | 0.2332 | 0.2 | 0.03027 | 101 | 75-125 | 0.0464 | 20 | | 3/13/2006 |

@ - High RPD due to suspected sample non-homogeneity.
[2] Analyte concentration is too high for accurate spike recovery.

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

**Dept:** WC
**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70355-04ADUP | Chloride | mg/L | 300.0 | 21.41 | 0 | 21.72 | | - | 1.48 | 20 | | 3/1/2006 |
| L70355-04ADUP | Sulfate | mg/L | 300.0 | 14.79 | 0 | 14.46 | | - | 2.20 | 20 | | 3/1/2006 |
| L70355-04BDUP | TDS | mg/L | 160.1 | 244.0 | 0 | 244 | | - | 0 | 20 | | 3/3/2006 |
| L70436-06BDUP | TDS | mg/L | 160.1 | < 10 | 0 | 0 | | - | 0 | 20 | | 3/3/2006 |
| L70355-04BDUP | TSS | mg/L | 160.2 | < 3.0 | 0 | 0 | | - | 0 | 20 | | 2/28/2006 |
| L70378-03ADUP | TSS | mg/L | 160.2 | 15.00 | 0 | 14 | | - | 6.90 | 20 | | 2/28/2006 |
| L70382-02ADUP | TSS | mg/L | 160.2 | 490.0 | 0 | 500 | | - | 2.02 | 20 | | 2/28/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

**Dept:** WC
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R55136 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50740 | 50000 | 0 | 101 | 90-110 | | | | 2/28/2006 |
| LCS-R55176 | Chloride | mg/L | 300.0 | 4.926 | 5 | 0 | 98.5 | 90-110 | | | | 2/28/2006 |
| LCS-R55176 | Sulfate | mg/L | 300.0 | 5.033 | 5 | 0 | 101 | 90-110 | | | | 2/28/2006 |
| LCS-R55137 | Acidity | mg/L | 305.1 | 55.00 | 50 | 0 | 110 | 80-120 | | | | 2/28/2006 |
| LCS-27395 | Ammonia (as N) | mg/L | 350.1 | 0.9150 | 1 | 0 | 91.5 | 90-110 | | | | 3/2/2006 |
| LCS-55099 | Nitrite (as N) | mg/L | 353.2 | 0.9800 | 1 | 0 | 98.0 | 90-110 | | | | 2/27/2006 |
| LCS-55103 | Nitrate (as N) | mg/L | 353.2 | 1.076 | 1 | 0 | 108 | 90-110 | | | | 2/27/2006 |
| LCS-R55142 | Oil & Grease | mg/L | EPA 1664 | 40.20 | 40 | 0 | 100 | 79-114 | | | | 2/27/2006 |
| LCS-55108 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9830 | 1 | 0 | 98.3 | 90-110 | | | | 2/27/2006 |
| LCS-R55303 | TDS | mg/L | 160.1 | 202.0 | 205 | 0 | 98.5 | 80-120 | | | | 3/3/2006 |
| LCS-R55165 | TSS | mg/L | 160.2 | 100.0 | 100 | 0 | 100 | 80-120 | | | | 2/28/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

**Dept:** WC
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R55136 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 2/28/2006 |
| MB-R55136 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 2/28/2006 |
| MB-R55136 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 2/28/2006 |
| MB-R55176 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 2/28/2006 |
| MB-R55176 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 2/28/2006 |
| MB-R55137 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 2/28/2006 |
| MB-27395 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 3/2/2006 |
| MB-55099 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 2/27/2006 |
| MB-55103 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 2/27/2006 |
| MB-R55142 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 2/27/2006 |
| MB-55108 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 2/27/2006 |
| MB-R55303 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 3/3/2006 |
| MB-R55165 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 2/28/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

**Dept:** WC
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70355-01AMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 439.0 | 100 | 335 | 104 | 80-120 | | | | 2/28/2006 |
| L70355-04AMS | Chloride | mg/L | 300.0 | 71.86 | 50 | 21.72 | 100 | 90-110 | | | | 3/1/2006 |
| L70355-04AMS | Sulfate | mg/L | 300.0 | 65.38 | 50 | 14.46 | 102 | 90-110 | | | | 3/1/2006 |
| L70355-01AMS | Acidity | mg/L | 305.1 | 42.00 | 50 | 0 | 84.0 | 80-120 | | | | 2/28/2006 |
| L70355-01CMS | Ammonia (as N) | mg/L | 350.1 | 1.055 | 1 | 0 | 106 | 90-110 | | | | 3/2/2006 |
| L70355-01AMS | Nitrite (as N) | mg/L | 353.2 | 0.9590 | 1 | 0.007 | 95.2 | 90-110 | | | | 2/27/2006 |
| L70355-01AMS | Nitrate (as N) | mg/L | 353.2 | 1.093 | 1 | 0 | 109 | 90-110 | | | | 2/27/2006 |
| L70355-01AMS | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9360 | 1 | 0.013 | 92.3 | 90-110 | | | | 2/27/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

**Dept:** WC
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70355-01AMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 433.0 | 100 | 335 | 98.0 | 80-120 | 1.38 | 10 | | 2/28/2006 |
| L70355-04AMSD | Chloride | mg/L | 300.0 | 71.67 | 50 | 21.72 | 99.9 | 90-110 | 0.261 | 20 | | 3/1/2006 |
| L70355-04AMSD | Sulfate | mg/L | 300.0 | 64.64 | 50 | 14.46 | 100 | 90-110 | 1.14 | 20 | | 3/1/2006 |
| L70355-01AMSD | Acidity | mg/L | 305.1 | 40.00 | 50 | 0 | 80.0 | 80-120 | 4.88 | 20 | | 2/28/2006 |
| L70355-01CMSD | Ammonia (as N) | mg/L | 350.1 | 1.015 | 1 | 0 | 102 | 90-110 | 3.86 | 10 | | 3/2/2006 |
| L70355-01AMSD | Nitrite (as N) | mg/L | 353.2 | 0.8780 | 1 | 0.007 | 87.1 | 90-110 | 8.82 | 10 | [1] | 2/27/2006 |
| L70355-01AMSD | Nitrate (as N) | mg/L | 353.2 | 1.094 | 1 | 0 | 109 | 90-110 | 0.0914 | 10 | | 2/27/2006 |
| L70355-01AMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.041 | 1 | 0.013 | 103 | 90-110 | 10.6 | 10 | @ | 2/27/2006 |

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R55142 | Oil & Grease | mg/L | EPA 1664 | 41.90 | 40 | 0 | 105 | 79-114 | | | | 2/27/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70355
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R55142 | Oil & Grease | mg/L | EPA 1664 | 42.30 | 40 | 0 | 106 | 79-114 | 0.950 | 18 | | 2/27/2006 |

# American West Analytical Labs

## WORK ORDER Summary

*27-Feb-06*

**Work Order** L70355

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ EDD in Excel format

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L70355-01A | Sulfer Spring | 2/26/2006 1:45:00 PM | 2/27/2006 | 3/13/2006 | Aqueous | 2320B-ALK-W | feb 27 wc | 1 |
| | | | | | | 300.0-W | feb 27 wc | 1 |
| | | | | | | | feb 27 wc | 1 |
| | | | | | | | feb 27 wc | 1 |
| | | | | | | | feb 27 wc | 1 |
| | | | | | | | feb 27 wc | 1 |
| L70355-01B | | | | | | | ww - tss/tds/ss | 1 |
| | | | | | | | ww - tss/tds/ss | 1 |
| | | | | | | | ww - tss/tds/ss | 1 |
| L70355-01C | | | | | | | feb 27 nh3 | 1 |
| | | | | | | EP | feb 27 nh3 | 1 |
| L70355-01D | | | | | | | OGBFridge | 1 |
| L70355-01E | | | | | | PMS | feb 27 total met | 1 |
| | | | | | | | feb 27 total met | 1 |
| | | | | | | | feb 27 total met | 1 |
| L70355-01F | | | | 3/13/2006 | | Diss | feb 27 dis met | 1 |
| | | | | 3/13/2006 | | 6020-W-DISS | feb 27 dis met | 1 |
| | | | | 3/13/2006 | | HARD | feb 27 dis met | 1 |
| | | | | 3/13/2006 | | ICP-W-DIS | feb 27 dis met | 1 |
| L70355-02A | Mud Creek | 2/26/2006 2:30:00 PM | | 3/13/2006 | Aqueous | 2320B-ALK-W | feb 27 wc | 1 |
| | | | | 3/13/2006 | | 300.0-W | feb 27 wc | 1 |
| | | | | 3/13/2006 | | ACIDITY-W | feb 27 wc | 1 |
| | | | | 3/13/2006 | | NO2-W | feb 27 wc | 1 |
| | | | | 3/13/2006 | | NO3-W | feb 27 wc | 1 |
| | | | | 3/13/2006 | | PO4-O | feb 27 wc | 1 |
| L70355-02B | | | | 3/13/2006 | | SS | ww - tss/tds/ss | 1 |
| | | | | 3/13/2006 | | TDS-W | ww - tss/tds/ss | 1 |

Re-Scan
&
replace
COC.

70355

# WORK ORDER Summary

*27-Feb-06*

**Work Order** L70355

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ EDD in Excel format

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L70355-02B | Mud Creek | 2/26/2006 2:30:00 PM | 2/27/2006 | 3/13/2006 | Aqueous | TSS-W | ww - tss/tds/ss | 1 |
| L70355-02C | | | | 3/13/2006 | | NH3-W | feb 27 nh3 | 1 |
| | | | | 3/13/2006 | | NH3-W-PREP | feb 27 nh3 | 1 |
| L70355-02D | | | | 3/13/2006 | | OGB-W | OGBFridge | 1 |
| L70355-02E | | | | 3/13/2006 | | 3005A-ICPMS | feb 27 total met | 1 |
| | | | | 3/13/2006 | | 6020-W | feb 27 total met | 1 |
| | | | | 3/13/2006 | | ICP-W | feb 27 total met | 1 |
| L70355-02F | | | | 3/13/2006 | Aqueous-Dissolved | 3005A-Diss | feb 27 dis met | 1 |
| | | | | 3/13/2006 | | 6020-W-DISS | feb 27 dis met | 1 |
| | | | | 3/13/2006 | | HARD | feb 27 dis met | 1 |
| | | | | 3/13/2006 | | ICP-W-DIS | feb 27 dis met | 1 |
| L70355-03A | Eagle Outlet | 2/26/2006 3:00:00 PM | | 3/13/2006 | Aqueous | 2320B-ALK-W | feb 27 wc | 1 |
| | | | | 3/13/2006 | | 300.0-W | feb 27 wc | 1 |
| | | | | 3/13/2006 | | ACIDITY-W | feb 27 wc | 1 |
| | | | | 3/13/2006 | | NO2-W | feb 27 wc | 1 |
| | | | | 3/13/2006 | | NO3-W | feb 27 wc | 1 |
| | | | | 3/13/2006 | | PO4-O | feb 27 wc | 1 |
| L70355-03B | | | | 3/13/2006 | | SS | ww - tss/tds/ss | 1 |
| | | | | 3/13/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 3/13/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L70355-03C | | | | 3/13/2006 | | NH3-W | feb 27 nh3 | 1 |
| | | | | 3/13/2006 | | NH3-W-PREP | feb 27 nh3 | 1 |
| L70355-03D | | | | 3/13/2006 | | OGB-W | OGBFridge | 1 |
| L70355-03E | | | | 3/13/2006 | | 3005A-ICPMS | feb 27 total met | 1 |
| | | | | 3/13/2006 | | 6020-W | feb 27 total met | 1 |
| | | | | 3/13/2006 | | ICP-W | feb 27 total met | 1 |
| L70355-03F | | | | 3/13/2006 | Aqueous-Dissolved | 3005A-Diss | feb 27 dis met | 1 |
| | | | | 3/13/2006 | | 6020-W-DISS | feb 27 dis met | 1 |

# WORK ORDER Summary

*27-Feb-06*

**Work Order** L70355

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ EDD in Excel format

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L70355-03F | Eagle Outlet | 2/26/2006 3:00:00 PM | 2/27/2006 | 3/13/2006 | Aqueous-Dissolved | HARD | feb 27 dis met | 1 |
| | | | | 3/13/2006 | | ICP-W-DIS | feb 27 dis met | 1 |
| L70355-04A | Angle Spring | 2/26/2006 6:00:00 PM | | 3/13/2006 | Aqueous | 2320B-ALK-W | feb 27 wc | 1 |
| | | | | 3/13/2006 | | 300.0-W | feb 27 wc | 1 |
| | | | | 3/13/2006 | | ACIDITY-W | feb 27 wc | 1 |
| | | | | 3/13/2006 | | NO2-W | feb 27 wc | 1 |
| | | | | 3/13/2006 | | NO3-W | feb 27 wc | 1 |
| | | | | 3/13/2006 | | PO4-O | feb 27 wc | 1 |
| L70355-04B | | | | 3/13/2006 | | SS | ww - tss/tds/ss | 1 |
| | | | | 3/13/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 3/13/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L70355-04C | | | | 3/13/2006 | | NH3-W | feb 27 nh3 | 1 |
| | | | | 3/13/2006 | | NH3-W-PREP | feb 27 nh3 | 1 |
| L70355-04D | | | | 3/13/2006 | | OGB-W | OGBFridge | 1 |
| L70355-04E | | | | 3/13/2006 | | 3005A-ICPMS | feb 27 total met | 1 |
| | | | | 3/13/2006 | | 6020-W | feb 27 total met | 1 |
| | | | | 3/13/2006 | | ICP-W | feb 27 total met | 1 |
| L70355-04F | | | | 3/13/2006 | Aqueous-Dissolved | 3005A-Diss | feb 27 dis met | 1 |
| | | | | 3/13/2006 | | 6020-W-DISS | feb 27 dis met | 1 |
| | | | | 3/13/2006 | | HARD | feb 27 dis met | 1 |
| | | | | 3/13/2006 | | ICP-W-DIS | feb 27 dis met | 1 |

Client Carbon Resources
Address c/o Rock Logic PO Box 544
Cedar City UT 84721
City State Zip
Phone 435-851-9044 Fax
Contact Brad Lindsay
E-mail lindsay.brad@gmail.com
Project Name Scofield Baseline
Project Number/P.O.#
Sampler Name Brad Lindsay

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(888) 263-8686
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Email:awal@awal-labs.com

# CHAIN OF CUSTODY

Lab Sample Set # 70355
Page _____ of _____

Turn Around Time (Circle One)
1 day | 2 day | 3 day | 4 day | 5 day | Standard
QC 1 | 2 | 2+ | 3 | 3+ | 4

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | see table 3 on file | | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sulfer Spring | 2-26-06 1345 | W | 6 | ✓ | | | | | | | | | | |
| Mud Creek | 2-26-06 1430 | W | 6 | ✓ | | | | | | | | | | |
| Eagle outlet | 2-26-06 1500 | W | 6 | ✓ | | | | | | | | | | |
| Angle Spring | 2-26-06 1800 | W | 6 | ✓ | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | |

Please indicate tests needed below

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 18:00 | PRINT NAME Katie Lindsay |
| Relinquished By: Signature Katie Lindsay | Date 2-27-06 | Received By: Signature |
| PRINT NAME Katie Lindsay | Time 10:00 | PRINT NAME Lynn Turner |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:
Please filter for dissolved metals
Please send PDF & .XLS

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes:
3 Temperature -1.0
4 Received Broken/Leaking (Improperly Sealed) Y N
Notes:
5 Properly Preserved Y N
Notes:
6 Received Within Holding Times Y N
Notes:

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record? Y N
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

9
63
17 80

## Preservation Check Sheet

Sample Set: 70355

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Cyanide | pH >12 NaOH | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Sulfide | pH > 9 NaOH, ZnAC | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOC[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| T PO4[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

Procedure:

1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) Do Not dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 $H_2SO_4$ in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 $H_2SO_4$ in a B.R.

Frequency: All samples requiring preservation

March 15, 2006

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Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L70402

Dear Brad Lindsay:

American West Analytical Labs received 1 sample on 3/1/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70402-01D
Field Sample ID: **CR-06-03-ABV**
Collected: 2/28/2006 3:00:00 PM
Received: 3/1/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 3/2/2006 4:36:18 PM | 6010B | 0.050 | **4.3** |
| Manganese | mg/L | 3/2/2006 4:36:18 PM | 6010B | 0.0050 | **0.15** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70402-01E
Field Sample ID: **CR-06-03-ABV**
Collected: 2/28/2006 3:00:00 PM
Received: 3/1/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 3/7/2006 12:34:49 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 3/13/2006 10:12:02 AM | 6020 | 0.0050 | **0.036** |
| Boron | mg/L | 3/7/2006 12:34:49 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 3/13/2006 10:12:02 AM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 3/7/2006 12:34:49 PM | 6010B | 10 | **130** |
| Copper | mg/L | 3/13/2006 10:12:02 AM | 6020 | 0.0040 | **0.068** |
| Iron | mg/L | 3/7/2006 12:34:49 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 3/13/2006 10:12:02 AM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 3/7/2006 12:34:49 PM | 6010B | 1.0 | **30** |
| Manganese | mg/L | 3/13/2006 10:12:02 AM | 6020 | 0.0050 | **0.095** |
| Molybdenum | mg/L | 3/7/2006 12:34:49 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 3/7/2006 12:34:49 PM | 6010B | 1.0 | **2.4** |
| Selenium | mg/L | 3/13/2006 10:12:02 AM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 3/7/2006 12:34:49 PM | 6010B | 10 | **25** |
| Zinc | mg/L | 3/13/2006 10:12:02 AM | 6020 | 0.010 | **2.8** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70402-01
Field Sample ID: **CR-06-03-ABV**
Collected: 2/28/2006 3:00:00 PM
Received: 3/1/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 3/2/2006 7:00:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 3/2/2006 6:00:00 AM | 2320B | 10 | **400** |
| Ammonia (as N) | mg/L | 3/2/2006 4:25:00 PM | 350.1 | 0.10 | < 0.10 |
| Bicarbonate (As CaCO3) | mg/L | 3/2/2006 6:00:00 AM | 2320B | 10 | **400** |
| Carbonate (As CaCO3) | mg/L | 3/2/2006 6:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 3/3/2006 6:37:42 AM | 300.0 | 10 | **36** |
| Hardness (as CaCO3) | mg/L | 3/7/2006 | 2340B | 10 | **460** |
| Nitrate (as N) | mg/L | 3/2/2006 10:50:00 AM | 353.2 | 0.010 | **0.086** |
| Nitrite (as N) | mg/L | 3/2/2006 10:50:00 AM | 353.2 | 0.010 | **0.019** |
| Phosphate, ortho (as P) | mg/L | 3/1/2006 | 365.1 | 0.050 | **0.066** |
| Sulfate | mg/L | 3/3/2006 6:37:42 AM | 300.0 | 10 | **50** |
| TDS | mg/L | 3/3/2006 1:30:00 PM | 160.1 | 10 | **460** |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

**Dept:** ME
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-27397 | Arsenic | mg/L | 6020 | 0.2219 | 0.2 | 0 | 111 | 85-115 | | | | 3/13/2006 |
| LCS-27397 | Cadmium | mg/L | 6020 | 0.2126 | 0.2 | 0 | 106 | 85-115 | | | | 3/13/2006 |
| LCS-27397 | Copper | mg/L | 6020 | 0.2090 | 0.2 | 0 | 104 | 85-115 | | | | 3/13/2006 |
| LCS-27397 | Lead | mg/L | 6020 | 0.2133 | 0.2 | 0 | 107 | 85-115 | | | | 3/13/2006 |
| LCS-27397 | Manganese | mg/L | 6020 | 0.2055 | 0.2 | 0 | 103 | 85-115 | | | | 3/13/2006 |
| LCS-27397 | Selenium | mg/L | 6020 | 0.2140 | 0.2 | 0 | 107 | 85-115 | | | | 3/13/2006 |
| LCS-27397 | Zinc | mg/L | 6020 | 1.044 | 1 | 0 | 104 | 85-115 | | | | 3/13/2006 |
| LCS-27382 | Iron | mg/L | 6010B | 1.021 | 1 | 0 | 102 | 75-125 | | | | 3/2/2006 |
| LCS-27382 | Manganese | mg/L | 6010B | 0.2026 | 0.2 | 0 | 101 | 75-125 | | | | 3/2/2006 |
| LCS-27397 | Aluminum | mg/L | 6010B | 1.062 | 1 | 0 | 106 | 75-125 | | | | 3/7/2006 |
| LCS-27397 | Boron | mg/L | 6010B | 1.058 | 1 | 0 | 106 | 75-125 | | | | 3/7/2006 |
| LCS-27397 | Calcium | mg/L | 6010B | 10.50 | 10 | 0 | 105 | 75-125 | | | | 3/7/2006 |
| LCS-27397 | Iron | mg/L | 6010B | 1.074 | 1 | 0 | 107 | 75-125 | | | | 3/7/2006 |
| LCS-27397 | Magnesium | mg/L | 6010B | 10.46 | 10 | 0 | 105 | 75-125 | | | | 3/7/2006 |
| LCS-27397 | Molybdenum | mg/L | 6010B | 0.2166 | 0.2 | 0 | 108 | 75-125 | | | | 3/7/2006 |
| LCS-27397 | Potassium | mg/L | 6010B | 10.29 | 10 | 0 | 103 | 75-125 | | | | 3/7/2006 |
| LCS-27397 | Sodium | mg/L | 6010B | 10.27 | 10 | 0 | 103 | 75-125 | | | | 3/7/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

**Dept:** ME
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-27397 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 3/13/2006 |
| MB-27397 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 3/13/2006 |
| MB-27397 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 3/13/2006 |
| MB-27397 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 3/13/2006 |
| MB-27397 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 3/13/2006 |
| MB-27397 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 3/13/2006 |
| MB-27397 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 3/13/2006 |
| MB-27382 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 3/2/2006 |
| MB-27382 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 3/2/2006 |
| MB-27397 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 3/7/2006 |
| MB-27397 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 3/7/2006 |
| MB-27397 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 3/7/2006 |
| MB-27397 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 3/7/2006 |
| MB-27397 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 3/7/2006 |
| MB-27397 | Molybdenum | mg/L | 6010B | < 0.10 | | | | - | | | | 3/7/2006 |
| MB-27397 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 3/7/2006 |
| MB-27397 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 3/7/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

**Dept:** ME
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70402-01EMS | Arsenic | mg/L | 6020 | 0.2599 | 0.2 | 0.03587 | 112 | 70-130 | | | | 3/13/2006 |
| L70402-01EMS | Cadmium | mg/L | 6020 | 0.2168 | 0.2 | 0.002434 | 107 | 70-130 | | | | 3/13/2006 |
| L70402-01EMS | Copper | mg/L | 6020 | 0.2794 | 0.2 | 0.06796 | 106 | 70-130 | | | | 3/13/2006 |
| L70402-01EMS | Lead | mg/L | 6020 | 0.2095 | 0.2 | 0 | 105 | 70-130 | | | | 3/13/2006 |
| L70402-01EMS | Manganese | mg/L | 6020 | 0.3109 | 0.2 | 0.09489 | 108 | 70-130 | | | | 3/13/2006 |
| L70402-01EMS | Selenium | mg/L | 6020 | 0.2180 | 0.2 | 0.004896 | 107 | 70-130 | | | | 3/13/2006 |
| L70402-01EMS | Zinc | mg/L | 6020 | 4.095 | 1 | 2.842 | 125 | 70-130 | | | | 3/13/2006 |
| L70402-01DMS | Iron | mg/L | 6010B | 5.025 | 1 | 4.267 | 75.7 | 75-125 | | | | 3/2/2006 |
| L70402-01DMS | Manganese | mg/L | 6010B | 0.3394 | 0.2 | 0.1546 | 92.4 | 75-125 | | | | 3/2/2006 |
| L70402-01EMS | Aluminum | mg/L | 6010B | 1.187 | 1 | 0.03555 | 115 | 75-125 | | | | 3/7/2006 |
| L70402-01EMS | Boron | mg/L | 6010B | 1.096 | 1 | 0.0339 | 106 | 75-125 | | | | 3/7/2006 |
| L70402-01EMS | Calcium | mg/L | 6010B | 144.9 | 10 | 133 | 119 | 75-125 | | | | 3/7/2006 |
| L70402-01EMS | Iron | mg/L | 6010B | 1.090 | 1 | 0.0317 | 106 | 75-125 | | | | 3/7/2006 |
| L70402-01EMS | Magnesium | mg/L | 6010B | 40.04 | 10 | 30.3 | 97.4 | 75-125 | | | | 3/7/2006 |
| L70402-01EMS | Molybdenum | mg/L | 6010B | 0.2053 | 0.2 | 0 | 103 | 75-125 | | | | 3/7/2006 |
| L70402-01EMS | Potassium | mg/L | 6010B | 13.12 | 10 | 2.447 | 107 | 75-125 | | | | 3/7/2006 |
| L70402-01EMS | Sodium | mg/L | 6010B | 35.95 | 10 | 25.44 | 105 | 75-125 | | | | 3/7/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

**Dept:** ME
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70402-01EMSD | Arsenic | mg/L | 6020 | 0.2663 | 0.2 | 0.03587 | 115 | 70-130 | 2.43 | 20 | | 3/13/2006 |
| L70402-01EMSD | Cadmium | mg/L | 6020 | 0.2196 | 0.2 | 0.002434 | 109 | 70-130 | 1.26 | 20 | | 3/13/2006 |
| L70402-01EMSD | Copper | mg/L | 6020 | 0.2768 | 0.2 | 0.06796 | 104 | 70-130 | 0.901 | 20 | | 3/13/2006 |
| L70402-01EMSD | Lead | mg/L | 6020 | 0.2123 | 0.2 | 0 | 106 | 70-130 | 1.33 | 20 | | 3/13/2006 |
| L70402-01EMSD | Manganese | mg/L | 6020 | 0.3126 | 0.2 | 0.09489 | 109 | 70-130 | 0.534 | 20 | | 3/13/2006 |
| L70402-01EMSD | Selenium | mg/L | 6020 | 0.2268 | 0.2 | 0.004896 | 111 | 70-130 | 3.95 | 20 | | 3/13/2006 |
| L70402-01EMSD | Zinc | mg/L | 6020 | 4.123 | 1 | 2.842 | 128 | 70-130 | 0.679 | 20 | | 3/13/2006 |
| L70402-01DMSD | Iron | mg/L | 6010B | 5.299 | 1 | 4.267 | 103 | 75-125 | 5.32 | 20 | | 3/2/2006 |
| L70402-01DMSD | Manganese | mg/L | 6010B | 0.3521 | 0.2 | 0.1546 | 98.8 | 75-125 | 3.68 | 20 | | 3/2/2006 |
| L70402-01EMSD | Aluminum | mg/L | 6010B | 1.115 | 1 | 0.03555 | 108 | 75-125 | 6.25 | 20 | | 3/7/2006 |
| L70402-01EMSD | Boron | mg/L | 6010B | 1.082 | 1 | 0.0339 | 105 | 75-125 | 1.24 | 20 | | 3/7/2006 |
| L70402-01EMSD | Calcium | mg/L | 6010B | 140.8 | 10 | 133 | 78.0 | 75-125 | 2.87 | 20 | | 3/7/2006 |
| L70402-01EMSD | Iron | mg/L | 6010B | 1.070 | 1 | 0.0317 | 104 | 75-125 | 1.84 | 20 | | 3/7/2006 |
| L70402-01EMSD | Magnesium | mg/L | 6010B | 39.00 | 10 | 30.3 | 86.9 | 75-125 | 2.64 | 20 | | 3/7/2006 |
| L70402-01EMSD | Molybdenum | mg/L | 6010B | 0.2004 | 0.2 | 0 | 100 | 75-125 | 2.42 | 20 | | 3/7/2006 |
| L70402-01EMSD | Potassium | mg/L | 6010B | 13.00 | 10 | 2.447 | 106 | 75-125 | 0.924 | 20 | | 3/7/2006 |
| L70402-01EMSD | Sodium | mg/L | 6010B | 35.24 | 10 | 25.44 | 98.0 | 75-125 | 1.99 | 20 | | 3/7/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

**Dept:** WC
**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70402-01BDUP | Chloride | mg/L | 300.0 | 35.66 | 0 | 36.19 | | - | 1.47 | 20 | | 3/3/2006 |
| L70402-01BDUP | Sulfate | mg/L | 300.0 | 49.10 | 0 | 50.38 | | - | 2.57 | 20 | | 3/3/2006 |
| L70355-04BDUP | TDS | mg/L | 160.1 | 244.0 | 0 | 244 | | - | 0 | 20 | | 3/3/2006 |
| L70436-06BDUP | TDS | mg/L | 160.1 | < 10 | 0 | 0 | | - | 0 | 20 | | 3/3/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

**Dept:** WC
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R55203 | Alkalinity,(As CaCO3) | mg/L | 2320B | 49880 | 50000 | 0 | 99.8 | 90-110 | | | | 3/2/2006 |
| LCS-R55285 | Chloride | mg/L | 300.0 | 4.971 | 5 | 0 | 99.4 | 90-110 | | | | 3/3/2006 |
| LCS-R55285 | Sulfate | mg/L | 300.0 | 4.969 | 5 | 0 | 99.4 | 90-110 | | | | 3/3/2006 |
| LCS-R55205 | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 3/2/2006 |
| LCS-27392 | Ammonia (as N) | mg/L | 350.1 | 0.9630 | 1 | 0 | 96.3 | 90-110 | | | | 3/2/2006 |
| LCS-R55226 | Nitrite (as N) | mg/L | 353.2 | 1.028 | 1 | 0 | 103 | 90-110 | | | | 3/2/2006 |
| LCS-R55227 | Nitrate (as N) | mg/L | 353.2 | 1.081 | 1 | 0 | 108 | 90-110 | | | | 3/2/2006 |
| LCS-R55196 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9980 | 1 | 0 | 99.8 | 90-110 | | | | 3/1/2006 |
| LCS-R55303 | TDS | mg/L | 160.1 | 202.0 | 205 | 0 | 98.5 | 80-120 | | | | 3/3/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

**Dept:** WC
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R55203 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 3/2/2006 |
| MB-R55203 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 3/2/2006 |
| MB-R55203 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 3/2/2006 |
| MB-R55285 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 3/3/2006 |
| MB-R55285 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 3/3/2006 |
| MB-R55205 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 3/2/2006 |
| MB-27392 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 3/2/2006 |
| MB-R55226 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 3/2/2006 |
| MB-R55227 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 3/2/2006 |
| MB-R55196 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 3/1/2006 |
| MB-R55303 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 3/3/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

**Dept:** WC
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70402-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 501.0 | 100 | 397 | 104 | 80-120 | | | | 3/2/2006 |
| L70402-01BMS | Chloride | mg/L | 300.0 | 86.54 | 50 | 36.19 | 101 | 90-110 | | | | 3/3/2006 |
| L70402-01BMS | Sulfate | mg/L | 300.0 | 104.9 | 50 | 50.38 | 109 | 90-110 | | | | 3/3/2006 |
| L70402-01BMS | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 3/2/2006 |
| L70402-01CMS | Ammonia (as N) | mg/L | 350.1 | 2.085 | 2 | 0.075 | 101 | 90-110 | | | | 3/2/2006 |
| L70402-01BMS | Nitrite (as N) | mg/L | 353.2 | 0.9990 | 1 | 0.019 | 98.0 | 90-110 | | | | 3/2/2006 |
| L70402-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.116 | 1 | 0.086 | 103 | 90-110 | | | | 3/2/2006 |
| L70402-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9800 | 1 | 0.066 | 91.4 | 90-110 | | | | 3/1/2006 |

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70402
Project: Scofield Baseline

**Dept:** WC
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70402-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 499.0 | 100 | 397 | 102 | 80-120 | 0.400 | 10 | | 3/2/2006 |
| L70402-01BMSD | Chloride | mg/L | 300.0 | 85.69 | 50 | 36.19 | 99.0 | 90-110 | 0.985 | 20 | | 3/3/2006 |
| L70402-01BMSD | Sulfate | mg/L | 300.0 | 101.8 | 50 | 50.38 | 103 | 90-110 | 3.00 | 20 | | 3/3/2006 |
| L70402-01BMSD | Acidity | mg/L | 305.1 | 56.00 | 50 | 0 | 112 | 80-120 | 11.3 | 20 | | 3/2/2006 |
| L70402-01CMSD | Ammonia (as N) | mg/L | 350.1 | 2.077 | 2 | 0.075 | 100 | 90-110 | 0.384 | 10 | | 3/2/2006 |
| L70402-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.063 | 1 | 0.019 | 104 | 90-110 | 6.21 | 10 | | 3/2/2006 |
| L70402-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.117 | 1 | 0.086 | 103 | 90-110 | 0.0896 | 10 | | 3/2/2006 |
| L70402-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9860 | 1 | 0.066 | 92.0 | 90-110 | 0.610 | 10 | | 3/1/2006 |

# American West Analytical Labs

## WORK ORDER Summary

*01-Mar-06*

**Work Order** L70402

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** HOK UT

**Comments:** QCLevel: QC 2+. Include EDD in Excel format.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L70402-01A | CR-06-03-ABV | 2/28/2006 3:00:00 PM | 3/1/2006 | 3/15/2006 | Aqueous | TDS-W | ww - tds | 1 |
| L70402-01B | | | | 3/15/2006 | | 2320B-ALK-W | mar 1 - wc | 1 |
| | | | | 3/15/2006 | | 300.0-W | mar 1 - wc | 1 |
| | | | | 3/15/2006 | | ACIDITY-W | mar 1 - wc | 1 |
| | | | | 3/15/2006 | | NO2-W | mar 1 - wc | 1 |
| | | | | 3/15/2006 | | NO3-W | mar 1 - wc | 1 |
| | | | | 3/15/2006 | | PO4-O | mar 1 - wc | 1 |
| L70402-01C | | | | 3/15/2006 | | NH3-W | mar 1 - nh3 | 1 |
| | | | | 3/15/2006 | | NH3-W-PREP | mar 1 - nh3 | 1 |
| L70402-01D | | | | 3/15/2006 | | 3005A-ICPMS | mar 1 - met | 1 |
| | | | | 3/15/2006 | | ICP-W | mar 1 - met | 1 |
| L70402-01E | | | | 3/15/2006 | Aqueous-Dissolved | 3005A-Diss | mar 1 - dis met/hg | 1 |
| | | | | 3/15/2006 | | 6020-W-DISS | mar 1 - dis met/hg | 1 |
| | | | | 3/15/2006 | | HARD | mar 1 - dis met/hg | 1 |
| | | | | 3/15/2006 | | ICP-W-DIS | mar 1 - dis met/hg | 1 |

70462

Client Carbon Resources

Address c/o Rock Logic PO Box 544
Cedaredge CO 81413
City State Zip

Phone 435-851-9044 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Stofield baseline

Project Number/P.O.#

Sampler Name Edward Scartezina


AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115

(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com


# CHAIN OF CUSTODY

Lab Sample Set # 70402 ~~70403~~ rev

Page 1 of 1

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | Table 4 / Ground Water | COMMENTS |
|---|---|---|---|---|---|
| CR-06-03-ABV | 2/28/06 2:10 pm | W | 5 | ✓ | |
| CR-06-01-BLW | | W | 5 | ✓ | NOT RECEIVED |
| CR-06-02 ~~PW~~ | | W | 5 | ✓ | |

Please indicate tests needed below

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME Ed Scartezina | Time 4:12 PM | PRINT NAME |
| Relinquished By: Signature UPS | Date 3/1/06 | Received By: Signature |
| PRINT NAME | Time 11:05 | PRINT NAME Rebecca Winkler |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

please filter for dissolved metals

please send PDF & .XLS

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes: UPS
2 Ambient or Chilled
Notes:
3 Temperature 2°C
4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:
5 Properly Preserved
Y N
Notes:
6 Received Within Holding Times
Y N
Notes:

COC Tape Was:
1 Present on Outer Package
Y N NA
2 Unbroken on Outer Package
Y N NA
3 Present on Sample
Y N NA
4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | | |
|---|---|---|---|---|
| * | - | Total Dissolved Solids | | mg/l |
| * | - | Total Hardness ($CaCO_3$) | | mg/l |
| * | - | Total Alkalinity | | mg/l |
| | - | Acidity | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved)[1] | | mg/l |
| * | - | Carbonate | | mg/l |
| * | - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| * | - | Calcium (Dissolved) | | mg/l |
| * | - | Chloride | mg/l | |
| | - | Copper (Dissolved) | | mg/l |
| * | - | Iron (Dissolved) | | mg/l |
| * | - | Iron (Total) | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| * | - | Magnesium (Dissolved) | | mg/l |
| * | - | Manganese (Dissolved) | | mg/l |
| * | - | Manganese (Total) | | mg/l |
| | - | Molybdenum (Dissolved) | | mg/l |
| | - | Ammonia | | mg/l |
| | - | Nitrates | | mg/l |
| | - | Nitrites | | mg/l |
| * | - | Potassium (Dissolved) | | mg/l |
| | - | Phosphate (Ortho) | | mg/l |
| | - | Selenium[1] (Dissolved) | | mg/l |
| * | - | Sodium (Dissolved) | | mg/l |
| * | - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| * | - | Cations | | meq/l |
| * | - | Anions | | meq/l |

[1] These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

## Preservation Check Sheet

Sample Set: 70402

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Cyanide | pH >12 NaOH | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Sulfide | pH > 9 NaOH, ZnAC | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOC[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| T PO4[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 $H_2SO_4$ in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 $H_2SO_4$ in a B.R.

Frequency: All samples requiring preservation

**AMERICAN WEST ANALYTICAL LABORATORIES**

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84115

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April 11, 2006

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L70885

Dear Brad Lindsay:

American West Analytical Labs received 5 samples on 3/28/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L70885-01E
Field Sample ID: **Angle Spring**
Collected: 3/27/2006 12:00:00 PM
Received: 3/28/2006

**AMERICAN WEST ANALYTICAL LABORATORIES**

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 4/9/2006 2:00:33 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 4/4/2006 5:38:56 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 4/9/2006 2:00:33 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 4/4/2006 5:38:56 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 4/11/2006 3:02:22 PM | 6010B | 10 | **97** |
| Copper | mg/L | 4/4/2006 5:38:56 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 4/9/2006 2:00:33 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 4/4/2006 5:38:56 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 4/9/2006 2:00:33 PM | 6010B | 1.0 | **19** |
| Manganese | mg/L | 4/4/2006 5:38:56 PM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 4/9/2006 2:00:33 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 4/9/2006 2:00:33 PM | 6010B | 1.0 | **1.9** |
| Selenium | mg/L | 4/4/2006 5:38:56 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 4/11/2006 3:02:22 PM | 6010B | 1.0 | **10** |
| Zinc | mg/L | 4/4/2006 5:38:56 PM | 6020 | 0.010 | **0.052** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-02E
Field Sample ID: **Mud Creek**
Collected: 3/27/2006 1:00:00 PM
Received: 3/28/2006

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 4/9/2006 2:04:24 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 4/4/2006 5:44:22 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 4/9/2006 2:04:24 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 4/4/2006 5:44:22 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 4/11/2006 2:14:07 PM | 6010B | 10 | **88** |
| Copper | mg/L | 4/4/2006 5:44:22 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 4/9/2006 2:04:24 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 4/4/2006 5:44:22 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 4/9/2006 2:04:24 PM | 6010B | 1.0 | **54** |
| Manganese | mg/L | 4/4/2006 5:44:22 PM | 6020 | 0.0050 | **0.025** |
| Molybdenum | mg/L | 4/9/2006 2:04:24 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 4/9/2006 2:04:24 PM | 6010B | 1.0 | **9.7** |
| Selenium | mg/L | 4/4/2006 5:44:22 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 4/11/2006 2:14:07 PM | 6010B | 10 | **57** |
| Zinc | mg/L | 4/4/2006 5:44:22 PM | 6020 | 0.010 | **0.026** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-03E
Field Sample ID: **Sulfer Spring**
Collected: 3/27/2006 2:15:00 PM
Received: 3/28/2006


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Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 4/9/2006 2:12:12 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 4/4/2006 5:55:12 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 4/9/2006 2:12:12 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 4/4/2006 5:55:12 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 4/11/2006 3:11:01 PM | 6010B | 10 | **89** [2] |
| Copper | mg/L | 4/4/2006 5:55:12 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 4/9/2006 2:12:12 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 4/4/2006 5:55:12 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 4/9/2006 2:12:12 PM | 6010B | 1.0 | **37** |
| Manganese | mg/L | 4/4/2006 5:55:12 PM | 6020 | 0.0050 | **0.033** |
| Molybdenum | mg/L | 4/9/2006 2:12:12 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 4/9/2006 2:12:12 PM | 6010B | 1.0 | **5.4** |
| Selenium | mg/L | 4/4/2006 5:55:12 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 4/11/2006 3:11:01 PM | 6010B | 1.0 | **9.4** |
| Zinc | mg/L | 4/4/2006 5:55:12 PM | 6020 | 0.010 | **0.042** |

[2] *Analyte concentration is too high for accurate spike recovery.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-04E
Field Sample ID: **Eagle Outlet**
Collected: 3/27/2006 3:00:00 PM
Received: 3/28/2006


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Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 4/9/2006 2:27:47 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 4/4/2006 6:16:49 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 4/9/2006 2:27:47 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 4/4/2006 6:16:49 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 4/11/2006 3:27:25 PM | 6010B | 10 | **86** |
| Copper | mg/L | 4/4/2006 6:16:49 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 4/9/2006 2:27:47 PM | 6010B | 0.050 | **0.053** |
| Lead | mg/L | 4/4/2006 6:16:49 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 4/9/2006 2:27:47 PM | 6010B | 1.0 | **17** |
| Manganese | mg/L | 4/4/2006 6:16:49 PM | 6020 | 0.0050 | **0.078** |
| Molybdenum | mg/L | 4/9/2006 2:27:47 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 4/9/2006 2:27:47 PM | 6010B | 1.0 | **1.8** |
| Selenium | mg/L | 4/4/2006 6:16:49 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 4/11/2006 3:27:25 PM | 6010B | 1.0 | **11** |
| Zinc | mg/L | 4/4/2006 6:16:49 PM | 6020 | 0.010 | **0.028** |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L70885-05E
Field Sample ID: **CR-06-03-ABV**
Collected: 3/27/2006 11:00:00 AM
Received: 3/28/2006

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Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 4/9/2006 2:31:41 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 4/4/2006 6:33:01 PM | 6020 | 0.0050 | **0.013** |
| Boron | mg/L | 4/9/2006 2:31:41 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 4/4/2006 6:33:01 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 4/11/2006 3:31:20 PM | 6010B | 10 | **120** |
| Copper | mg/L | 4/4/2006 6:33:01 PM | 6020 | 0.0040 | **0.0088** |
| Iron | mg/L | 4/9/2006 2:31:41 PM | 6010B | 0.050 | **0.052** |
| Lead | mg/L | 4/4/2006 6:33:01 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 4/9/2006 2:31:41 PM | 6010B | 1.0 | **31** |
| Manganese | mg/L | 4/4/2006 6:33:01 PM | 6020 | 0.0050 | **0.075** |
| Molybdenum | mg/L | 4/9/2006 2:31:41 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 4/9/2006 2:31:41 PM | 6010B | 1.0 | **2.5** |
| Selenium | mg/L | 4/4/2006 6:33:01 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 4/11/2006 3:31:20 PM | 6010B | 1.0 | **9.4** |
| Zinc | mg/L | 4/4/2006 6:33:01 PM | 6020 | 0.010 | **0.43** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-01D
Field Sample ID: **Angle Spring**
Collected: 3/27/2006 12:00:00 PM
Received: 3/28/2006

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Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 4/9/2006 2:51:28 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 4/4/2006 9:41:07 PM | 6010B | 0.0050 | < 0.0050 |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-02D
Field Sample ID: **Mud Creek**
Collected: 3/27/2006 1:00:00 PM
Received: 3/28/2006

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## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 4/9/2006 2:55:23 PM | 6010B | 0.050 | **0.47** |
| Manganese | mg/L | 4/4/2006 9:44:59 PM | 6010B | 0.0050 | **0.042** |

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-03D
Field Sample ID: **Sulfer Spring**
Collected: 3/27/2006 2:15:00 PM
Received: 3/28/2006

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Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 4/9/2006 2:59:22 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 4/4/2006 9:48:56 PM | 6010B | 0.0050 | **0.032** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-04D
Field Sample ID: **Eagle Outlet**
Collected: 3/27/2006 3:00:00 PM
Received: 3/28/2006

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QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 4/9/2006 3:03:19 PM | 6010B | 0.050 | **6.5** |
| Manganese | mg/L | 4/4/2006 9:52:51 PM | 6010B | 0.0050 | **0.32** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-05D
Field Sample ID: **CR-06-03-ABV**
Collected: 3/27/2006 11:00:00 AM
Received: 3/28/2006

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Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 4/9/2006 3:11:08 PM | 6010B | 0.050 | **0.46** |
| Manganese | mg/L | 4/4/2006 10:00:41 PM | 6010B | 0.0050 | **0.11** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-01
Field Sample ID: **Angle Spring**
Collected: 3/27/2006 12:00:00 PM
Received: 3/28/2006


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Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 3/30/2006 7:35:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 3/30/2006 7:00:00 AM | 2320B | 10 | **300** |
| Ammonia (as N) | mg/L | 3/29/2006 1:46:00 PM | 350.1 | 0.050 | < 0.050 [1] |
| Bicarbonate (As CaCO3) | mg/L | 3/30/2006 7:00:00 AM | 2320B | 10 | **300** |
| Carbonate (As CaCO3) | mg/L | 3/30/2006 7:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 3/29/2006 4:04:31 AM | 300.0 | 10 | **24** |
| Conductivity | µmhos/cm | 3/30/2006 8:00:00 AM | 120.1 | 2.0 | **670** |
| Hardness (as CaCO3) | mg/L | 4/11/2006 | 2340B | 10 | **320** |
| Nitrate (as N) | mg/L | 3/29/2006 8:48:00 AM | 353.2 | 0.010 | **0.92** [1] |
| Nitrite (as N) | mg/L | 3/29/2006 8:48:00 AM | 353.2 | 0.010 | **0.099** [1@] |
| Oil & Grease | mg/L | 3/28/2006 | EPA 1664 | 3.0 | **4.0** |
| pH @ 25° C | pH Units | 3/28/2006 11:35:00 AM | 150.1 | 0 | **7.04** |
| Phosphate, ortho (as P) | mg/L | 3/29/2006 7:27:00 AM | 365.1 | 0.050 | < 0.050 [1] |
| Settable Solids | ml/L | 3/28/2006 11:30:00 AM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 3/29/2006 4:04:31 AM | 300.0 | 10 | **15** |
| TDS | mg/L | 3/31/2006 1:30:00 PM | 160.1 | 10 | **190** |
| TSS | mg/L | 3/28/2006 3:30:00 PM | 160.2 | 3.0 | < 3.0 |

*[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

*@ High RPD due to suspected matrix interference.*

*[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-02
Field Sample ID: **Mud Creek**
Collected: 3/27/2006 1:00:00 PM
Received: 3/28/2006


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Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 3/30/2006 7:35:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 3/30/2006 7:00:00 AM | 2320B | 10 | **260** |
| Ammonia (as N) | mg/L | 3/29/2006 1:46:00 PM | 350.1 | 0.050 | **0.053** |
| Bicarbonate (As CaCO3) | mg/L | 3/30/2006 7:00:00 AM | 2320B | 10 | **260** |
| Carbonate (As CaCO3) | mg/L | 3/30/2006 7:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 3/29/2006 6:17:29 AM | 300.0 | 10 | **34** |
| Conductivity | µmhos/cm | 3/30/2006 8:00:00 AM | 120.1 | 2.0 | **1000** |
| Hardness (as CaCO3) | mg/L | 4/11/2006 | 2340B | 10 | **440** |
| Nitrate (as N) | mg/L | 3/29/2006 8:48:00 AM | 353.2 | 0.010 | **0.44** |
| Nitrite (as N) | mg/L | 3/29/2006 8:48:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 3/28/2006 | EPA 1664 | 3.0 | **4.1** |
| pH @ 25° C | pH Units | 3/28/2006 11:35:00 AM | 150.1 | 0 | **8.18** |
| Phosphate, ortho (as P) | mg/L | 3/29/2006 7:27:00 AM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 3/28/2006 11:30:00 AM | 160.5 | 0.10 | **0.10** |
| Sulfate | mg/L | 3/29/2006 6:50:43 AM | 300.0 | 100 | **250** |
| TDS | mg/L | 3/31/2006 1:30:00 PM | 160.1 | 10 | **510** |
| TSS | mg/L | 3/28/2006 3:30:00 PM | 160.2 | 3.0 | **28** |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-03
Field Sample ID: **Sulfer Spring**
Collected: 3/27/2006 2:15:00 PM
Received: 3/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 3/30/2006 7:35:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 3/30/2006 7:00:00 AM | 2320B | 10 | **350** |
| Ammonia (as N) | mg/L | 3/29/2006 1:46:00 PM | 350.1 | 0.050 | **0.057** |
| Bicarbonate (As CaCO3) | mg/L | 3/30/2006 7:00:00 AM | 2320B | 10 | **350** |
| Carbonate (As CaCO3) | mg/L | 3/30/2006 7:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 3/29/2006 | 300.0 | 1.0 | **7.2** |
| Conductivity | µmhos/cm | 3/30/2006 8:00:00 AM | 120.1 | 2.0 | **710** |
| Hardness (as CaCO3) | mg/L | 4/11/2006 | 2340B | 10 | **380** |
| Nitrate (as N) | mg/L | 3/29/2006 8:48:00 AM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 3/29/2006 8:48:00 AM | 353.2 | 0.010 | **0.10** |
| Oil & Grease | mg/L | 3/28/2006 | EPA 1664 | 3.0 | **4.6** |
| pH @ 25° C | pH Units | 3/28/2006 11:35:00 AM | 150.1 | 0 | **7.38** |
| Phosphate, ortho (as P) | mg/L | 3/29/2006 7:27:00 AM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 3/28/2006 11:30:00 AM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 3/29/2006 9:36:56 AM | 300.0 | 10 | **44** |
| TDS | mg/L | 3/31/2006 1:30:00 PM | 160.1 | 10 | **230** |
| TSS | mg/L | 3/28/2006 3:30:00 PM | 160.2 | 3.0 | < 3.0 |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-04
Field Sample ID: **Eagle Outlet**
Collected: 3/27/2006 3:00:00 PM
Received: 3/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 3/30/2006 7:35:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 3/30/2006 7:00:00 AM | 2320B | 10 | **280** |
| Ammonia (as N) | mg/L | 3/29/2006 1:46:00 PM | 350.1 | 0.050 | **0.11** |
| Bicarbonate (As CaCO3) | mg/L | 3/30/2006 7:00:00 AM | 2320B | 10 | **280** |
| Carbonate (As CaCO3) | mg/L | 3/30/2006 7:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 3/29/2006 10:10:10 AM | 300.0 | 10 | **11** |
| Conductivity | µmhos/cm | 3/30/2006 8:00:00 AM | 120.1 | 2.0 | **550** |
| Hardness (as CaCO3) | mg/L | 4/11/2006 | 2340B | 10 | **280** |
| Nitrate (as N) | mg/L | 3/29/2006 8:48:00 AM | 353.2 | 0.010 | **0.58** |
| Nitrite (as N) | mg/L | 3/29/2006 8:48:00 AM | 353.2 | 0.010 | **0.019** |
| Oil & Grease | mg/L | 3/28/2006 | EPA 1664 | 3.0 | **3.9** |
| pH @ 25° C | pH Units | 3/28/2006 11:35:00 AM | 150.1 | 0 | **8.10** |
| Phosphate, ortho (as P) | mg/L | 3/29/2006 7:27:00 AM | 365.1 | 0.050 | **0.087** |
| Settable Solids | ml/L | 3/28/2006 11:30:00 AM | 160.5 | 0.10 | **0.20** |
| Sulfate | mg/L | 3/29/2006 10:10:10 AM | 300.0 | 10 | **26** |
| TDS | mg/L | 3/31/2006 1:30:00 PM | 160.1 | 10 | **270** |
| TSS | mg/L | 3/28/2006 3:30:00 PM | 160.2 | 3.0 | **260** |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L70885-05
Field Sample ID: **CR-06-03-ABV**
Collected: 3/27/2006 11:00:00 AM
Received: 3/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 3/30/2006 7:35:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 3/30/2006 7:00:00 AM | 2320B | 10 | **400** |
| Ammonia (as N) | mg/L | 3/29/2006 1:46:00 PM | 350.1 | 0.050 | **0.10** |
| Bicarbonate (As CaCO3) | mg/L | 3/30/2006 7:00:00 AM | 2320B | 10 | **400** |
| Carbonate (As CaCO3) | mg/L | 3/30/2006 7:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 3/29/2006 10:43:24 AM | 300.0 | 10 | **17** |
| Conductivity | µmhos/cm | 3/30/2006 8:00:00 AM | 120.1 | 2.0 | **800** |
| Hardness (as CaCO3) | mg/L | 4/11/2006 | 2340B | 10 | **420** |
| Nitrate (as N) | mg/L | 3/29/2006 8:48:00 AM | 353.2 | 0.010 | **0.076** |
| Nitrite (as N) | mg/L | 3/29/2006 8:48:00 AM | 353.2 | 0.010 | **0.025** |
| pH @ 25° C | pH Units | 3/28/2006 11:35:00 AM | 150.1 | 0 | **7.14** |
| Phosphate, ortho (as P) | mg/L | 3/29/2006 7:27:00 AM | 365.1 | 0.050 | < 0.050 |
| Sulfate | mg/L | 3/29/2006 10:43:24 AM | 300.0 | 10 | **34** |
| TDS | mg/L | 3/31/2006 1:30:00 PM | 160.1 | 10 | **350** |




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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-27885 | Arsenic | mg/L | 6020 | 0.2043 | 0.2 | 0 | 102 | 85-115 | | | | 4/4/2006 |
| LCS-27885 | Cadmium | mg/L | 6020 | 0.2002 | 0.2 | 0 | 100 | 85-115 | | | | 4/4/2006 |
| LCS-27885 | Copper | mg/L | 6020 | 0.2023 | 0.2 | 0 | 101 | 85-115 | | | | 4/4/2006 |
| LCS-27885 | Lead | mg/L | 6020 | 0.2050 | 0.2 | 0 | 102 | 85-115 | | | | 4/4/2006 |
| LCS-27885 | Manganese | mg/L | 6020 | 0.2030 | 0.2 | 0 | 101 | 85-115 | | | | 4/4/2006 |
| LCS-27885 | Selenium | mg/L | 6020 | 0.2105 | 0.2 | 0 | 105 | 85-115 | | | | 4/4/2006 |
| LCS-27885 | Zinc | mg/L | 6020 | 1.021 | 1 | 0.00916 | 101 | 85-115 | | | | 4/4/2006 |
| LCS-27896 | Manganese | mg/L | 6010B | 0.2021 | 0.2 | 0 | 101 | 75-125 | | | | 4/4/2006 |
| LCS-27949 | Iron | mg/L | 6010B | 1.070 | 1 | 0 | 107 | 75-125 | | | | 4/9/2006 |
| LCS-27885 | Aluminum | mg/L | 6010B | 0.9927 | 1 | 0 | 99.3 | 75-125 | | | | 4/9/2006 |
| LCS-27885 | Boron | mg/L | 6010B | 0.9971 | 1 | 0 | 99.7 | 75-125 | | | | 4/9/2006 |
| LCS-27885 | Calcium | mg/L | 6010B | 10.54 | 10 | 0 | 105 | 75-125 | | | | 4/9/2006 |
| LCS-27885 | Iron | mg/L | 6010B | 1.073 | 1 | 0 | 107 | 75-125 | | | | 4/9/2006 |
| LCS-27885 | Magnesium | mg/L | 6010B | 10.38 | 10 | 0 | 104 | 75-125 | | | | 4/9/2006 |
| LCS-27885 | Molybdenum | mg/L | 6010B | 0.2162 | 0.2 | 0 | 108 | 75-125 | | | | 4/9/2006 |
| LCS-27885 | Potassium | mg/L | 6010B | 10.68 | 10 | 0 | 107 | 75-125 | | | | 4/9/2006 |
| LCS-27885 | Sodium | mg/L | 6010B | 10.24 | 10 | 0 | 102 | 75-125 | | | | 4/11/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

**Dept:** ME

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-27885 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 4/4/2006 |
| MB-27885 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 4/4/2006 |
| MB-27885 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 4/4/2006 |
| MB-27885 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 4/4/2006 |
| MB-27885 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 4/4/2006 |
| MB-27885 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 4/4/2006 |
| MB-27885 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 4/4/2006 |
| MB-27896 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 4/4/2006 |
| MB-27949 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 4/9/2006 |
| MB-27885 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 4/9/2006 |
| MB-27885 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 4/9/2006 |
| MB-27885 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 4/9/2006 |
| MB-27885 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 4/9/2006 |
| MB-27885 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 4/9/2006 |
| MB-27885 | Molybdenum | mg/L | 6010B | < 0.10 | | | | - | | | | 4/9/2006 |
| MB-27885 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 4/9/2006 |
| MB-27885 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 4/11/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70885-03EMS | Arsenic | mg/L | 6020 | 0.1976 | 0.2 | 0 | 98.8 | 70-130 | | | | 4/4/2006 |
| L70885-03EMS | Cadmium | mg/L | 6020 | 0.1957 | 0.2 | 0 | 97.9 | 70-130 | | | | 4/4/2006 |
| L70885-03EMS | Copper | mg/L | 6020 | 0.1917 | 0.2 | 0.001473 | 95.1 | 70-130 | | | | 4/4/2006 |
| L70885-03EMS | Lead | mg/L | 6020 | 0.1993 | 0.2 | 0 | 99.6 | 70-130 | | | | 4/4/2006 |
| L70885-03EMS | Manganese | mg/L | 6020 | 0.2261 | 0.2 | 0.03313 | 96.5 | 70-130 | | | | 4/4/2006 |
| L70885-03EMS | Selenium | mg/L | 6020 | 0.2030 | 0.2 | 0 | 102 | 70-130 | | | | 4/4/2006 |
| L70885-03EMS | Zinc | mg/L | 6020 | 0.9971 | 1 | 0.04192 | 95.5 | 70-130 | | | | 4/4/2006 |
| L70885-05DMS | Manganese | mg/L | 6010B | 0.3010 | 0.2 | 0.1053 | 97.9 | 75-125 | | | | 4/4/2006 |
| L70885-05DMS | Iron | mg/L | 6010B | 1.610 | 1 | 0.4593 | 115 | 75-125 | | | | 4/9/2006 |
| L70885-03EMS | Aluminum | mg/L | 6010B | 1.049 | 1 | 0.04387 | 101 | 75-125 | | | | 4/9/2006 |
| L70885-03EMS | Boron | mg/L | 6010B | 1.030 | 1 | 0 | 103 | 75-125 | | | | 4/9/2006 |
| L70885-03EMS | Iron | mg/L | 6010B | 1.098 | 1 | 0.0386 | 106 | 75-125 | | | | 4/9/2006 |
| L70885-03EMS | Magnesium | mg/L | 6010B | 46.85 | 10 | 36.97 | 98.7 | 75-125 | | | | 4/9/2006 |
| L70885-03EMS | Molybdenum | mg/L | 6010B | 0.1990 | 0.2 | 0 | 99.5 | 75-125 | | | | 4/9/2006 |
| L70885-03EMS | Potassium | mg/L | 6010B | 16.32 | 10 | 5.424 | 109 | 75-125 | | | | 4/9/2006 |
| L70885-03EMS | Calcium | mg/L | 6010B | 97.95 | 10 | 89.3 | 86.5 | 75-125 | | | | 4/11/2006 |
| L70885-03EMS | Sodium | mg/L | 6010B | 19.52 | 10 | 9.442 | 101 | 75-125 | | | | 4/11/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70885-03EMSD | Arsenic | mg/L | 6020 | 0.2113 | 0.2 | 0 | 106 | 70-130 | 6.68 | 20 | | 4/4/2006 |
| L70885-03EMSD | Cadmium | mg/L | 6020 | 0.2010 | 0.2 | 0 | 101 | 70-130 | 2.69 | 20 | | 4/4/2006 |
| L70885-03EMSD | Copper | mg/L | 6020 | 0.1970 | 0.2 | 0.001473 | 97.8 | 70-130 | 2.73 | 20 | | 4/4/2006 |
| L70885-03EMSD | Lead | mg/L | 6020 | 0.2086 | 0.2 | 0 | 104 | 70-130 | 4.56 | 20 | | 4/4/2006 |
| L70885-03EMSD | Manganese | mg/L | 6020 | 0.2291 | 0.2 | 0.03313 | 98.0 | 70-130 | 1.33 | 20 | | 4/4/2006 |
| L70885-03EMSD | Selenium | mg/L | 6020 | 0.2115 | 0.2 | 0 | 106 | 70-130 | 4.10 | 20 | | 4/4/2006 |
| L70885-03EMSD | Zinc | mg/L | 6020 | 1.038 | 1 | 0.04192 | 99.7 | 70-130 | 4.06 | 20 | | 4/4/2006 |
| L70885-05DMSD | Manganese | mg/L | 6010B | 0.3045 | 0.2 | 0.1053 | 99.6 | 75-125 | 1.17 | 20 | | 4/4/2006 |
| L70885-05DMSD | Iron | mg/L | 6010B | 1.562 | 1 | 0.4593 | 110 | 75-125 | 3.03 | 20 | | 4/9/2006 |
| L70885-03EMSD | Aluminum | mg/L | 6010B | 1.038 | 1 | 0.04387 | 99.5 | 75-125 | 1.02 | 20 | | 4/9/2006 |
| L70885-03EMSD | Boron | mg/L | 6010B | 1.030 | 1 | 0 | 103 | 75-125 | 0.00710 | 20 | | 4/9/2006 |
| L70885-03EMSD | Iron | mg/L | 6010B | 1.112 | 1 | 0.0386 | 107 | 75-125 | 1.32 | 20 | | 4/9/2006 |
| L70885-03EMSD | Magnesium | mg/L | 6010B | 46.29 | 10 | 36.97 | 93.2 | 75-125 | 1.20 | 20 | | 4/9/2006 |
| L70885-03EMSD | Molybdenum | mg/L | 6010B | 0.1970 | 0.2 | 0 | 98.5 | 75-125 | 1.03 | 20 | | 4/9/2006 |
| L70885-03EMSD | Potassium | mg/L | 6010B | 16.09 | 10 | 5.424 | 107 | 75-125 | 1.39 | 20 | | 4/9/2006 |
| L70885-03EMSD | Calcium | mg/L | 6010B | 96.61 | 10 | 89.3 | 73.1 | 75-125 | 1.38 | 20 | 2 | 4/11/2006 |
| L70885-03EMSD | Sodium | mg/L | 6010B | 19.66 | 10 | 9.442 | 102 | 75-125 | 0.715 | 20 | | 4/11/2006 |

[2] Analyte concentration is too high for accurate spike recovery.



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70885-01BDUP | Chloride | mg/L | 300.0 | 22.18 | 0 | 24 | | - | 7.88 | 20 | | 3/29/2006 |
| L70885-01BDUP | Sulfate | mg/L | 300.0 | 15.20 | 0 | 15.48 | | - | 1.85 | 20 | | 3/29/2006 |
| L70885-01BDUP | Conductivity | µmhos/cm | 120.1 | 666.0 | 0 | 670 | | - | 0.599 | 5 | | 3/30/2006 |
| L70920-01BDUP | Conductivity | µmhos/cm | 120.1 | 61700 | 0 | 61600 | | - | 0.162 | 5 | | 3/30/2006 |
| L70959-01BDUP | Conductivity | µmhos/cm | 120.1 | 43700 | 0 | 43600 | | - | 0.229 | 5 | | 3/30/2006 |
| L70882-01ADUP | pH @ 25° C | pH Units | 150.1 | 6.860 | 0 | 6.88 | | - | 0.291 | 5 | | 3/28/2006 |
| L70885-04BDUP | pH @ 25° C | pH Units | 150.1 | 8.120 | 0 | 8.1 | | - | 0.247 | 5 | | 3/28/2006 |
| L70920-02BDUP | pH @ 25° C | pH Units | 150.1 | 7.650 | 0 | 7.65 | | - | 0 | 5 | | 3/28/2006 |
| L70564-01ADUP | TDS | mg/L | 160.1 | 282.0 | 0 | 280 | | - | 0.712 | 20 | | 3/31/2006 |
| L70568-01ADUP | TDS | mg/L | 160.1 | 236.0 | 0 | 236 | | - | 0 | 20 | | 3/31/2006 |
| L70885-05ADUP | TDS | mg/L | 160.1 | 330.0 | 0 | 350 | | - | 5.88 | 20 | | 3/31/2006 |
| L70987-02DDUP | TDS | mg/L | 160.1 | 650.0 | 0 | 620 | | - | 4.72 | 20 | | 3/31/2006 |
| L70996-04DDUP | TDS | mg/L | 160.1 | 3240 | 0 | 3176 | | - | 2.00 | 20 | | 3/31/2006 |
| L70876-04BDUP | TSS | mg/L | 160.2 | 38.00 | 0 | 40 | | - | 5.13 | 20 | | 3/28/2006 |
| L70885-01ADUP | TSS | mg/L | 160.2 | < 3.0 | 0 | 0 | | - | 0 | 20 | | 3/28/2006 |
| L70892-03ADUP | TSS | mg/L | 160.2 | 7.000 | 0 | 7 | | - | 0 | 20 | | 3/28/2006 |
| L70897-02ADUP | TSS | mg/L | 160.2 | 485.0 | 0 | 495 | | - | 2.04 | 20 | | 3/28/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R56091 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50740 | 50000 | 0 | 101 | 90-110 | | | | 3/30/2006 |
| LCS-R56105 | Chloride | mg/L | 300.0 | 4.988 | 5 | 0 | 99.8 | 90-110 | | | | 3/29/2006 |
| LCS-R56105 | Sulfate | mg/L | 300.0 | 4.986 | 5 | 0 | 99.7 | 90-110 | | | | 3/29/2006 |
| LCS-R56093 | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 3/30/2006 |
| LCS-R56094 | Conductivity | µmhos/cm | 120.1 | 1004 | 1000 | 0 | 100 | 98-102 | | | | 3/30/2006 |
| LCS-27808 | Ammonia (as N) | mg/L | 350.1 | 0.9520 | 1 | 0 | 95.2 | 90-110 | | | | 3/29/2006 |
| LCS-56049 | Nitrite (as N) | mg/L | 353.2 | 0.9630 | 1 | 0 | 96.3 | 90-110 | | | | 3/29/2006 |
| LCS-56047 | Nitrate (as N) | mg/L | 353.2 | 0.9640 | 1 | 0 | 96.4 | 90-110 | | | | 3/29/2006 |
| LCS-R56018 | Oil & Grease | mg/L | EPA 1664 | 39.30 | 40 | 0 | 98.2 | 79-114 | | | | 3/28/2006 |
| LCS-R56025 | pH @ 25° C | pH Units | 150.1 | 8.990 | 9 | 0 | 99.9 | 98-102 | | | | 3/28/2006 |
| LCS-56036 | Phosphate, ortho (as P) | mg/L | 365.1 | 1.087 | 1 | 0 | 109 | 90-110 | | | | 3/29/2006 |
| LCS-R56264 | TDS | mg/L | 160.1 | 210.0 | 205 | 0 | 102 | 80-120 | | | | 3/31/2006 |
| LCS-R56044 | TSS | mg/L | 160.2 | 103.0 | 100 | 0 | 103 | 80-120 | | | | 3/28/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R56091 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 3/30/2006 |
| MB-R56091 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 3/30/2006 |
| MB-R56091 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 3/30/2006 |
| MB-R56105 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 3/29/2006 |
| MB-R56105 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 3/29/2006 |
| MB-R56093 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 3/30/2006 |
| MB-R56094 | Conductivity | µmhos/cm | 120.1 | < 2.0 | | | | - | | | | 3/30/2006 |
| MB-27808 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 3/29/2006 |
| MB-56049 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 3/29/2006 |
| MB-56047 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 3/29/2006 |
| MB-R56018 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 3/28/2006 |
| MB-56036 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 3/29/2006 |
| MB-R56264 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 3/31/2006 |
| MB-R56044 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 3/28/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70885-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 402.0 | 100 | 303 | 99.0 | 80-120 | | | | 3/30/2006 |
| L70959-02BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 372.0 | 100 | 272 | 100 | 80-120 | | | | 3/30/2006 |
| L70885-01BMS | Chloride | mg/L | 300.0 | 74.72 | 50 | 24 | 101 | 90-110 | | | | 3/29/2006 |
| L70885-01BMS | Sulfate | mg/L | 300.0 | 67.34 | 50 | 15.48 | 104 | 90-110 | | | | 3/29/2006 |
| L70885-01BMS | Acidity | mg/L | 305.1 | 42.00 | 50 | 0 | 84.0 | 80-120 | | | | 3/30/2006 |
| L70913-03AMS | Ammonia (as N) | mg/L | 350.1 | 4.579 | 2 | 2.879 | 85.0 | 90-110 | | | [1] | 3/29/2006 |
| L70885-01CMS | Ammonia (as N) | mg/L | 350.1 | 0.8930 | 1 | 0.039 | 85.4 | 90-110 | | | [1] | 3/29/2006 |
| L70885-01BMS | Nitrite (as N) | mg/L | 353.2 | 0.9020 | 1 | 0.099 | 80.3 | 90-110 | | | [1] | 3/29/2006 |
| L70885-01BMS | Nitrate (as N) | mg/L | 353.2 | 2.008 | 1 | 0.923 | 108 | 90-110 | | | | 3/29/2006 |
| L70885-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 0.8680 | 1 | 0.047 | 82.1 | 90-110 | | | [1] | 3/29/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Oualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L70885-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 406.0 | 100 | 303 | 103 | 80-120 | 0.990 | 10 | | 3/30/2006 |
| L70959-02BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 373.0 | 100 | 272 | 101 | 80-120 | 0.268 | 10 | | 3/30/2006 |
| L70885-01BMSD | Chloride | mg/L | 300.0 | 74.17 | 50 | 24 | 100 | 90-110 | 0.731 | 20 | | 3/29/2006 |
| L70885-01BMSD | Sulfate | mg/L | 300.0 | 66.58 | 50 | 15.48 | 102 | 90-110 | 1.15 | 20 | | 3/29/2006 |
| L70885-01BMSD | Acidity | mg/L | 305.1 | 40.00 | 50 | 0 | 80.0 | 80-120 | 4.88 | 20 | | 3/30/2006 |
| L70913-03AMSD | Ammonia (as N) | mg/L | 350.1 | 4.474 | 2 | 2.879 | 79.8 | 90-110 | 2.32 | 10 | [1] | 3/29/2006 |
| L70885-01CMSD | Ammonia (as N) | mg/L | 350.1 | 0.8520 | 1 | 0.039 | 81.3 | 90-110 | 4.70 | 10 | [1] | 3/29/2006 |
| L70885-01BMSD | Nitrite (as N) | mg/L | 353.2 | 0.9970 | 1 | 0.099 | 89.8 | 90-110 | 10.0 | 10 | [1]@ | 3/29/2006 |
| L70885-01BMSD | Nitrate (as N) | mg/L | 353.2 | 2.057 | 1 | 0.923 | 113 | 90-110 | 2.41 | 10 | [1] | 3/29/2006 |
| L70885-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9020 | 1 | 0.047 | 85.5 | 90-110 | 3.84 | 10 | [1] | 3/29/2006 |

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R56018 | Oil & Grease | mg/L | EPA 1664 | 39.30 | 40 | 0 | 98.2 | 79-114 | | | | 3/28/2006 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L70885
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R56018 | Oil & Grease | mg/L | EPA 1664 | 40.50 | 40 | 0 | 101 | 79-114 | 3.01 | 18 | | 3/28/2006 |



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# American West Analytical Labs

## WORK ORDER Summary

*29-Mar-06*

**Work Order** L70885

**Client ID:** WHI100 **QC Level:** 2+ HOLD ET

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+. Include EDD in Excel format. Footnote report, pH received outside of hold.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L70885-01A | Angle Spring | 3/27/2006 12:00:00 PM | 3/28/2006 | 4/11/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 4/11/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 4/11/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L70885-01B | | | | 4/11/2006 | | 2320B-ALK-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | 300.0-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | ACIDITY-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | COND-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | NO2-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | NO3-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | PH-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | PO4-O | mar 28 - wc | 1 |
| L70885-01C | | | | 4/11/2006 | | NH3-W | mar 28 - nh3 | 1 |
| | | | | 4/11/2006 | | NH3-W-PREP | mar 28 - nh3 | 1 |
| L70885-01D | | | | 4/11/2006 | | 3005A-ICPMS | mar 28 - met | 1 |
| | | | | 4/11/2006 | | ICP-W | mar 28 - met | 1 |
| L70885-01E | | | | 4/11/2006 | Aqueous-Dissolved | 3005A-Diss | mar 28 - dis met/hg | 1 |
| | | | | 4/11/2006 | | 6020-W-DISS | mar 28 - dis met/hg | 1 |
| | | | | 4/11/2006 | | HARD | mar 28 - dis met/hg | 1 |
| | | | | 4/11/2006 | | ICP-W-DIS | mar 28 - dis met/hg | 1 |
| L70885-01F | | | | 4/11/2006 | Aqueous | OGB-W | ogb | 1 |
| L70885-02A | Mud Creek | 3/27/2006 1:00:00 PM | | 4/11/2006 | | SS | ww - tss/tds/ss | 1 |
| | | | | 4/11/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 4/11/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L70885-02B | | | | 4/11/2006 | | 2320B-ALK-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | 300.0-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | ACIDITY-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | COND-W | mar 28 - wc | 1 |



70885

# WORK ORDER Summary

*29-Mar-06*

**Work Order** L70885

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+. Include EDD in Excel format. Footnote report, pH received outside of hold.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L70885-02B | Mud Creek | 3/27/2006 1:00:00 PM | 3/28/2006 | 4/11/2006 | Aqueous | NO2-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | NO3-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | PH-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | PO4-O | mar 28 - wc | 1 |
| L70885-02C | | | | 4/11/2006 | | NH3-W | mar 28 - nh3 | 1 |
| | | | | 4/11/2006 | | NH3-W-PREP | mar 28 - nh3 | 1 |
| L70885-02D | | | | 4/11/2006 | | 3005A-ICPMS | mar 28 - met | 1 |
| | | | | 4/11/2006 | | ICP-W | mar 28 - met | 1 |
| L70885-02E | | | | 4/11/2006 | Aqueous-Dissolved | 3005A-Diss | mar 28 - dis met/hg | 1 |
| | | | | 4/11/2006 | | 6020-W-DISS | mar 28 - dis met/hg | 1 |
| | | | | 4/11/2006 | | HARD | mar 28 - dis met/hg | 1 |
| | | | | 4/11/2006 | | ICP-W-DIS | mar 28 - dis met/hg | 1 |
| L70885-02F | | | | 4/11/2006 | Aqueous | OGB-W | ogb | 1 |
| L70885-03A | Sulfer Spring | 3/27/2006 2:15:00 PM | | 4/11/2006 | | SS | ww - tss/tds/ss | 1 |
| | | | | 4/11/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 4/11/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L70885-03B | | | | 4/11/2006 | | 2320B-ALK-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | 300.0-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | ACIDITY-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | COND-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | NO2-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | NO3-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | PH-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | PO4-O | mar 28 - wc | 1 |
| L70885-03C | | | | 4/11/2006 | | NH3-W | mar 28 - nh3 | 1 |
| | | | | 4/11/2006 | | NH3-W-PREP | mar 28 - nh3 | 1 |
| L70885-03D | | | | 4/11/2006 | | 3005A-ICPMS | mar 28 - met | 1 |
| | | | | 4/11/2006 | | ICP-W | mar 28 - met | 1 |

# WORK ORDER Summary

*29-Mar-06*

**Work Order** L70885

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+. Include EDD in Excel format. Footnote report, pH received outside of hold.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L70885-03E | Sulfer Spring | 3/27/2006 2:15:00 PM | 3/28/2006 | 4/11/2006 | Aqueous-Dissolved | 3005A-Diss | mar 28 - dis met/hg | 1 |
| | | | | 4/11/2006 | | 6020-W-DISS | mar 28 - dis met/hg | 1 |
| | | | | 4/11/2006 | | HARD | mar 28 - dis met/hg | 1 |
| | | | | 4/11/2006 | | ICP-W-DIS | mar 28 - dis met/hg | 1 |
| L70885-03F | | | | 4/11/2006 | Aqueous | OGB-W | ogb | 1 |
| L70885-04A | Eagle Outlet | 3/27/2006 3:00:00 PM | | 4/11/2006 | | SS | ww - tss/tds/ss | 1 |
| | | | | 4/11/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 4/11/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L70885-04B | | | | 4/11/2006 | | 2320B-ALK-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | 300.0-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | ACIDITY-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | COND-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | NO2-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | NO3-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | PH-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | PO4-O | mar 28 - wc | 1 |
| L70885-04C | | | | 4/11/2006 | | NH3-W | mar 28 - nh3 | 1 |
| | | | | 4/11/2006 | | NH3-W-PREP | mar 28 - nh3 | 1 |
| L70885-04D | | | | 4/11/2006 | | 3005A-ICPMS | mar 28 - met | 1 |
| | | | | 4/11/2006 | | ICP-W | mar 28 - met | 1 |
| L70885-04E | | | | 4/11/2006 | Aqueous-Dissolved | 3005A-Diss | mar 28 - dis met/hg | 1 |
| | | | | 4/11/2006 | | 6020-W-DISS | mar 28 - dis met/hg | 1 |
| | | | | 4/11/2006 | | HARD | mar 28 - dis met/hg | 1 |
| | | | | 4/11/2006 | | ICP-W-DIS | mar 28 - dis met/hg | 1 |
| L70885-04F | | | | 4/11/2006 | Aqueous | OGB-W | ogb | 1 |
| L70885-05A | CR-06-03-ABV | 3/27/2006 11:00:00 AM | | 4/11/2006 | | TDS-W | ww - tds | 1 |
| L70885-05B | | | | 4/11/2006 | | 2320B-ALK-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | 300.0-W | mar 28 - wc | 1 |

# WORK ORDER Summary

*29-Mar-06*

**Work Order** L70885

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+. Include EDD in Excel format. Footnote report, pH received outside of hold.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L70885-05B | CR-06-03-ABV | 3/27/2006 11:00:00 AM | 3/28/2006 | 4/11/2006 | Aqueous | ACIDITY-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | COND-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | NO2-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | NO3-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | PH-W | mar 28 - wc | 1 |
| | | | | 4/11/2006 | | PO4-O | mar 28 - wc | 1 |
| L70885-05C | | | | 4/11/2006 | | NH3-W | mar 28 - nh3 | 1 |
| | | | | 4/11/2006 | | NH3-W-PREP | mar 28 - nh3 | 1 |
| L70885-05D | | | | 4/11/2006 | | 3005A-ICPMS | mar 28 - met | 1 |
| | | | | 4/11/2006 | | ICP-W | mar 28 - met | 1 |
| L70885-05E | | | | 4/11/2006 | Aqueous-Dissolved | 3005A-Diss | mar 28 - dis met/hg | 1 |
| | | | | 4/11/2006 | | 6020-W-DISS | mar 28 - dis met/hg | 1 |
| | | | | 4/11/2006 | | HARD | mar 28 - dis met/hg | 1 |
| | | | | 4/11/2006 | | ICP-W-DIS | mar 28 - dis met/hg | 1 |

Client Carbon Resources
Address c/o Rock Logic PO Box 544
Cedaredge CO 81413
City State Zip
Phone 435-851-9044 Fax
Contact Brad Lindsay
E-mail lindsay.brad@gmail.com
Project Name Scofield baseline
Project Number/P.O.#
Sampler Name Brad Lindsay

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# CHAIN OF CUSTODY

Lab Sample Set # 26885
Page of

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | See table 3 | See table 4 | pH | Specific Conductivity | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Angle Spring | 3-27-06 / 1200 | W | 6 | ✓ | | ✓ | ✓ | | | | | | | |
| Mud Creek | 3-27-06 / 1300 | W | 6 | ✓ | | ✓ | ✓ | | | | | | | |
| Culter Spring | 3-27-06 / 1415 | W | 6 | ✓ | | ✓ | ✓ | | | | | | | |
| Eagle Outlet | 3-27-06 / 1500 | W | 6 | ✓ | | ✓ | ✓ | | | | | | | |
| CR-06-03-ABV | 3-27-06 / 1100 | W | 5 | | ✓ | ✓ | ✓ | | | | | | | |

Please indicate tests needed below

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered Notes: UPS
2 Ambient or Chilled Notes:
3 Temperature 1.5°C
4 Received Broken/Leaking (Improperly Sealed) Y N Notes:
5 Properly Preserved Y N Notes:
6 Received Within Holding Times Y N Notes: pH

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA Notes:

Discrepancies Between Sample Labels and COC Record? Y N Notes:

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 17:00 | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date 3/28/06 | Received By: Signature |
| PRINT NAME | Time 1050 | PRINT NAME Elena Hayward |

Special Instructions:
please filter for dissolved metals

2006 MAR 28 (TU) 15:24 AWAL FAX #: 801 263 8687 P. 001/001

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphate (Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

[1] These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

## Preservation Check Sheet

Sample Set: 70885

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Cyanide | pH >12 NaOH | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Sulfide | pH > 9 NaOH, ZnAC | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOC[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| T PO4[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Mixed Analysis[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

Procedure:

1) Pour a small amount of sample in the lid
2) Pour sample from lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC and notify client for further instructions
6) Place client conversation on COC
7) Samples may be adjusted at client request

Mixed Analysis [1] = Samples preserved with a pH <2 $H_2SO_4$ in HDPE
Mixed Analysis [2] = Samples preserved with a pH <2 $H_2SO_4$ in a B.R.

Frequency: All samples requiring preservation

May 15, 2006

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Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 835-3715
FAX:

RE: Scofield Baseline

Lab Set ID: L71507

Dear Brad Lindsay:

American West Analytical Labs received 6 samples on 4/28/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-01D
Field Sample ID: **Eagle Outlet**
Collected: 4/26/2006 11:00:00 AM
Received: 4/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 5/11/2006 9:43:09 PM | 6010B | 0.050 | **5.7** |
| Manganese | mg/L | 5/11/2006 9:43:09 PM | 6010B | 0.0050 | **0.34** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-02D
Field Sample ID: **Sulfer Spring**
Collected: 4/26/2006 11:50:00 AM
Received: 4/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 5/11/2006 9:47:03 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 5/11/2006 9:47:03 PM | 6010B | 0.0050 | **0.030** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-03D
Field Sample ID: **Angle Spring**
Collected: 4/26/2006 2:45:00 PM
Received: 4/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 5/11/2006 9:50:56 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 5/11/2006 9:50:56 PM | 6010B | 0.0050 | < 0.0050 |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-04D
Field Sample ID: **Mud Creek**
Collected: 4/26/2006 6:50:00 PM
Received: 4/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 5/11/2006 10:02:44 PM | 6010B | 0.050 | **2.7** |
| Manganese | mg/L | 5/11/2006 10:02:44 PM | 6010B | 0.0050 | **0.15** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-05D
Field Sample ID: **CR-06-03-ABV**
Collected: 4/26/2006 1:15:00 PM
Received: 4/28/2006

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Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 5/11/2006 10:06:39 PM | 6010B | 0.050 | **0.99** |
| Manganese | mg/L | 5/11/2006 10:06:39 PM | 6010B | 0.0050 | **0.063** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-06D
Field Sample ID: **Eagle Spring**
Collected: 4/26/2006 11:30:00 AM
Received: 4/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 5/11/2006 10:14:29 PM | 6010B | 0.050 | **2.7** [1] |
| Manganese | mg/L | 5/11/2006 10:14:29 PM | 6010B | 0.0050 | **0.016** |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-01E
Field Sample ID: **Eagle Outlet**
Collected: 4/26/2006 11:00:00 AM
Received: 4/28/2006

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Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 5/15/2006 4:05:20 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 5/13/2006 5:34:10 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 5/15/2006 8:01:31 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 5/13/2006 5:34:10 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 5/15/2006 6:54:15 AM | 6010B | 10 | **100** |
| Copper | mg/L | 5/13/2006 5:34:10 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 5/15/2006 8:01:31 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 5/13/2006 5:34:10 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 5/15/2006 6:54:15 AM | 6010B | 10 | **18** |
| Manganese | mg/L | 5/13/2006 5:34:10 PM | 6020 | 0.0050 | **0.074** |
| Molybdenum | mg/L | 5/15/2006 8:01:31 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 5/15/2006 8:01:31 AM | 6010B | 1.0 | **1.5** |
| Selenium | mg/L | 5/13/2006 5:34:10 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 5/15/2006 6:54:15 AM | 6010B | 10 | **19** |
| Zinc | mg/L | 5/13/2006 5:34:10 PM | 6020 | 0.010 | **0.023** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-02E
Field Sample ID: **Sulfer Spring**
Collected: 4/26/2006 11:50:00 AM
Received: 4/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 5/15/2006 4:09:22 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 5/13/2006 5:44:57 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 5/15/2006 8:05:23 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 5/13/2006 5:44:57 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 5/15/2006 6:58:08 AM | 6010B | 10 | **95** |
| Copper | mg/L | 5/13/2006 5:44:57 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 5/15/2006 8:05:23 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 5/13/2006 5:44:57 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 5/15/2006 6:58:08 AM | 6010B | 10 | **38** |
| Manganese | mg/L | 5/13/2006 5:44:57 PM | 6020 | 0.0050 | **0.027** |
| Molybdenum | mg/L | 5/15/2006 8:05:23 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 5/15/2006 8:05:23 AM | 6010B | 1.0 | **4.3** |
| Selenium | mg/L | 5/13/2006 5:44:57 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 5/15/2006 6:58:08 AM | 6010B | 10 | **19** |
| Zinc | mg/L | 5/13/2006 5:44:57 PM | 6020 | 0.010 | **0.034** |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-03E
Field Sample ID: **Angle Spring**
Collected: 4/26/2006 2:45:00 PM
Received: 4/28/2006

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Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 5/15/2006 4:13:16 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 5/13/2006 5:50:19 PM | 6020 | 0.0050 | **0.0086** |
| Boron | mg/L | 5/15/2006 8:09:17 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 5/13/2006 5:50:19 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 5/15/2006 7:02:02 AM | 6010B | 10 | **100** |
| Copper | mg/L | 5/13/2006 5:50:19 PM | 6020 | 0.0040 | **0.0046** |
| Iron | mg/L | 5/15/2006 8:09:17 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 5/13/2006 5:50:19 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 5/15/2006 7:02:02 AM | 6010B | 10 | **20** |
| Manganese | mg/L | 5/13/2006 5:50:19 PM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 5/15/2006 8:09:17 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 5/15/2006 8:09:17 AM | 6010B | 1.0 | < 1.0 |
| Selenium | mg/L | 5/13/2006 5:50:19 PM | 6020 | 0.0050 | **0.013** |
| Sodium | mg/L | 5/15/2006 7:02:02 AM | 6010B | 10 | **21** |
| Zinc | mg/L | 5/13/2006 5:50:19 PM | 6020 | 0.010 | **0.11** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-04E
Field Sample ID: **Mud Creek**
Collected: 4/26/2006 6:50:00 PM
Received: 4/28/2006


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Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 5/15/2006 4:17:09 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 5/13/2006 5:55:42 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 5/15/2006 8:13:12 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 5/13/2006 5:55:42 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 5/15/2006 7:05:56 AM | 6010B | 10 | **76** |
| Copper | mg/L | 5/13/2006 5:55:42 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 5/15/2006 8:13:12 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 5/13/2006 5:55:42 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 5/15/2006 7:05:56 AM | 6010B | 10 | **30** |
| Manganese | mg/L | 5/13/2006 5:55:42 PM | 6020 | 0.0050 | **0.022** |
| Molybdenum | mg/L | 5/15/2006 8:13:12 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 5/15/2006 8:13:12 AM | 6010B | 1.0 | **3.8** |
| Selenium | mg/L | 5/13/2006 5:55:42 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 5/15/2006 7:05:56 AM | 6010B | 10 | **48** |
| Zinc | mg/L | 5/13/2006 5:55:42 PM | 6020 | 0.010 | **0.023** |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-05E
Field Sample ID: **CR-06-03-ABV**
Collected: 4/26/2006 1:15:00 PM
Received: 4/28/2006

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Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 5/15/2006 4:24:58 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 5/13/2006 6:01:06 PM | 6020 | 0.0050 | **0.026** |
| Boron | mg/L | 5/15/2006 8:21:03 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 5/13/2006 6:01:06 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 5/15/2006 7:13:44 AM | 6010B | 10 | **130** |
| Copper | mg/L | 5/13/2006 6:01:06 PM | 6020 | 0.0040 | **0.011** |
| Iron | mg/L | 5/15/2006 8:21:03 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 5/13/2006 6:01:06 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 5/15/2006 7:13:44 AM | 6010B | 10 | **31** |
| Manganese | mg/L | 5/13/2006 6:01:06 PM | 6020 | 0.0050 | **0.058** |
| Molybdenum | mg/L | 5/15/2006 8:21:03 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 5/15/2006 8:21:03 AM | 6010B | 1.0 | **1.4** |
| Selenium | mg/L | 5/13/2006 6:01:06 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 5/15/2006 7:13:44 AM | 6010B | 10 | **21** |
| Zinc | mg/L | 5/13/2006 6:01:06 PM | 6020 | 0.010 | **0.40** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-06E
Field Sample ID: **Eagle Spring**
Collected: 4/26/2006 11:30:00 AM
Received: 4/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 5/15/2006 4:48:41 PM | 6010B | 0.10 | **1.5** |
| Arsenic | mg/L | 5/13/2006 6:17:20 PM | 6020 | 0.0050 | **0.0056** |
| Boron | mg/L | 5/15/2006 8:36:50 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 5/13/2006 6:17:20 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 5/15/2006 8:36:50 AM | 6010B | 1.0 | **15** |
| Copper | mg/L | 5/13/2006 6:17:20 PM | 6020 | 0.0040 | **0.0058** |
| Iron | mg/L | 5/15/2006 8:36:50 AM | 6010B | 0.050 | **1.1** |
| Lead | mg/L | 5/13/2006 6:17:20 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 5/15/2006 8:36:50 AM | 6010B | 1.0 | **3.3** |
| Manganese | mg/L | 5/13/2006 6:17:20 PM | 6020 | 0.0050 | **0.0060** |
| Molybdenum | mg/L | 5/15/2006 8:36:50 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 5/15/2006 8:36:50 AM | 6010B | 1.0 | **1.3** |
| Selenium | mg/L | 5/13/2006 6:17:20 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 5/15/2006 8:36:50 AM | 6010B | 1.0 | **25** |
| Zinc | mg/L | 5/13/2006 6:17:20 PM | 6020 | 0.010 | **0.026** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-01
Field Sample ID: **Eagle Outlet**
Collected: 4/26/2006 11:00:00 AM
Received: 4/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 5/2/2006 7:00:00 PM | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | **300** | |
| Ammonia (as N) | mg/L | 5/3/2006 3:13:00 PM | 350.1 | 0.050 | **0.16** | |
| Bicarbonate (As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | **280** | |
| Carbonate (As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | **21** | |
| Chloride | mg/L | 5/12/2006 5:52:06 AM | 300.0 | 5.0 | **39** | |
| Hardness (as CaCO3) | mg/L | 5/15/2006 | 2340B | 10 | **330** | |
| Nitrate/Nitrite (as N) | mg/L | 5/4/2006 10:02:00 AM | 353.2 | 0.010 | **0.33** | |
| Oil & Grease | mg/L | 5/5/2006 | EPA 1664 | 3.0 | **3.9** | |
| Phosphate, ortho (as P) | mg/L | 4/28/2006 11:34:00 AM | 365.1 | 0.050 | **0.069** | H |
| Settable Solids | ml/L | 4/28/2006 | 160.5 | 0.10 | **0.30** | |
| Sulfate | mg/L | 5/12/2006 5:52:06 AM | 300.0 | 5.0 | **48** | |
| TDS | mg/L | 4/28/2006 3:00:00 PM | 160.1 | 10 | **360** | |
| TSS | mg/L | 4/28/2006 6:30:00 PM | 160.2 | 3.0 | **270** | |

*H - Insufficient time was given for sample to be run within the hold time.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-02
Field Sample ID: **Sulfer Spring**
Collected: 4/26/2006 11:50:00 AM
Received: 4/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 5/2/2006 7:00:00 PM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | **380** |
| Ammonia (as N) | mg/L | 5/3/2006 3:13:00 PM | 350.1 | 0.050 | **0.15** |
| Bicarbonate (As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | **380** |
| Carbonate (As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | < 10 |
| Chloride | mg/L | 5/12/2006 8:38:31 AM | 300.0 | 1.0 | **6.1** |
| Hardness (as CaCO3) | mg/L | 5/15/2006 | 2340B | 10 | **390** |
| Nitrate/Nitrite (as N) | mg/L | 5/4/2006 10:02:00 AM | 353.2 | 0.010 | **0.022** |
| Oil & Grease | mg/L | 5/5/2006 | EPA 1664 | 3.0 | **3.9** |
| Phosphate, ortho (as P) | mg/L | 4/28/2006 11:34:00 AM | 365.1 | 0.050 | **< 0.050** |
| Settable Solids | ml/L | 4/28/2006 | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 5/12/2006 8:38:31 AM | 300.0 | 10 | **29** |
| TDS | mg/L | 4/28/2006 3:00:00 PM | 160.1 | 10 | **360** |
| TSS | mg/L | 4/28/2006 6:30:00 PM | 160.2 | 3.0 | **17** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-03
Field Sample ID: **Angle Spring**
Collected: 4/26/2006 2:45:00 PM
Received: 4/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 5/2/2006 7:00:00 PM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | **300** |
| Ammonia (as N) | mg/L | 5/3/2006 3:13:00 PM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | **300** |
| Carbonate (As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | < 10 |
| Chloride | mg/L | 5/12/2006 9:45:05 AM | 300.0 | 10 | **22** |
| Hardness (as CaCO3) | mg/L | 5/15/2006 | 2340B | 10 | **340** |
| Nitrate/Nitrite (as N) | mg/L | 5/4/2006 10:02:00 AM | 353.2 | 0.010 | **1.4** |
| Oil & Grease | mg/L | 5/5/2006 | EPA 1664 | 3.0 | **3.8** |
| Phosphate, ortho (as P) | mg/L | 4/28/2006 11:34:00 AM | 365.1 | 0.050 | **< 0.050** |
| Settable Solids | ml/L | 4/28/2006 | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 5/12/2006 9:45:05 AM | 300.0 | 10 | **19** |
| TDS | mg/L | 4/28/2006 3:00:00 PM | 160.1 | 10 | **310** |
| TSS | mg/L | 4/28/2006 6:30:00 PM | 160.2 | 3.0 | < 3.0 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-04
Field Sample ID: **Mud Creek**
Collected: 4/26/2006 6:50:00 PM
Received: 4/28/2006

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Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 5/2/2006 7:00:00 PM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | **280** |
| Ammonia (as N) | mg/L | 5/3/2006 3:13:00 PM | 350.1 | 0.050 | **0.11** |
| Bicarbonate (As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | **280** |
| Carbonate (As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | **< 10** |
| Chloride | mg/L | 5/12/2006 11:24:55 AM | 300.0 | 10 | **30** |
| Hardness (as CaCO3) | mg/L | 5/15/2006 | 2340B | 10 | **310** |
| Nitrate/Nitrite (as N) | mg/L | 5/4/2006 10:02:00 AM | 353.2 | 0.010 | **0.36** |
| Oil & Grease | mg/L | 5/5/2006 | EPA 1664 | 3.0 | **3.8** |
| Phosphate, ortho (as P) | mg/L | 4/28/2006 11:34:00 AM | 365.1 | 0.050 | **< 0.050** |
| Settable Solids | ml/L | 4/28/2006 | 160.5 | 0.10 | **0.60** |
| Sulfate | mg/L | 5/12/2006 11:24:55 AM | 300.0 | 10 | **88** |
| TDS | mg/L | 4/28/2006 3:00:00 PM | 160.1 | 10 | **410** |
| TSS | mg/L | 4/28/2006 6:30:00 PM | 160.2 | 3.0 | **270** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-05
Field Sample ID: **CR-06-03-ABV**
Collected: 4/26/2006 1:15:00 PM
Received: 4/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 5/2/2006 7:00:00 PM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | **410** |
| Ammonia (as N) | mg/L | 5/3/2006 3:13:00 PM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | **410** |
| Carbonate (As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | < 10 |
| Chloride | mg/L | 5/13/2006 12:31:30 PM | 300.0 | 10 | **17** |
| Hardness (as CaCO3) | mg/L | 5/15/2006 | 2340B | 10 | **450** |
| Nitrate/Nitrite (as N) | mg/L | 5/4/2006 10:02:00 AM | 353.2 | 0.010 | **0.024** |
| Phosphate, ortho (as P) | mg/L | 4/28/2006 11:34:00 AM | 365.1 | 0.050 | **< 0.050** |
| Sulfate | mg/L | 5/13/2006 12:31:30 PM | 300.0 | 10 | **31** |
| TDS | mg/L | 4/28/2006 3:00:00 PM | 160.1 | 10 | **410** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L71507-06
Field Sample ID: **Eagle Spring**
Collected: 4/26/2006 11:30:00 AM
Received: 4/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 5/2/2006 7:00:00 PM | 305.1 | 15 | **24** | |
| Alkalinity,(As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | **64** | |
| Ammonia (as N) | mg/L | 5/3/2006 3:13:00 PM | 350.1 | 0.050 | **0.081** | |
| Bicarbonate (As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | **64** | |
| Carbonate (As CaCO3) | mg/L | 5/2/2006 5:20:00 PM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 5/13/2006 1:04:46 AM | 300.0 | 1.0 | **3.8** | |
| Hardness (as CaCO3) | mg/L | 5/15/2006 | 2340B | 10 | **51** | |
| Nitrate/Nitrite (as N) | mg/L | 5/4/2006 10:02:00 AM | 353.2 | 0.010 | **0.31** | |
| Oil & Grease | mg/L | 5/5/2006 | EPA 1664 | 3.0 | **3.3** | |
| Phosphate, ortho (as P) | mg/L | 4/28/2006 11:34:00 AM | 365.1 | 0.050 | **0.11** | H |
| Settable Solids | ml/L | 4/28/2006 | 160.5 | 0.10 | < 0.10 | |
| Sulfate | mg/L | 5/13/2006 1:04:46 AM | 300.0 | 1.0 | **4.8** | |
| TDS | mg/L | 4/28/2006 3:00:00 PM | 160.1 | 10 | **150** | |
| TSS | mg/L | 4/28/2006 6:30:00 PM | 160.2 | 3.0 | **36** | ~ |

*H - Insufficient time was given for sample to be run within the hold time.*
*~ High RPD due to suspected sample non-homogeneity.*




All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-28373 | Manganese | mg/L | 6020 | 0.1830 | 0.2 | 0 | 91.5 | 85-115 | | | | 5/11/2006 |
| LCS-28373 | Arsenic | mg/L | 6020 | 0.1780 | 0.2 | 0 | 89.0 | 85-115 | | | | 5/13/2006 |
| LCS-28373 | Cadmium | mg/L | 6020 | 0.1737 | 0.2 | 0 | 86.9 | 85-115 | | | | 5/13/2006 |
| LCS-28373 | Copper | mg/L | 6020 | 0.1735 | 0.2 | 0.00107 | 86.2 | 85-115 | | | | 5/13/2006 |
| LCS-28373 | Lead | mg/L | 6020 | 0.1706 | 0.2 | 0 | 85.3 | 85-115 | | | | 5/13/2006 |
| LCS-28373 | Selenium | mg/L | 6020 | 0.1832 | 0.2 | 0 | 91.6 | 85-115 | | | | 5/13/2006 |
| LCS-28373 | Zinc | mg/L | 6020 | 0.9097 | 1 | 0.009547 | 90.0 | 85-115 | | | | 5/13/2006 |
| LCS-28398 | Iron | mg/L | 6010B | 1.045 | 1 | 0 | 105 | 75-125 | | | | 5/11/2006 |
| LCS-28398 | Manganese | mg/L | 6010B | 0.2076 | 0.2 | 0 | 104 | 75-125 | | | | 5/11/2006 |
| LCS-28373 | Boron | mg/L | 6010B | 1.096 | 1 | 0 | 110 | 75-125 | | | | 5/15/2006 |
| LCS-28373 | Calcium | mg/L | 6010B | 11.10 | 10 | 0 | 111 | 75-125 | | | | 5/15/2006 |
| LCS-28373 | Iron | mg/L | 6010B | 1.121 | 1 | 0 | 112 | 75-125 | | | | 5/15/2006 |
| LCS-28373 | Magnesium | mg/L | 6010B | 10.99 | 10 | 0 | 110 | 75-125 | | | | 5/15/2006 |
| LCS-28373 | Molybdenum | mg/L | 6010B | 0.2151 | 0.2 | 0 | 108 | 75-125 | | | | 5/15/2006 |
| LCS-28373 | Potassium | mg/L | 6010B | 9.686 | 10 | 0 | 96.9 | 75-125 | | | | 5/15/2006 |
| LCS-28373 | Sodium | mg/L | 6010B | 10.96 | 10 | 0 | 110 | 75-125 | | | | 5/15/2006 |
| LCS-28373 | Aluminum | mg/L | 6010B | 0.8928 | 1 | 0 | 89.3 | 75-125 | | | | 5/15/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

**Dept:** ME

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-28373 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 5/11/2006 |
| MB-28373 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 5/13/2006 |
| MB-28373 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 5/13/2006 |
| MB-28373 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 5/13/2006 |
| MB-28373 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 5/13/2006 |
| MB-28373 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 5/13/2006 |
| MB-28373 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 5/13/2006 |
| MB-28398 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 5/11/2006 |
| MB-28398 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 5/11/2006 |
| MB-28373 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 5/15/2006 |
| MB-28373 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 5/15/2006 |
| MB-28373 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 5/15/2006 |
| MB-28373 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 5/15/2006 |
| MB-28373 | Molybdenum | mg/L | 6010B | < 0.10 | | | | - | | | | 5/15/2006 |
| MB-28373 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 5/15/2006 |
| MB-28373 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 5/15/2006 |
| MB-28373 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 5/15/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L71515-01IMS | Manganese | mg/L | 6020 | 0.2419 | 0.2 | 0.05501 | 93.4 | 70-130 | | | | 5/12/2006 |
| L71507-05EMS | Arsenic | mg/L | 6020 | 0.2505 | 0.2 | 0.026 | 112 | 70-130 | | | | 5/13/2006 |
| L71507-05EMS | Cadmium | mg/L | 6020 | 0.2041 | 0.2 | 0 | 102 | 70-130 | | | | 5/13/2006 |
| L71507-05EMS | Copper | mg/L | 6020 | 0.2038 | 0.2 | 0.01117 | 96.3 | 70-130 | | | | 5/13/2006 |
| L71507-05EMS | Lead | mg/L | 6020 | 0.1988 | 0.2 | 0 | 99.4 | 70-130 | | | | 5/13/2006 |
| L71507-05EMS | Manganese | mg/L | 6020 | 0.2630 | 0.2 | 0.05754 | 103 | 70-130 | | | | 5/13/2006 |
| L71507-05EMS | Selenium | mg/L | 6020 | 0.2131 | 0.2 | 0 | 107 | 70-130 | | | | 5/13/2006 |
| L71507-05EMS | Zinc | mg/L | 6020 | 1.464 | 1 | 0.3983 | 107 | 70-130 | | | | 5/13/2006 |
| L71507-06DMS | Iron | mg/L | 6010B | 4.063 | 1 | 2.737 | 133 | 75-125 | | | [1] | 5/11/2006 |
| L71507-06DMS | Manganese | mg/L | 6010B | 0.2261 | 0.2 | 0.01567 | 105 | 75-125 | | | | 5/11/2006 |
| L71515-01HMS | Iron | mg/L | 6010B | 3.513 | 1 | 2.519 | 99.4 | 75-125 | | | | 5/11/2006 |
| L71507-05EMS | Calcium | mg/L | 6010B | 137.2 | 10 | 127.6 | 96.2 | 75-125 | | | | 5/15/2006 |
| L71507-05EMS | Magnesium | mg/L | 6010B | 41.60 | 10 | 30.83 | 108 | 75-125 | | | | 5/15/2006 |
| L71507-05EMS | Sodium | mg/L | 6010B | 31.64 | 10 | 20.88 | 108 | 75-125 | | | | 5/15/2006 |
| L71507-05EMS | Boron | mg/L | 6010B | 1.160 | 1 | 0.0484 | 111 | 75-125 | | | | 5/15/2006 |
| L71507-05EMS | Iron | mg/L | 6010B | 1.127 | 1 | 0 | 113 | 75-125 | | | | 5/15/2006 |
| L71507-05EMS | Molybdenum | mg/L | 6010B | 0.2089 | 0.2 | 0 | 104 | 75-125 | | | | 5/15/2006 |
| L71507-05EMS | Potassium | mg/L | 6010B | 13.05 | 10 | 1.431 | 116 | 75-125 | | | | 5/15/2006 |
| L71507-05EMS | Aluminum | mg/L | 6010B | 0.9504 | 1 | 0 | 95.0 | 75-125 | | | | 5/15/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
[2] Analyte concentration is too high for accurate spike recovery.



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L71515-01IMSD | Manganese | mg/L | 6020 | 0.2504 | 0.2 | 0.05501 | 97.7 | 70-130 | 3.47 | 20 | | 5/12/2006 |
| L71507-05EMSD | Arsenic | mg/L | 6020 | 0.2466 | 0.2 | 0.026 | 110 | 70-130 | 1.59 | 20 | | 5/13/2006 |
| L71507-05EMSD | Cadmium | mg/L | 6020 | 0.2016 | 0.2 | 0 | 101 | 70-130 | 1.23 | 20 | | 5/13/2006 |
| L71507-05EMSD | Copper | mg/L | 6020 | 0.2009 | 0.2 | 0.01117 | 94.9 | 70-130 | 1.43 | 20 | | 5/13/2006 |
| L71507-05EMSD | Lead | mg/L | 6020 | 0.1996 | 0.2 | 0 | 99.8 | 70-130 | 0.365 | 20 | | 5/13/2006 |
| L71507-05EMSD | Manganese | mg/L | 6020 | 0.2622 | 0.2 | 0.05754 | 102 | 70-130 | 0.325 | 20 | | 5/13/2006 |
| L71507-05EMSD | Selenium | mg/L | 6020 | 0.2216 | 0.2 | 0 | 111 | 70-130 | 3.92 | 20 | | 5/13/2006 |
| L71507-05EMSD | Zinc | mg/L | 6020 | 1.454 | 1 | 0.3983 | 106 | 70-130 | 0.696 | 20 | | 5/13/2006 |
| L71507-06DMSD | Iron | mg/L | 6010B | 4.290 | 1 | 2.737 | 155 | 75-125 | 5.44 | 20 | 1 | 5/11/2006 |
| L71507-06DMSD | Manganese | mg/L | 6010B | 0.2298 | 0.2 | 0.01567 | 107 | 75-125 | 1.64 | 20 | | 5/11/2006 |
| L71515-01HMSD | Iron | mg/L | 6010B | 3.560 | 1 | 2.519 | 104 | 75-125 | 1.33 | 20 | | 5/11/2006 |
| L71507-05EMSD | Calcium | mg/L | 6010B | 138.3 | 10 | 127.6 | 107 | 75-125 | 0.760 | 20 | | 5/15/2006 |
| L71507-05EMSD | Magnesium | mg/L | 6010B | 41.54 | 10 | 30.83 | 107 | 75-125 | 0.147 | 20 | | 5/15/2006 |
| L71507-05EMSD | Sodium | mg/L | 6010B | 31.66 | 10 | 20.88 | 108 | 75-125 | 0.0848 | 20 | | 5/15/2006 |
| L71507-05EMSD | Boron | mg/L | 6010B | 1.172 | 1 | 0.0484 | 112 | 75-125 | 1.01 | 20 | | 5/15/2006 |
| L71507-05EMSD | Iron | mg/L | 6010B | 1.129 | 1 | 0 | 113 | 75-125 | 0.186 | 20 | | 5/15/2006 |
| L71507-05EMSD | Molybdenum | mg/L | 6010B | 0.2124 | 0.2 | 0 | 106 | 75-125 | 1.66 | 20 | | 5/15/2006 |
| L71507-05EMSD | Potassium | mg/L | 6010B | 13.58 | 10 | 1.431 | 122 | 75-125 | 4.02 | 20 | | 5/15/2006 |
| L71507-05EMSD | Aluminum | mg/L | 6010B | 0.8587 | 1 | 0 | 85.9 | 75-125 | 10.1 | 20 | | 5/15/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

[2] Analyte concentration is too high for accurate spike recovery.



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L71465-04CDUP | TDS | mg/L | 160.1 | 620.0 | 0 | 620 | | - | 0 | 20 | | 4/28/2006 |
| L71467-01CDUP | TDS | mg/L | 160.1 | 10380 | 0 | 10360 | | - | 0.193 | 20 | | 4/28/2006 |
| L71309-02CDUP | TDS | mg/L | 160.1 | 860.0 | 0 | 804 | | - | 6.73 | 20 | H | 4/28/2006 |
| L71500-04BDUP | TDS | mg/L | 160.1 | 34300 | 0 | 33100 | | - | 3.56 | 20 | | 4/28/2006 |
| L71507-06ADUP | TDS | mg/L | 160.1 | 156.0 | 0 | 148 | | - | 5.26 | 20 | | 4/28/2006 |
| L71493-02ADUP | TSS | mg/L | 160.2 | < 3.0 | 0 | 0 | | - | 0 | 20 | | 4/28/2006 |
| L71507-06ADUP | TSS | mg/L | 160.2 | 12.00 | 0 | 36 | | - | 100 | 20 | ~ | 4/28/2006 |

~ High RPD due to suspected sample non-homogeneity.
H - Sample was received outside of holding time.



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R57203 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50740 | 50000 | 0 | 101 | 90-110 | | | | 5/2/2006 |
| LCS | Chloride | mg/L | 300.0 | 4.730 | 5 | 0 | 94.6 | 90-110 | | | | 5/12/2006 |
| LCS | Sulfate | mg/L | 300.0 | 4.814 | 5 | 0 | 96.3 | 90-110 | | | | 5/12/2006 |
| LCS-R57200 | Acidity | mg/L | 305.1 | 55.00 | 50 | 0 | 110 | 80-120 | | | | 5/2/2006 |
| LCS-28383 | Ammonia (as N) | mg/L | 350.1 | 1.015 | 1 | 0.036 | 97.9 | 90-110 | | | | 5/3/2006 |
| LCS-57267 | Nitrate/Nitrite (as N) | mg/L | 353.2 | 1.010 | 1 | 0 | 101 | 90-110 | | | | 5/4/2006 |
| LCS-R57344 | Oil & Grease | mg/L | EPA 1664 | 42.80 | 40 | 0 | 107 | 79-114 | | | | 5/5/2006 |
| LCS-57077 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9840 | 1 | 0 | 98.4 | 90-110 | | | | 4/28/2006 |
| LCS-R57152 | TDS | mg/L | 160.1 | 200.0 | 205 | 0 | 97.6 | 80-120 | | | | 4/28/2006 |
| LCS-R57153 | TDS | mg/L | 160.1 | 188.0 | 205 | 0 | 91.7 | 80-120 | | | | 4/28/2006 |
| LCS-R57114 | TSS | mg/L | 160.2 | 98.00 | 100 | 0 | 98.0 | 80-120 | | | | 4/28/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R57203 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 5/2/2006 |
| MB-R57203 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 5/2/2006 |
| MB-R57203 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 5/2/2006 |
| MB | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 5/12/2006 |
| MB | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 5/12/2006 |
| MB-R57200 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 5/2/2006 |
| MB-28383 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 5/3/2006 |
| MB-57267 | Nitrate/Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 5/4/2006 |
| MB-R57344 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 5/5/2006 |
| MB-57077 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 4/28/2006 |
| MB-R57152 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 4/28/2006 |
| MB-R57153 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 4/28/2006 |
| MB-R57114 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 4/28/2006 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L71507-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 495.0 | 200 | 296 | 99.5 | 80-120 | | | | 5/2/2006 |
| L71507-03BMS | Chloride | mg/L | 300.0 | 68.50 | 50 | 22.13 | 92.7 | 90-110 | | | | 5/12/2006 |
| L71507-03BMS | Sulfate | mg/L | 300.0 | 67.28 | 50 | 19.42 | 95.7 | 90-110 | | | | 5/12/2006 |
| L71515-01BMS | Chloride | mg/L | 300.0 | 7536 | 5000 | 2533 | 100 | 90-110 | | | | 5/13/2006 |
| L71507-05BMS | Acidity | mg/L | 305.1 | 44.00 | 50 | 0 | 88.0 | 80-120 | | | | 5/2/2006 |
| L71507-01CMS | Ammonia (as N) | mg/L | 350.1 | 1.181 | 1 | 0.156 | 102 | 90-110 | | | | 5/3/2006 |
| L71507-02CMS | Nitrate/Nitrite (as N) | mg/L | 353.2 | 0.9500 | 1 | 0.022 | 92.8 | 90-110 | | | | 5/4/2006 |
| L71507-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.067 | 1 | 0.069 | 99.8 | 90-110 | | | H | 4/28/2006 |

H - Insufficient time was given for sample to be run within the hold time.



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L71507-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 506.0 | 200 | 296 | 105 | 80-120 | 2.20 | 10 | | 5/2/2006 |
| L71507-03BMSD | Chloride | mg/L | 300.0 | 69.56 | 50 | 22.13 | 94.9 | 90-110 | 1.53 | 20 | | 5/12/2006 |
| L71507-03BMSD | Sulfate | mg/L | 300.0 | 64.80 | 50 | 19.42 | 90.8 | 90-110 | 3.75 | 20 | | 5/12/2006 |
| L71515-01BMSD | Chloride | mg/L | 300.0 | 7504 | 5000 | 2533 | 99.4 | 90-110 | 0.425 | 20 | | 5/13/2006 |
| L71507-05BMSD | Acidity | mg/L | 305.1 | 48.00 | 50 | 0 | 96.0 | 80-120 | 8.70 | 20 | | 5/2/2006 |
| L71507-01CMSD | Ammonia (as N) | mg/L | 350.1 | 1.092 | 1 | 0.156 | 93.6 | 90-110 | 7.83 | 10 | | 5/3/2006 |
| L71507-02CMSD | Nitrate/Nitrite (as N) | mg/L | 353.2 | 0.9930 | 1 | 0.022 | 97.1 | 90-110 | 4.43 | 10 | | 5/4/2006 |
| L71507-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.064 | 1 | 0.069 | 99.5 | 90-110 | 0.282 | 10 | H | 4/28/2006 |

H - Insufficient time was given for sample to be run within the hold time.



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R57344 | Oil & Grease | mg/L | EPA 1664 | 40.50 | 40 | 0 | 101 | 79-114 | | | | 5/5/2006 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L71507
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R57344 | Oil & Grease | mg/L | EPA 1664 | 40.00 | 40 | 0 | 100 | 79-114 | 1.24 | 18 | | 5/5/2006 |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# American West Analytical Labs

## WORK ORDER Summary

*28-Apr-06*

**Work Order** L71507

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format. Samples received too close to expiration to run within hold for some Ortho-Phosphates.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L71507-01A | Eagle Outlet | 4/26/2006 11:00:00 AM | 4/28/2006 | 5/12/2006 | Aqueous | SS | ww tss/tds/ss | 1 |
| | | | | 5/12/2006 | | TDS-W | ww tss/tds/ss | 1 |
| | | | | 5/12/2006 | | TSS-W | ww tss/tds/ss | 1 |
| L71507-01B | | | | 5/12/2006 | | 2320B-ALK-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | 300.0-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | ACIDITY-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | PO4-O | apr 28 wc | 1 |
| L71507-01C | | | | 5/12/2006 | | NH3-W | apr 28 nh3 | 1 |
| | | | | 5/12/2006 | | NH3-W-PREP | apr 28 nh3 | 1 |
| | | | | 5/12/2006 | | NO2/NO3-W | apr 28 nh3 | 1 |
| L71507-01D | | | | 5/12/2006 | | 3005A-ICPMS | apr 28 met/total | 1 |
| | | | | 5/12/2006 | | ICP-W | apr 28 met/total | 1 |
| L71507-01E | | | | 5/12/2006 | Aqueous-Dissolved | 3005A-Diss | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | 6020-W-DISS | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | HARD | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | ICP-W-DIS | apr 28 met/dis | 1 |
| L71507-01F | | | | 5/12/2006 | Aqueous | OGB-W | OGBFridge | 1 |
| L71507-02A | Sulfer Spring | 4/26/2006 11:50:00 AM | | 5/12/2006 | | SS | ww tss/tds/ss | 1 |
| | | | | 5/12/2006 | | TDS-W | ww tss/tds/ss | 1 |
| | | | | 5/12/2006 | | TSS-W | ww tss/tds/ss | 1 |
| L71507-02B | | | | 5/12/2006 | | 2320B-ALK-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | 300.0-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | ACIDITY-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | PO4-O | apr 28 wc | 1 |
| L71507-02C | | | | 5/12/2006 | | NH3-W | apr 28 nh3 | 1 |
| | | | | 5/12/2006 | | NH3-W-PREP | apr 28 nh3 | 1 |
| | | | | 5/12/2006 | | NO2/NO3-W | apr 28 nh3 | 1 |

# WORK ORDER Summary

*28-Apr-06*

**Work Order** L71507

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format. Samples received too close to expiration to run within hold for some Ortho-Phosphates.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L71507-02D | Sulfer Spring | 4/26/2006 11:50:00 AM | 4/28/2006 | 5/12/2006 | Aqueous | 3005A-ICPMS | apr 28 met/total | 1 |
| | | | | 5/12/2006 | | ICP-W | apr 28 met/total | 1 |
| L71507-02E | | | | 5/12/2006 | Aqueous-Dissolved | 3005A-Diss | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | 6020-W-DISS | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | HARD | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | ICP-W-DIS | apr 28 met/dis | 1 |
| L71507-02F | | | | 5/12/2006 | Aqueous | OGB-W | OGBFridge | 1 |
| L71507-03A | Angle Spring | 4/26/2006 2:45:00 PM | | 5/12/2006 | | SS | ww tss/tds/ss | 1 |
| | | | | 5/12/2006 | | TDS-W | ww tss/tds/ss | 1 |
| | | | | 5/12/2006 | | TSS-W | ww tss/tds/ss | 1 |
| L71507-03B | | | | 5/12/2006 | | 2320B-ALK-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | 300.0-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | ACIDITY-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | PO4-O | apr 28 wc | 1 |
| L71507-03C | | | | 5/12/2006 | | NH3-W | apr 28 nh3 | 1 |
| | | | | 5/12/2006 | | NH3-W-PREP | apr 28 nh3 | 1 |
| | | | | 5/12/2006 | | NO2/NO3-W | apr 28 nh3 | 1 |
| L71507-03D | | | | 5/12/2006 | | 3005A-ICPMS | apr 28 met/total | 1 |
| | | | | 5/12/2006 | | ICP-W | apr 28 met/total | 1 |
| L71507-03E | | | | 5/12/2006 | Aqueous-Dissolved | 3005A-Diss | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | 6020-W-DISS | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | HARD | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | ICP-W-DIS | apr 28 met/dis | 1 |
| L71507-03F | | | | 5/12/2006 | Aqueous | OGB-W | OGBFridge | 1 |
| L71507-04A | Mud Creek | 4/26/2006 6:50:00 PM | | 5/12/2006 | | SS | ww tss/tds/ss | 1 |
| | | | | 5/12/2006 | | TDS-W | ww tss/tds/ss | 1 |
| | | | | 5/12/2006 | | TSS-W | ww tss/tds/ss | 1 |
| L71507-04B | | | | 5/12/2006 | | 2320B-ALK-W | apr 28 wc | 1 |

# WORK ORDER Summary

*28-Apr-06*

**Work Order** L71507

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format. Samples received too close to expiration to run within hold for some Ortho-Phosphates.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L71507-04B | Mud Creek | 4/26/2006 6:50:00 PM | 4/28/2006 | 5/12/2006 | Aqueous | 300.0-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | ACIDITY-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | PO4-O | apr 28 wc | 1 |
| L71507-04C | | | | 5/12/2006 | | NH3-W | apr 28 nh3 | 1 |
| | | | | 5/12/2006 | | NH3-W-PREP | apr 28 nh3 | 1 |
| | | | | 5/12/2006 | | NO2/NO3-W | apr 28 nh3 | 1 |
| L71507-04D | | | | 5/12/2006 | | 3005A-ICPMS | apr 28 met/total | 1 |
| | | | | 5/12/2006 | | ICP-W | apr 28 met/total | 1 |
| L71507-04E | | | | 5/12/2006 | Aqueous-Dissolved | 3005A-Diss | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | 6020-W-DISS | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | HARD | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | ICP-W-DIS | apr 28 met/dis | 1 |
| L71507-04F | | | | 5/12/2006 | Aqueous | OGB-W | OGBFridge | 1 |
| L71507-05A | CR-06-03-ABV | 4/26/2006 1:15:00 PM | | 5/12/2006 | | TDS-W | ww - tds | 1 |
| L71507-05B | | | | 5/12/2006 | | 2320B-ALK-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | 300.0-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | ACIDITY-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | PO4-O | apr 28 wc | 1 |
| L71507-05C | | | | 5/12/2006 | | NH3-W | apr 28 nh3 | 1 |
| | | | | 5/12/2006 | | NH3-W-PREP | apr 28 nh3 | 1 |
| | | | | 5/12/2006 | | NO2/NO3-W | apr 28 nh3 | 1 |
| L71507-05D | | | | 5/12/2006 | | 3005A-ICPMS | apr 28 met/total | 1 |
| | | | | 5/12/2006 | | ICP-W | apr 28 met/total | 1 |
| L71507-05E | | | | 5/12/2006 | Aqueous-Dissolved | 3005A-Diss | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | 6020-W-DISS | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | HARD | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | ICP-W-DIS | apr 28 met/dis | 1 |
| L71507-06A | Eagle Spring | 4/26/2006 11:30:00 AM | | 5/12/2006 | Aqueous | SS | ww tss/tds/ss | 1 |

# WORK ORDER Summary

*28-Apr-06*

**Work Order** L71507

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format. Samples received too close to expiration to run within hold for some Ortho-Phosphates.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L71507-06A | Eagle Spring | 4/26/2006 11:30:00 AM | 4/28/2006 | 5/12/2006 | Aqueous | TDS-W | ww tss/tds/ss | 1 |
| | | | | 5/12/2006 | | TSS-W | ww tss/tds/ss | 1 |
| L71507-06B | | | | 5/12/2006 | | 2320B-ALK-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | 300.0-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | ACIDITY-W | apr 28 wc | 1 |
| | | | | 5/12/2006 | | PO4-O | apr 28 wc | 1 |
| L71507-06C | | | | 5/12/2006 | | NH3-W | apr 28 nh3 | 1 |
| | | | | 5/12/2006 | | NH3-W-PREP | apr 28 nh3 | 1 |
| | | | | 5/12/2006 | | NO2/NO3-W | apr 28 nh3 | 1 |
| L71507-06D | | | | 5/12/2006 | | 3005A-ICPMS | apr 28 met/total | 1 |
| | | | | 5/12/2006 | | ICP-W | apr 28 met/total | 1 |
| L71507-06E | | | | 5/12/2006 | Aqueous-Dissolved | 3005A-Diss | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | 6020-W-DISS | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | HARD | apr 28 met/dis | 1 |
| | | | | 5/12/2006 | | ICP-W-DIS | apr 28 met/dis | 1 |
| L71507-06F | | | | 5/12/2006 | Aqueous | OGB-W | OGBFridge | 1 |

Client Carbon Resources

Address Attn: Brad Lindsay PO Box 544
Cedaredge CO 81413
City State Zip

Phone 970-856-6788 CELL ~~Fax~~ (435) 851-9044

Contact Brad Lindsay

E-mail rocklogicconsulting@gmail.com

Project Name Scofield Baseline

Project Number/P.O.#

Sampler Name Brad Lindsay

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# CHAIN OF CUSTODY

Lab Sample Set # 71507

Page _____ of _____

Turn Around Time (Circle One)

| 1 day | 2 day | 3 day | 4 day | 5 day | (Standard) |
|---|---|---|---|---|---|
| QC 1 | 2 | 2+ | 3 | 3+ | 4 |

| | Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | table 3 | table 4 | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Please indicate tests needed below | | | | | | | | | | |
| 1 | Eagle Outlet | 4-26-06/11:00 | W | 6 | ✓ | | | | | | | | | | |
| 2 | Culfer Spring | 4-26-06/11:50 | W | 6 | ✓ | | | | | | | | | | |
| 3 | Angie Spring | 4-26-06/14:45 | W | 6 | ✓ | | | | | | | | | | |
| 4 | Mud Creek | 4-26-06/18:50 | W | 6 | ✓ | | | | | | | | | | |
| 5 | CR-06-03-ABV | 4-26-06/13:15 | W | 5 | | ✓ | | | | | | | | | |
| 6 | EAGLE SPRING | 4-26-06/11:30 | W | 6 | ✓ | | | | | | | | | | |

ON FILE

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 11:00 | PRINT NAME |
| ~~Relinquished By: Signature~~ | Date | Received By: Signature |
| PRINT NAME | ~~Time~~ | PRINT NAME |
| ~~Relinquished By: Signature~~ | Date | ~~Received By: Signature~~ |
| PRINT NAME | ~~Time~~ | PRINT NAME |
| Relinquished By: Signature UPS | Date 4/28/06 | Received By: Signature |
| PRINT NAME | Time 1020 | PRINT NAME |

Special Instructions:

Please filter for dissolved metals

4/28/06 Per Brad ok to run $NO_2/NO_3$ so that hold times can be met.

**LABORATORY USE ONLY**

SAMPLES WERE:

1 (Shipped) or hand delivered Notes: UPS

2 Ambient or (Chilled) Notes:

3 Temperature 4.5

4 Received Broken/Leaking (Improperly Sealed) Y (N) Notes:

5 Properly Preserved (Y) N Notes:

6 Received Within Holding Times (Y) N Notes: pH 4/28/06 Yes

COC Tape Was:

1 Present on Outer Package (Y) N NA

2 Unbroken on Outer Package (Y) N NA

3 Present on Sample Y N (NA)

4 Unbroken on Sample Y N (NA) Notes:

Discrepancies Between Sample Labels and COC Record? Y (N) Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | | REPORTED AS |
|---|---|---|---|---|
| * | - | Water level or Flow | | Depth, Flow |
| * | - | pH | | Standard units |
| * | - | Specific Conductivity | | umhos/cm @ 25° C |
| * | - | Temperature | | °C |
| | | **LABORATORY MEASUREMENTS** | | |
| * | - | Total Dissolved Solids | | mg/l |
| * | - | Total Hardness ($CaCO_3$) | | mg/l |
| * | - | Total Alkalinity | | mg/l |
| | - | Acidity | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved)[1] | | mg/l |
| * | - | Carbonate | | mg/l |
| * | - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| * | - | Calcium (Dissolved) | | mg/l |
| * | - | Chloride | mg/l | |
| | - | Copper (Dissolved) | | mg/l |
| * | - | Iron (Dissolved) | | mg/l |
| * | - | Iron (Total) | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| * | - | Magnesium (Dissolved) | | mg/l |
| * | - | Manganese (Dissolved) | | mg/l |
| * | - | Manganese (Total) | | mg/l |
| | - | Molybdenum (Dissolved) | | mg/l |
| | - | Ammonia | | mg/l |
| | - | Nitrates | | mg/l |
| | - | Nitrites | | mg/l |
| * | - | Potassium (Dissolved) | | mg/l |
| | - | Phosphate (Ortho) | | mg/l |
| | - | Selenium[1] (Dissolved) | | mg/l |
| * | - | Sodium (Dissolved) | | mg/l |
| * | - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| * | - | Cations | | meq/l |
| * | - | Anions | | meq/l |

[1] These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 71507

## Preservation Check Sheet

| | | | Sample Set Extension and pH | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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June 09, 2006

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L72071

Dear Brad Lindsay:

American West Analytical Labs received 6 samples on 5/26/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-01D
Field Sample ID: **Eagle Outlet**
Collected: 5/25/2006 2:30:00 PM
Received: 5/26/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 6/8/2006 5:41:56 PM | 6010B | 0.050 | **2.6** |
| Manganese | mg/L | 6/8/2006 5:41:56 PM | 6010B | 0.0050 | **0.16** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-02D
Field Sample ID: **Sulfur Spring**
Collected: 5/25/2006 2:00:00 PM
Received: 5/26/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 6/8/2006 5:45:50 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 6/8/2006 5:45:50 PM | 6010B | 0.0050 | **0.029** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-03D
Field Sample ID: **Angle Spring**
Collected: 5/25/2006 1:00:00 PM
Received: 5/26/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 6/8/2006 5:49:45 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 6/8/2006 5:49:45 PM | 6010B | 0.0050 | < 0.0050 |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-04D
Field Sample ID: **Mud Creek**
Collected: 5/25/2006 1:50:00 PM
Received: 5/26/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 6/8/2006 5:53:39 PM | 6010B | 0.050 | **2.5** |
| Manganese | mg/L | 6/8/2006 5:53:39 PM | 6010B | 0.0050 | **0.096** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-05D
Field Sample ID: **CR-06-03**
Collected: 5/25/2006 1:00:00 PM
Received: 5/26/2006

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Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 6/8/2006 5:57:34 PM | 6010B | 0.050 | **0.51** |
| Manganese | mg/L | 6/8/2006 5:57:34 PM | 6010B | 0.0050 | **0.053** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-06D
Field Sample ID: **Eagle Spring**
Collected: 5/25/2006 3:00:00 PM
Received: 5/26/2006

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Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Iron | mg/L | 6/8/2006 6:05:24 PM | 6010B | 0.050 | **2.2** | [1] |
| Manganese | mg/L | 6/8/2006 6:05:24 PM | 6010B | 0.0050 | **0.0093** | |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-01E
Field Sample ID: **Eagle Outlet**
Collected: 5/25/2006 2:30:00 PM
Received: 5/26/2006


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Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 6/9/2006 8:22:15 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 6/8/2006 4:00:29 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 6/9/2006 8:22:15 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 6/8/2006 4:00:29 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 6/9/2006 8:22:15 AM | 6010B | 10 | **73** |
| Copper | mg/L | 6/8/2006 4:00:29 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 6/9/2006 8:22:15 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 6/8/2006 4:00:29 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 6/9/2006 8:22:15 AM | 6010B | 10 | **14** |
| Manganese | mg/L | 6/8/2006 4:00:29 PM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 6/9/2006 8:22:15 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 6/9/2006 8:22:15 AM | 6010B | 1.0 | **2.0** |
| Selenium | mg/L | 6/8/2006 4:00:29 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 6/9/2006 8:22:15 AM | 6010B | 10 | **15** |
| Zinc | mg/L | 6/8/2006 4:00:29 PM | 6020 | 0.010 | < 0.010 |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-02E
Field Sample ID: **Sulfur Spring**
Collected: 5/25/2006 2:00:00 PM
Received: 5/26/2006

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Laboratory Director

Peggy McNicol
QA Officer

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 6/9/2006 8:38:11 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 6/8/2006 4:32:52 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 6/9/2006 8:38:11 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 6/8/2006 4:32:52 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 6/9/2006 8:38:11 AM | 6010B | 10 | **84** |
| Copper | mg/L | 6/8/2006 4:32:52 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 6/9/2006 8:38:11 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 6/8/2006 4:32:52 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 6/9/2006 8:38:11 AM | 6010B | 10 | **35** |
| Manganese | mg/L | 6/8/2006 4:32:52 PM | 6020 | 0.0050 | **0.028** |
| Molybdenum | mg/L | 6/9/2006 8:38:11 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 6/9/2006 8:38:11 AM | 6010B | 1.0 | **5.0** |
| Selenium | mg/L | 6/8/2006 4:32:52 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 6/9/2006 8:38:11 AM | 6010B | 1.0 | **8.6** |
| Zinc | mg/L | 6/8/2006 4:32:52 PM | 6020 | 0.010 | < 0.010 |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-03E
Field Sample ID: **Angle Spring**
Collected: 5/25/2006 1:00:00 PM
Received: 5/26/2006

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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 6/9/2006 8:42:06 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 6/8/2006 4:38:18 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 6/9/2006 8:42:06 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 6/8/2006 4:38:18 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 6/9/2006 8:42:06 AM | 6010B | 10 | **90** |
| Copper | mg/L | 6/8/2006 4:38:18 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 6/9/2006 8:42:06 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 6/8/2006 4:38:18 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 6/9/2006 8:42:06 AM | 6010B | 10 | **18** |
| Manganese | mg/L | 6/8/2006 4:38:18 PM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 6/9/2006 8:42:06 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 6/9/2006 8:42:06 AM | 6010B | 1.0 | **1.5** |
| Selenium | mg/L | 6/8/2006 4:38:18 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 6/9/2006 8:42:06 AM | 6010B | 1.0 | **9.6** |
| Zinc | mg/L | 6/8/2006 4:38:18 PM | 6020 | 0.010 | **0.010** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-04E
Field Sample ID: **Mud Creek**
Collected: 5/25/2006 1:50:00 PM
Received: 5/26/2006

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 6/9/2006 8:46:01 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 6/8/2006 4:43:43 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 6/9/2006 8:46:01 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 6/8/2006 4:43:43 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 6/9/2006 8:46:01 AM | 6010B | 10 | **48** |
| Copper | mg/L | 6/8/2006 4:43:43 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 6/9/2006 8:46:01 AM | 6010B | 0.050 | **0.052** |
| Lead | mg/L | 6/8/2006 4:43:43 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 6/9/2006 8:46:01 AM | 6010B | 10 | **14** |
| Manganese | mg/L | 6/8/2006 4:43:43 PM | 6020 | 0.0050 | **0.012** |
| Molybdenum | mg/L | 6/9/2006 8:46:01 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 6/9/2006 8:46:01 AM | 6010B | 1.0 | **1.9** |
| Selenium | mg/L | 6/8/2006 4:43:43 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 6/9/2006 8:46:01 AM | 6010B | 10 | **18** |
| Zinc | mg/L | 6/8/2006 4:43:43 PM | 6020 | 0.010 | **0.014** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-05E
Field Sample ID: **CR-06-03**
Collected: 5/25/2006 1:00:00 PM
Received: 5/26/2006

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 6/9/2006 8:49:56 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 6/8/2006 4:49:08 PM | 6020 | 0.0050 | **0.027** |
| Boron | mg/L | 6/9/2006 8:49:56 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 6/8/2006 4:49:08 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 6/9/2006 8:49:56 AM | 6010B | 10 | **110** |
| Copper | mg/L | 6/8/2006 4:49:08 PM | 6020 | 0.0040 | **0.0064** |
| Iron | mg/L | 6/9/2006 8:49:56 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 6/8/2006 4:49:08 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 6/9/2006 8:49:56 AM | 6010B | 10 | **28** |
| Manganese | mg/L | 6/8/2006 4:49:08 PM | 6020 | 0.0050 | **0.048** |
| Molybdenum | mg/L | 6/9/2006 8:49:56 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 6/9/2006 8:49:56 AM | 6010B | 1.0 | **2.3** |
| Selenium | mg/L | 6/8/2006 4:49:08 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 6/9/2006 8:49:56 AM | 6010B | 10 | **20** |
| Zinc | mg/L | 6/8/2006 4:49:08 PM | 6020 | 0.010 | **0.36** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-06E
Field Sample ID: **Eagle Spring**
Collected: 5/25/2006 3:00:00 PM
Received: 5/26/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 6/9/2006 8:53:58 AM | 6010B | 0.10 | **1.2** |
| Arsenic | mg/L | 6/8/2006 4:54:34 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 6/9/2006 8:53:58 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 6/8/2006 4:54:34 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 6/9/2006 8:53:58 AM | 6010B | 10 | **11** |
| Copper | mg/L | 6/8/2006 4:54:34 PM | 6020 | 0.0040 | **0.0063** |
| Iron | mg/L | 6/9/2006 8:53:58 AM | 6010B | 0.050 | **0.94** |
| Lead | mg/L | 6/8/2006 4:54:34 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 6/9/2006 8:53:58 AM | 6010B | 1.0 | **2.7** |
| Manganese | mg/L | 6/8/2006 4:54:34 PM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 6/9/2006 8:53:58 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 6/9/2006 8:53:58 AM | 6010B | 1.0 | **1.1** |
| Selenium | mg/L | 6/8/2006 4:54:34 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 6/9/2006 8:53:58 AM | 6010B | 10 | **11** |
| Zinc | mg/L | 6/8/2006 4:54:34 PM | 6020 | 0.010 | **0.027** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-01
Field Sample ID: **Eagle Outlet**
Collected: 5/25/2006 2:30:00 PM
Received: 5/26/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 5/30/2006 11:20:00 AM | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | **220** | |
| Ammonia (as N) | mg/L | 5/31/2006 11:44:00 AM | 350.1 | 0.050 | **0.088** | |
| Bicarbonate (As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | **210** | |
| Carbonate (As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | **14** | |
| Chloride | mg/L | 6/1/2006 2:33:56 AM | 300.0 | 5.0 | **8.5** | |
| Hardness (as CaCO3) | mg/L | 6/9/2006 | 2340B | 10 | **180** | |
| Nitrate (as N) | mg/L | 5/26/2006 3:52:00 PM | 353.2 | 0.010 | **0.17** | |
| Nitrite (as N) | mg/L | 5/26/2006 3:52:00 PM | 353.2 | 0.010 | < 0.010 | [1] |
| Oil & Grease | mg/L | 5/30/2006 | EPA 1664 | 3.0 | **4.1** | |
| Phosphate, ortho (as P) | mg/L | 5/26/2006 1:58:00 PM | 365.1 | 0.050 | < 0.050 | |
| Settable Solids | ml/L | 5/26/2006 12:30:00 PM | 160.5 | 0.10 | **0.30** | |
| Sulfate | mg/L | 6/1/2006 2:33:56 AM | 300.0 | 5.0 | **19** | [1] |
| TDS | mg/L | 5/26/2006 2:30:00 PM | 160.1 | 10 | **240** | |
| TSS | mg/L | 5/26/2006 4:30:00 PM | 160.2 | 3.0 | **170** | |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-02
Field Sample ID: **Sulfur Spring**
Collected: 5/25/2006 2:00:00 PM
Received: 5/26/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 5/30/2006 11:20:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | **340** |
| Ammonia (as N) | mg/L | 5/31/2006 11:44:00 AM | 350.1 | 0.050 | **0.075** [1] |
| Bicarbonate (As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | **340** |
| Carbonate (As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 6/1/2006 6:32:52 AM | 300.0 | 1.0 | **6.2** |
| Hardness (as CaCO3) | mg/L | 6/9/2006 | 2340B | 10 | **210** |
| Nitrate (as N) | mg/L | 5/26/2006 3:52:00 PM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 5/26/2006 3:52:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 5/30/2006 | EPA 1664 | 3.0 | **3.7** |
| Phosphate, ortho (as P) | mg/L | 5/26/2006 1:58:00 PM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 5/26/2006 12:30:00 PM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 6/1/2006 6:32:52 AM | 300.0 | 10 | **41** |
| TDS | mg/L | 5/26/2006 2:30:00 PM | 160.1 | 10 | **350** |
| TSS | mg/L | 5/26/2006 4:30:00 PM | 160.2 | 3.0 | **3.0** |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*




All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-03
Field Sample ID: **Angle Spring**
Collected: 5/25/2006 1:00:00 PM
Received: 5/26/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 5/30/2006 11:20:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | **290** |
| Ammonia (as N) | mg/L | 5/31/2006 11:44:00 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | **290** |
| Carbonate (As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 6/1/2006 8:46:00 AM | 300.0 | 10 | **22** |
| Hardness (as CaCO3) | mg/L | 6/9/2006 | 2340B | 10 | **220** |
| Nitrate (as N) | mg/L | 5/26/2006 3:52:00 PM | 353.2 | 0.010 | **0.96** |
| Nitrite (as N) | mg/L | 5/26/2006 3:52:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 5/30/2006 | EPA 1664 | 3.0 | **4.3** |
| Phosphate, ortho (as P) | mg/L | 5/26/2006 1:58:00 PM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 5/26/2006 12:30:00 PM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 6/1/2006 8:46:00 AM | 300.0 | 10 | **14** |
| TDS | mg/L | 5/26/2006 2:30:00 PM | 160.1 | 10 | **330** |
| TSS | mg/L | 5/26/2006 4:30:00 PM | 160.2 | 3.0 | < 3.0 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L72071-04
Field Sample ID: **Mud Creek**
Collected: 5/25/2006 1:50:00 PM
Received: 5/26/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 5/30/2006 11:20:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | **160** |
| Ammonia (as N) | mg/L | 5/31/2006 11:44:00 AM | 350.1 | 0.050 | **0.061** |
| Bicarbonate (As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | **150** |
| Carbonate (As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 6/1/2006 9:19:18 AM | 300.0 | 10 | **10** |
| Hardness (as CaCO3) | mg/L | 6/9/2006 | 2340B | 10 | **120** |
| Nitrate (as N) | mg/L | 5/26/2006 3:52:00 PM | 353.2 | 0.010 | **0.74** |
| Nitrite (as N) | mg/L | 5/26/2006 3:52:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 5/30/2006 | EPA 1664 | 3.0 | **3.2** |
| Phosphate, ortho (as P) | mg/L | 5/26/2006 1:58:00 PM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 5/26/2006 12:30:00 PM | 160.5 | 0.10 | **0.50** |
| Sulfate | mg/L | 6/1/2006 9:19:18 AM | 300.0 | 10 | **42** |
| TDS | mg/L | 5/26/2006 2:30:00 PM | 160.1 | 10 | **230** |
| TSS | mg/L | 5/26/2006 4:30:00 PM | 160.2 | 3.0 | **320** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-05
Field Sample ID: **CR-06-03**
Collected: 5/25/2006 1:00:00 PM
Received: 5/26/2006

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Laboratory Director

Peggy McNicol
QA Officer

| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 5/30/2006 11:20:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | **370** |
| Ammonia (as N) | mg/L | 5/31/2006 11:44:00 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | **370** |
| Carbonate (As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 6/1/2006 10:25:51 AM | 300.0 | 10 | **19** |
| Hardness (as CaCO3) | mg/L | 6/9/2006 | 2340B | 10 | **280** |
| Nitrate (as N) | mg/L | 5/26/2006 3:52:00 PM | 353.2 | 0.010 | **0.029** |
| Nitrite (as N) | mg/L | 5/26/2006 3:52:00 PM | 353.2 | 0.010 | **0.018** |
| Phosphate, ortho (as P) | mg/L | 5/26/2006 1:58:00 PM | 365.1 | 0.050 | < 0.050 |
| Sulfate | mg/L | 6/1/2006 10:25:51 AM | 300.0 | 10 | **34** |
| TDS | mg/L | 5/26/2006 2:30:00 PM | 160.1 | 10 | **430** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72071-06
Field Sample ID: **Eagle Spring**
Collected: 5/25/2006 3:00:00 PM
Received: 5/26/2006

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Peggy McNicol
QA Officer

| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 5/30/2006 11:20:00 AM | 305.1 | 15 | **18** |
| Alkalinity,(As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | **34** |
| Ammonia (as N) | mg/L | 5/31/2006 11:44:00 AM | 350.1 | 0.050 | **0.091** |
| Bicarbonate (As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | **34** |
| Carbonate (As CaCO3) | mg/L | 5/30/2006 10:25:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 6/1/2006 10:59:08 AM | 300.0 | 1.0 | **5.0** |
| Hardness (as CaCO3) | mg/L | 6/9/2006 | 2340B | 10 | **28** |
| Nitrate (as N) | mg/L | 5/26/2006 3:52:00 PM | 353.2 | 0.010 | **0.099** |
| Nitrite (as N) | mg/L | 5/26/2006 3:52:00 PM | 353.2 | 0.010 | **0.025** |
| Oil & Grease | mg/L | 5/30/2006 | EPA 1664 | 3.0 | **3.4** |
| Phosphate, ortho (as P) | mg/L | 5/26/2006 1:58:00 PM | 365.1 | 0.050 | **0.060** |
| Settable Solids | ml/L | 5/26/2006 12:30:00 PM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 6/1/2006 10:59:08 AM | 300.0 | 1.0 | **6.0** |
| TDS | mg/L | 5/26/2006 2:30:00 PM | 160.1 | 10 | **140** |
| TSS | mg/L | 5/26/2006 4:30:00 PM | 160.2 | 3.0 | **33** |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

**Dept:** ME
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-28869 | Arsenic | mg/L | 6020 | 0.1992 | 0.2 | 0 | 99.6 | 85-115 | | | | 6/8/2006 |
| LCS-28869 | Cadmium | mg/L | 6020 | 0.2070 | 0.2 | 0 | 103 | 85-115 | | | | 6/8/2006 |
| LCS-28869 | Copper | mg/L | 6020 | 0.1959 | 0.2 | 0.001271 | 97.3 | 85-115 | | | | 6/8/2006 |
| LCS-28869 | Lead | mg/L | 6020 | 0.2062 | 0.2 | 0 | 103 | 85-115 | | | | 6/8/2006 |
| LCS-28869 | Manganese | mg/L | 6020 | 0.1973 | 0.2 | 0.001246 | 98.0 | 85-115 | | | | 6/8/2006 |
| LCS-28869 | Selenium | mg/L | 6020 | 0.2045 | 0.2 | 0 | 102 | 85-115 | | | | 6/8/2006 |
| LCS-28869 | Zinc | mg/L | 6020 | 1.025 | 1 | 0.005381 | 102 | 85-115 | | | | 6/8/2006 |
| LCS-28847 | Iron | mg/L | 6010B | 1.070 | 1 | 0 | 107 | 75-125 | | | | 6/8/2006 |
| LCS-28847 | Manganese | mg/L | 6010B | 0.2098 | 0.2 | 0 | 105 | 75-125 | | | | 6/8/2006 |
| LCS-28869 | Aluminum | mg/L | 6010B | 0.8537 | 1 | 0 | 85.4 | 75-125 | | | | 6/9/2006 |
| LCS-28869 | Boron | mg/L | 6010B | 0.9591 | 1 | 0 | 95.9 | 75-125 | | | | 6/9/2006 |
| LCS-28869 | Calcium | mg/L | 6010B | 9.889 | 10 | 0 | 98.9 | 75-125 | | | | 6/9/2006 |
| LCS-28869 | Iron | mg/L | 6010B | 1.046 | 1 | 0 | 105 | 75-125 | | | | 6/9/2006 |
| LCS-28869 | Magnesium | mg/L | 6010B | 10.08 | 10 | 0 | 101 | 75-125 | | | | 6/9/2006 |
| LCS-28869 | Molybdenum | mg/L | 6010B | 0.1982 | 0.2 | 0 | 99.1 | 75-125 | | | | 6/9/2006 |
| LCS-28869 | Potassium | mg/L | 6010B | 10.25 | 10 | 0 | 103 | 75-125 | | | | 6/9/2006 |
| LCS-28869 | Sodium | mg/L | 6010B | 10.08 | 10 | 0 | 101 | 75-125 | | | | 6/9/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

**Dept:** ME
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-28869 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 6/8/2006 |
| MB-28869 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 6/8/2006 |
| MB-28869 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 6/8/2006 |
| MB-28869 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 6/8/2006 |
| MB-28869 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 6/8/2006 |
| MB-28869 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 6/8/2006 |
| MB-28869 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 6/8/2006 |
| MB-28847 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 6/8/2006 |
| MB-28847 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 6/8/2006 |
| MB-28869 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 6/9/2006 |
| MB-28869 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 6/9/2006 |
| MB-28869 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 6/9/2006 |
| MB-28869 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 6/9/2006 |
| MB-28869 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 6/9/2006 |
| MB-28869 | Molybdenum | mg/L | 6010B | < 0.10 | | | | - | | | | 6/9/2006 |
| MB-28869 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 6/9/2006 |
| MB-28869 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 6/9/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

**Dept:** ME
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L72071-01EMS | Arsenic | mg/L | 6020 | 0.1822 | 0.2 | 0 | 91.1 | 70-130 | | | | 6/8/2006 |
| L72071-01EMS | Cadmium | mg/L | 6020 | 0.2003 | 0.2 | 0 | 100 | 70-130 | | | | 6/8/2006 |
| L72071-01EMS | Copper | mg/L | 6020 | 0.2029 | 0.2 | 0.001984 | 100 | 70-130 | | | | 6/8/2006 |
| L72071-01EMS | Lead | mg/L | 6020 | 0.2044 | 0.2 | 0 | 102 | 70-130 | | | | 6/8/2006 |
| L72071-01EMS | Manganese | mg/L | 6020 | 0.2034 | 0.2 | 0.002744 | 100 | 70-130 | | | | 6/8/2006 |
| L72071-01EMS | Selenium | mg/L | 6020 | 0.1967 | 0.2 | 0.001008 | 97.8 | 70-130 | | | | 6/8/2006 |
| L72071-01EMS | Zinc | mg/L | 6020 | 1.002 | 1 | 0.008989 | 99.3 | 70-130 | | | | 6/8/2006 |
| L72071-06DMS | Iron | mg/L | 6010B | 3.870 | 1 | 2.245 | 163 | 75-125 | | | [1] | 6/8/2006 |
| L72071-06DMS | Manganese | mg/L | 6010B | 0.2226 | 0.2 | 0.009323 | 107 | 75-125 | | | | 6/8/2006 |
| L72071-01EMS | Aluminum | mg/L | 6010B | 0.9483 | 1 | 0 | 94.8 | 75-125 | | | | 6/9/2006 |
| L72071-01EMS | Boron | mg/L | 6010B | 1.071 | 1 | 0.02007 | 105 | 75-125 | | | | 6/9/2006 |
| L72071-01EMS | Calcium | mg/L | 6010B | 82.78 | 10 | 72.91 | 98.7 | 75-125 | | | | 6/9/2006 |
| L72071-01EMS | Iron | mg/L | 6010B | 1.072 | 1 | 0.01717 | 106 | 75-125 | | | | 6/9/2006 |
| L72071-01EMS | Magnesium | mg/L | 6010B | 24.15 | 10 | 14.45 | 97.0 | 75-125 | | | | 6/9/2006 |
| L72071-01EMS | Molybdenum | mg/L | 6010B | 0.2186 | 0.2 | 0 | 109 | 75-125 | | | | 6/9/2006 |
| L72071-01EMS | Potassium | mg/L | 6010B | 12.58 | 10 | 1.973 | 106 | 75-125 | | | | 6/9/2006 |
| L72071-01EMS | Sodium | mg/L | 6010B | 25.58 | 10 | 15.27 | 103 | 75-125 | | | | 6/9/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

**Dept:** ME
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L72071-01EMSD | Arsenic | mg/L | 6020 | 0.1979 | 0.2 | 0 | 99.0 | 70-130 | 8.28 | 20 | | 6/8/2006 |
| L72071-01EMSD | Cadmium | mg/L | 6020 | 0.2009 | 0.2 | 0 | 100 | 70-130 | 0.255 | 20 | | 6/8/2006 |
| L72071-01EMSD | Copper | mg/L | 6020 | 0.2065 | 0.2 | 0.001984 | 102 | 70-130 | 1.76 | 20 | | 6/8/2006 |
| L72071-01EMSD | Lead | mg/L | 6020 | 0.2080 | 0.2 | 0 | 104 | 70-130 | 1.75 | 20 | | 6/8/2006 |
| L72071-01EMSD | Manganese | mg/L | 6020 | 0.2076 | 0.2 | 0.002744 | 102 | 70-130 | 2.00 | 20 | | 6/8/2006 |
| L72071-01EMSD | Selenium | mg/L | 6020 | 0.2063 | 0.2 | 0.001008 | 103 | 70-130 | 4.79 | 20 | | 6/8/2006 |
| L72071-01EMSD | Zinc | mg/L | 6020 | 0.9970 | 1 | 0.008989 | 98.8 | 70-130 | 0.462 | 20 | | 6/8/2006 |
| L72071-06DMSD | Iron | mg/L | 6010B | 3.828 | 1 | 2.245 | 158 | 75-125 | 1.09 | 20 | 1 | 6/8/2006 |
| L72071-06DMSD | Manganese | mg/L | 6010B | 0.2187 | 0.2 | 0.009323 | 105 | 75-125 | 1.76 | 20 | | 6/8/2006 |
| L72071-01EMSD | Aluminum | mg/L | 6010B | 0.9052 | 1 | 0 | 90.5 | 75-125 | 4.64 | 20 | | 6/9/2006 |
| L72071-01EMSD | Boron | mg/L | 6010B | 1.102 | 1 | 0.02007 | 108 | 75-125 | 2.89 | 20 | | 6/9/2006 |
| L72071-01EMSD | Calcium | mg/L | 6010B | 82.94 | 10 | 72.91 | 100 | 75-125 | 0.193 | 20 | | 6/9/2006 |
| L72071-01EMSD | Iron | mg/L | 6010B | 1.080 | 1 | 0.01717 | 106 | 75-125 | 0.697 | 20 | | 6/9/2006 |
| L72071-01EMSD | Magnesium | mg/L | 6010B | 24.58 | 10 | 14.45 | 101 | 75-125 | 1.76 | 20 | | 6/9/2006 |
| L72071-01EMSD | Molybdenum | mg/L | 6010B | 0.2164 | 0.2 | 0 | 108 | 75-125 | 0.972 | 20 | | 6/9/2006 |
| L72071-01EMSD | Potassium | mg/L | 6010B | 13.26 | 10 | 1.973 | 113 | 75-125 | 5.29 | 20 | | 6/9/2006 |
| L72071-01EMSD | Sodium | mg/L | 6010B | 25.62 | 10 | 15.27 | 104 | 75-125 | 0.156 | 20 | | 6/9/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

**Dept:** WC
**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L71960-06DDUP | TDS | mg/L | 160.1 | 1900 | 0 | 1840 | | - | 3.21 | 20 | | 5/26/2006 |
| L72023-05ADUP | TDS | mg/L | 160.1 | 1980 | 0 | 2000 | | - | 1.01 | 20 | | 5/26/2006 |
| L72056-02ADUP | TDS | mg/L | 160.1 | 2680 | 0 | 2440 | | - | 9.38 | 20 | | 5/26/2006 |
| L72071-06ADUP | TDS | mg/L | 160.1 | 140.0 | 0 | 136 | | - | 2.90 | 20 | | 5/26/2006 |
| L72051-01ADUP | TSS | mg/L | 160.2 | 5.000 | 0 | 0 | | - | 22.2 | 20 | * | 5/26/2006 |
| L72071-06ADUP | TSS | mg/L | 160.2 | 32.00 | 0 | 0 | | - | 3.08 | 20 | | 5/26/2006 |

* High RPD due to low analyte concentration. In this range, high RPD's may be expected.



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

**Dept:** WC
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R58257 | Alkalinity,(As CaCO3) | mg/L | 2320B | 53320 | 50000 | 0 | 107 | 90-110 | | | | 5/30/2006 |
| LCS-R58397 | Chloride | mg/L | 300.0 | 4.986 | 5 | 0 | 99.7 | 90-110 | | | | 5/31/2006 |
| LCS-R58397 | Sulfate | mg/L | 300.0 | 5.453 | 5 | 0 | 109 | 90-110 | | | | 5/31/2006 |
| LCS-R58258 | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 5/30/2006 |
| LCS-28854 | Ammonia (as N) | mg/L | 350.1 | 1.001 | 1 | 0 | 100 | 90-110 | | | | 5/31/2006 |
| LCS-28854 | Ammonia (as N) | mg/L | 350.1 | 1.001 | 1 | 0 | 100 | 90-110 | | | | 5/31/2006 |
| LCS-58204 | Nitrite (as N) | mg/L | 353.2 | 0.9540 | 1 | 0 | 95.4 | 90-110 | | | | 5/26/2006 |
| LCS-58205 | Nitrate (as N) | mg/L | 353.2 | 0.9310 | 1 | 0 | 93.1 | 90-110 | | | | 5/26/2006 |
| LCS-R58289 | Oil & Grease | mg/L | EPA 1664 | 41.80 | 40 | 0 | 104 | 79-114 | | | | 5/30/2006 |
| LCS-58198 | Phosphate, ortho (as P) | mg/L | 365.1 | 1.014 | 1 | 0 | 101 | 90-110 | | | | 5/26/2006 |
| LCS-R58294 | TDS | mg/L | 160.1 | 194.0 | 205 | 0 | 94.6 | 80-120 | | | | 5/26/2006 |
| LCS-R58244 | TSS | mg/L | 160.2 | 101.0 | 100 | 0 | 101 | 80-120 | | | | 5/26/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

**Dept:** WC
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R58257 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 5/30/2006 |
| MB-R58257 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 5/30/2006 |
| MB-R58257 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 5/30/2006 |
| MB-R58397 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 5/31/2006 |
| MB-R58397 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 5/31/2006 |
| MB-R58258 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 5/30/2006 |
| MB-28854 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 5/31/2006 |
| MB-28854 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 5/31/2006 |
| MB-58204 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 5/26/2006 |
| MB-58205 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 5/26/2006 |
| MB-R58289 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 5/30/2006 |
| MB-58198 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 5/26/2006 |
| MB-R58294 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 5/26/2006 |
| MB-R58244 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 5/26/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

**Dept:** WC
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L72071-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 329.0 | 100 | 225 | 104 | 80-120 | | | | 5/30/2006 |
| L71960-01CMS | Chloride | mg/L | 300.0 | 179.4 | 100 | 80.62 | 98.8 | 90-110 | | | | 5/31/2006 |
| L71960-01CMS | Sulfate | mg/L | 300.0 | 163.7 | 100 | 49.39 | 114 | 90-110 | | | 1 | 5/31/2006 |
| L72071-01BMS | Chloride | mg/L | 300.0 | 34.10 | 25 | 8.522 | 102 | 90-110 | | | | 6/1/2006 |
| L72071-01BMS | Sulfate | mg/L | 300.0 | 46.45 | 25 | 18.74 | 111 | 90-110 | | | 1 | 6/1/2006 |
| L72071-05BMS | Acidity | mg/L | 305.1 | 46.00 | 50 | 0 | 92.0 | 80-120 | | | | 5/30/2006 |
| L72071-02CMS | Ammonia (as N) | mg/L | 350.1 | 0.9220 | 1 | 0.075 | 84.7 | 90-110 | | | 1 | 5/31/2006 |
| L72084-05AMS | Ammonia (as N) | mg/L | 350.1 | 4.572 | 1 | 3.593 | 97.9 | 90-110 | | | | 5/31/2006 |
| L72071-01BMS | Nitrite (as N) | mg/L | 353.2 | 0.9380 | 1 | 0.009 | 92.9 | 90-110 | | | | 5/26/2006 |
| L72071-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.116 | 1 | 0.169 | 94.7 | 90-110 | | | | 5/26/2006 |
| L72071-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.066 | 1 | 0.046 | 102 | 90-110 | | | | 5/26/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

**Dept:** WC
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L72071-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 325.0 | 100 | 225 | 100 | 80-120 | 1.22 | 10 | | 5/30/2006 |
| L71960-01CMSD | Chloride | mg/L | 300.0 | 178.7 | 100 | 80.62 | 98.1 | 90-110 | 0.384 | 20 | | 5/31/2006 |
| L71960-01CMSD | Sulfate | mg/L | 300.0 | 155.0 | 100 | 49.39 | 106 | 90-110 | 5.41 | 20 | | 5/31/2006 |
| L72071-01BMSD | Chloride | mg/L | 300.0 | 34.10 | 25 | 8.522 | 102 | 90-110 | 0.00586 | 20 | | 6/1/2006 |
| L72071-01BMSD | Sulfate | mg/L | 300.0 | 47.87 | 25 | 18.74 | 116 | 90-110 | 3.01 | 20 | 1 | 6/1/2006 |
| L72071-05BMSD | Acidity | mg/L | 305.1 | 46.00 | 50 | 0 | 92.0 | 80-120 | 0 | 20 | | 5/30/2006 |
| L72071-02CMSD | Ammonia (as N) | mg/L | 350.1 | 0.9570 | 1 | 0.075 | 88.2 | 90-110 | 3.73 | 10 | 1 | 5/31/2006 |
| L72084-05AMSD | Ammonia (as N) | mg/L | 350.1 | 4.445 | 1 | 3.593 | 85.2 | 90-110 | 2.82 | 10 | 1 | 5/31/2006 |
| L72071-01BMSD | Nitrite (as N) | mg/L | 353.2 | 0.8990 | 1 | 0.009 | 89.0 | 90-110 | 4.25 | 10 | 1 | 5/26/2006 |
| L72071-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.116 | 1 | 0.169 | 94.7 | 90-110 | 0 | 10 | | 5/26/2006 |
| L72071-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.080 | 1 | 0.046 | 103 | 90-110 | 1.30 | 10 | | 5/26/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686, Toll Free (888) 263-8686, Fax (801) 263-8687
e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R58289 | Oil & Grease | mg/L | EPA 1664 | 39.80 | 40 | 0 | 99.5 | 79-114 | | | | 5/30/2006 |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72071
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R58289 | Oil & Grease | mg/L | EPA 1664 | 40.10 | 40 | 0 | 100 | 79-114 | 0.751 | 18 | | 5/30/2006 |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# American West Analytical Labs

## WORK ORDER Summary

*30-May-06*

**Work Order** L72071

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:** Hook

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L72071-01A | Eagle Outlet | 5/25/2006 2:30:00 PM | 5/26/2006 | 6/9/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 6/9/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 6/9/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L72071-01B | | | | 6/9/2006 | | 2320B-ALK-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | 300.0-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | ACIDITY-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | NO2-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | NO3-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | PO4-O | may 26 - wc | 1 |
| L72071-01C | | | | 6/9/2006 | | NH3-W | may 26 - nh3 | 1 |
| | | | | 6/9/2006 | | NH3-W-PREP | may 26 - nh3 | 1 |
| L72071-01D | | | | 6/9/2006 | | 3005A-ICPMS | may 26 - met | 1 |
| | | | | 6/9/2006 | | ICP-W | may 26 - met | 1 |
| L72071-01E | | | | 6/9/2006 | Aqueous-Dissolved | 3005A-Diss | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | 6020-W-DISS | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | HARD | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | ICP-W-DIS | may 26 - dis met | 1 |
| L72071-01F | | | | 6/9/2006 | Aqueous | OGB-W | ogb | 1 |
| L72071-02A | Sulfur Spring | 5/25/2006 2:00:00 PM | | 6/9/2006 | | SS | ww - tss/tds/ss | 1 |
| | | | | 6/9/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 6/9/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L72071-02B | | | | 6/9/2006 | | 2320B-ALK-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | 300.0-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | ACIDITY-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | NO2-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | NO3-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | PO4-O | may 26 - wc | 1 |

72071

# WORK ORDER Summary

*30-May-06*

**Work Order** L72071

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L72071-02C | Sulfur Spring | 5/25/2006 2:00:00 PM | 5/26/2006 | 6/9/2006 | Aqueous | NH3-W | may 26 - nh3 | 1 |
| | | | | 6/9/2006 | | NH3-W-PREP | may 26 - nh3 | 1 |
| L72071-02D | | | | 6/9/2006 | | 3005A-ICPMS | may 26 - met | 1 |
| | | | | 6/9/2006 | | ICP-W | may 26 - met | 1 |
| L72071-02E | | | | 6/9/2006 | Aqueous-Dissolved | 3005A-Diss | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | 6020-W-DISS | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | HARD | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | ICP-W-DIS | may 26 - dis met | 1 |
| L72071-02F | | | | 6/9/2006 | Aqueous | OGB-W | ogb | 1 |
| L72071-03A | Angle Spring | 5/25/2006 1:00:00 PM | | 6/9/2006 | | SS | ww - tss/tds/ss | 1 |
| | | | | 6/9/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 6/9/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L72071-03B | | | | 6/9/2006 | | 2320B-ALK-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | 300.0-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | ACIDITY-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | NO2-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | NO3-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | PO4-O | may 26 - wc | 1 |
| L72071-03C | | | | 6/9/2006 | | NH3-W | may 26 - nh3 | 1 |
| | | | | 6/9/2006 | | NH3-W-PREP | may 26 - nh3 | 1 |
| L72071-03D | | | | 6/9/2006 | | 3005A-ICPMS | may 26 - met | 1 |
| | | | | 6/9/2006 | | ICP-W | may 26 - met | 1 |
| L72071-03E | | | | 6/9/2006 | Aqueous-Dissolved | 3005A-Diss | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | 6020-W-DISS | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | HARD | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | ICP-W-DIS | may 26 - dis met | 1 |
| L72071-03F | | | | 6/9/2006 | Aqueous | OGB-W | ogb | 1 |
| L72071-04A | Mud Creek | 5/25/2006 1:50:00 PM | | 6/9/2006 | | SS | ww - tss/tds/ss | 1 |

# WORK ORDER Summary

*30-May-06*

**Work Order** L72071

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L72071-04A | Mud Creek | 5/25/2006 1:50:00 PM | 5/26/2006 | 6/9/2006 | Aqueous | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 6/9/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L72071-04B | | | | 6/9/2006 | | 2320B-ALK-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | 300.0-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | ACIDITY-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | NO2-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | NO3-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | PO4-O | may 26 - wc | 1 |
| L72071-04C | | | | 6/9/2006 | | NH3-W | may 26 - nh3 | 1 |
| | | | | 6/9/2006 | | NH3-W-PREP | may 26 - nh3 | 1 |
| L72071-04D | | | | 6/9/2006 | | 3005A-ICPMS | may 26 - met | 1 |
| | | | | 6/9/2006 | | ICP-W | may 26 - met | 1 |
| L72071-04E | | | | 6/9/2006 | Aqueous-Dissolved | 3005A-Diss | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | 6020-W-DISS | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | HARD | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | ICP-W-DIS | may 26 - dis met | 1 |
| L72071-04F | | | | 6/9/2006 | Aqueous | OGB-W | ogb | 1 |
| L72071-05A | CR-06-03 | 5/25/2006 1:00:00 PM | | 6/9/2006 | | TDS-W | ww - tds | 1 |
| L72071-05B | | | | 6/9/2006 | | 2320B-ALK-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | 300.0-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | ACIDITY-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | NO2-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | NO3-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | PO4-O | may 26 - wc | 1 |
| L72071-05C | | | | 6/9/2006 | | NH3-W | may 26 - nh3 | 1 |
| | | | | 6/9/2006 | | NH3-W-PREP | may 26 - nh3 | 1 |
| L72071-05D | | | | 6/9/2006 | | 3005A-ICPMS | may 26 - met | 1 |
| | | | | 6/9/2006 | | ICP-W | may 26 - met | 1 |

# WORK ORDER Summary

*30-May-06*

**Work Order** L72071

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L72071-05E | CR-06-03 | 5/25/2006 1:00:00 PM | 5/26/2006 | 6/9/2006 | Aqueous-Dissolved | 3005A-Diss | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | 6020-W-DISS | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | HARD | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | ICP-W-DIS | may 26 - dis met | 1 |
| L72071-06A | Eagle Spring | 5/25/2006 3:00:00 PM | | 6/9/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 6/9/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 6/9/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L72071-06B | | | | 6/9/2006 | | 2320B-ALK-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | 300.0-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | ACIDITY-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | NO2-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | NO3-W | may 26 - wc | 1 |
| | | | | 6/9/2006 | | PO4-O | may 26 - wc | 1 |
| L72071-06C | | | | 6/9/2006 | | NH3-W | may 26 - nh3 | 1 |
| | | | | 6/9/2006 | | NH3-W-PREP | may 26 - nh3 | 1 |
| L72071-06D | | | | 6/9/2006 | | 3005A-ICPMS | may 26 - met | 1 |
| | | | | 6/9/2006 | | ICP-W | may 26 - met | 1 |
| L72071-06E | | | | 6/9/2006 | Aqueous-Dissolved | 3005A-Diss | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | 6020-W-DISS | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | HARD | may 26 - dis met | 1 |
| | | | | 6/9/2006 | | ICP-W-DIS | may 26 - dis met | 1 |
| L72071-06F | | | | 6/9/2006 | Aqueous | OGB-W | ogb | 1 |

# American West Analytical Laboratories

Chain of Custody — Lab Sample Set # 72071

Page 1 of 1

Client: **Carbon Resources - CO Rock Logic**
Address: **PO Box 544**
**Cedaredge, CO 81413**
Project Name: **Scofield Baseline**
PO#:

Contact: **Brad Lindsay**
Phone: **(435) 851-9044**
Fax :
Email: **rocklogicconsulting@gmail.com**

QC Level: **2+**
Turn Around Time

| | Sample ID: | Date Sampled | Time | # of Containers | Sample Matrix | | Table 3 | Table 4 | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 1 | **Eagle Outlet** | 5/25/2006 | 14:30 | 6 | w | | x | | |
| 2 | **Sulfur Spring** | 5/25/2006 | 14:00 | 6 | w | | x | | |
| 3 | **Angle Spring** | 5/25/2006 | 13:00 | 6 | w | | x | | |
| 4 | **Mud Creek** | 5/25/2006 | 13:50 | 6 | w | | x | | |
| 5 | **CR-06-03** | 5/25/2006 | 13:00 | 5 | w | | | x | |
| 6 | **Eagle Spring** | 5/25/2006 | 15:00 | 6 | w | | x | | |
| 7 | | | | | | | | | |
| 8 | | | | | | | | | |
| 9 | | | | | | | | | |
| 10 | | | | | | | | | |
| 11 | | | | | | | | | |
| 12 | | | | | | | | | |
| 13 | | | | | | | | | |
| 14 | | | | | | | | | |
| 15 | | | | | | | | | |

**Laboratory Use Only**

Samples Were:
1. Shipped or hand delivered — UPS
2. Ambient or Chilled
3. Temperature: 10 °C
4. Received Broken/Leaking (Improperly Sealed): Y N
5. Properly Preserved: Y N
6. Received Within Holding Times: Y N

COC Tape Was:
1. Present on Outer Package: Y N NA
2. Unbroken on Outer Package: Y N NA
3. Present on Sample: Y N NA
4. Unbroken on Sample: Y N NA

Discrepancies Between Sample Labels and COC Record? Y N

Special Instructions: **Lab to filter for Metals. Include EDD in Excel format.**

| | | | |
|---|---|---|---|
| Relinquished by: Signature: Brad Lindsay | Date: 5/25/06 | Received by: Signature: UPS | Date: 5/26/06 |
| Print Name: BRAD LINDSAY | Time: 17:00 | Print Name: | Time: 17:00 |
| Relinquished by: Signature: UPS | Date: 5/26/06 | Received by: Signature: Rebekah Winkler | Date: 5/26/06 |
| Print Name: | Time: 11:19 | Print Name: REBEKAH WINKLER | Time: 11:19 |

May 30 06 07:54a Clay Wisdom 435-448-9693 p.2

Brad Lindsay <lindsay.brad@gmail.com>

## Missing Chain of Custody

1 message

**Rebekah Winkler <Rebekah@awal-labs.com>** **Fri, May 26, 2006 at 5:41 PM**
To: "Brad Lindsay (E-mail)" <ROCKLOGICCONSULTING@gmail.com>

Brad,

I received your samples for Scofield Baseline today in good condition, but without a chain of custody. I've created one based on the ID's from the sample containers. If I could get you to sign it and fax it back to me it should be considered legalish.
<<IMAGE.PDF>>
Thanks,
-Rebekah Winkler
Sample Custody Officer
American West Analytical Laboratories
463 W. 3600 S.
Salt Lake City, UT 84115
www.awal-labs.com
Tel: (801) 263-8686
Fax: (801) 263-8687
email: rebekah@awal-labs.com

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IMAGE.PDF
178K

30 MAY 06

REBEKAH –

THANKS! THE CHAIN LOOKS GOOD.

I WILL BE SENDING ONE MORE SAMPLE TODAY (TUESDAY). I WILL REMEMBER THE CHAIN THIS TIME –

THIS IS A TWO PAGE FAX

# American West Analytical Laboratories

Chain of Custody

Lab Sample Set # 72071

Page 1 of 1

Client: **Carbon Resources - CO Rock Logic**
Address: **PO Box 544**
**Cedaredge, CO 81413**
Project Name: **Scofield Baseline**
PO#:

Contact: **Brad Lindsay**
Phone: **(435) 851-9044**
Fax :
Email: **rocklogicconsulting@gmail.com**

QC Level: **2+**
Turn Around Time

| | Sample ID: | Date Sampled | Time | # of Containers | Sample Matrix | | Table 3 | Table 4 | | | | | | | | | | | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **Eagle Outlet** | 5/25/2006 | 14:30 | 6 | w | | x | | | | | | | | | | | | |
| 2 | **Sulfur Spring** | 5/25/2006 | 14:00 | 6 | w | | x | | | | | | | | | | | | |
| 3 | **Angle Spring** | 5/25/2006 | 13:00 | 6 | w | | x | | | | | | | | | | | | |
| 4 | **Mud Creek** | 5/25/2006 | 13:50 | 6 | w | | x | | | | | | | | | | | | |
| 5 | **CR-06-03** | 5/25/2006 | 13:00 | 5 | w | | | x | | | | | | | | | | | |
| 6 | **Eagle Spring** | 5/25/2006 | 15:00 | 6 | w | | x | | | | | | | | | | | | |
| 7 | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | | | | | | | | | | | | | | | |
| 14 | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | | | | | | | | | | | | | | | |

**Laboratory Use Only**

Samples Were:
1 Shipped or hand delivered — UPS
2 Ambient or Chilled
3 Temperature 10°C
4 Received Broken/Leaking (Improperly Sealed) — Y **N**
5 Properly Preserved — **Y** N
6 Received Within Holding Times — **Y** N

COC Tape Was:
1 Present on Outer Package — Y **N** NA
2 Unbroken on Outer Package — Y N **NA**
3 Present on Sample — Y **N** NA
4 Unbroken on Sample — Y N **NA**

Discrepancies Between Sample Labels and COC Record? — Y **N**

Special Instructions: **Lab to filter for Metals. Include EDD in Excel format.**

| Relinquished by: *Signature* | Date: | Received by: *Signature* | Date: |
|---|---|---|---|
| *Print Name* | Time: | *Print Name* | Time: |
| Relinquished by: *Signature* UPS | Date: 5/26/06 | Received by: *Signature* | Date: 5/26/06 |
| *Print Name* | Time: 11:19 | *Print Name* REBEKAH WINKLER | Time: 11:19 |

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | | |
|---|---|---|---|---|
| * | - | Total Dissolved Solids | | mg/l |
| * | - | Total Hardness ($CaCO_3$) | | mg/l |
| * | - | Total Alkalinity | | mg/l |
| | - | Acidity | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved)[1] | | mg/l |
| * | - | Carbonate | | mg/l |
| * | - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| * | - | Calcium (Dissolved) | | mg/l |
| * | - | Chloride | mg/l | |
| | - | Copper (Dissolved) | | mg/l |
| * | - | Iron (Dissolved) | | mg/l |
| * | - | Iron (Total) | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| * | - | Magnesium (Dissolved) | | mg/l |
| * | - | Manganese (Dissolved) | | mg/l |
| * | - | Manganese (Total) | | mg/l |
| | - | Molybdenum (Dissolved) | | mg/l |
| | - | Ammonia | | mg/l |
| | - | Nitrates | | mg/l |
| | - | Nitrites | | mg/l |
| * | - | Potassium (Dissolved) | | mg/l |
| | - | Phosphate (Ortho) | | mg/l |
| | - | Selenium[1] (Dissolved) | | mg/l |
| * | - | Sodium (Dissolved) | | mg/l |
| * | - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| * | - | Cations | | meq/l |
| * | - | Anions | | meq/l |

1 These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 72071

## Preservation Check Sheet

| | | | Sample Set Extension and pH | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

June 13, 2006

**AMERICAN WEST ANALYTICAL LABORATORIES**

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e-mail: awal@awal-labs.com

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L72109

Dear Brad Lindsay:

American West Analytical Labs received 1 sample on 5/31/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72109-01D
Field Sample ID: **Res-1**
Collected: 5/30/2006 9:30:00 AM
Received: 5/31/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 6/8/2006 7:00:48 PM | 6010B | 0.050 | **0.35** |
| Manganese | mg/L | 6/7/2006 1:09:43 AM | 6010B | 0.0050 | **0.092** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72109-01E
Field Sample ID: **Res-1**
Collected: 5/30/2006 9:30:00 AM
Received: 5/31/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 6/12/2006 11:45:17 AM | 6010B | 0.10 | < 0.10 | @ |
| Arsenic | mg/L | 6/12/2006 7:48:04 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 6/12/2006 11:45:17 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 6/12/2006 7:48:04 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 6/12/2006 11:45:17 AM | 6010B | 1.0 | **53** | |
| Copper | mg/L | 6/12/2006 7:48:04 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 6/12/2006 11:45:17 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 6/12/2006 7:48:04 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 6/12/2006 11:45:17 AM | 6010B | 1.0 | **16** | |
| Manganese | mg/L | 6/13/2006 12:02:52 AM | 6020 | 0.0050 | < 0.0050 | |
| Molybdenum | mg/L | 6/12/2006 11:45:17 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 6/12/2006 11:45:17 AM | 6010B | 1.0 | **2.1** | |
| Selenium | mg/L | 6/12/2006 7:48:04 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 6/12/2006 11:45:17 AM | 6010B | 1.0 | **9.1** | |
| Zinc | mg/L | 6/12/2006 7:48:04 PM | 6020 | 0.010 | **0.013** | |

*@ High RPD due to suspected matrix interference.*



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72109-01
Field Sample ID: **Res-1**
Collected: 5/30/2006 9:30:00 AM
Received: 5/31/2006

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 6/1/2006 8:40:00 AM | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 6/1/2006 8:10:00 AM | 2320B | 10 | **170** | |
| Ammonia (as N) | mg/L | 6/5/2006 12:17:00 PM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 6/1/2006 8:10:00 AM | 2320B | 10 | **170** | |
| Carbonate (As CaCO3) | mg/L | 6/1/2006 8:10:00 AM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 6/2/2006 1:10:05 AM | 300.0 | 1.0 | **3.6** | |
| Hardness (as CaCO3) | mg/L | 6/12/2006 | 2340B | 10 | **200** | |
| Nitrate (as N) | mg/L | 5/31/2006 1:34:00 PM | 353.2 | 0.010 | **0.056** | |
| Nitrite (as N) | mg/L | 5/31/2006 1:34:00 PM | 353.2 | 0.010 | < 0.010 | |
| Oil & Grease | mg/L | 6/6/2006 | EPA 1664 | 3.0 | **4.3** | * # |
| Phosphate, ortho (as P) | mg/L | 6/1/2006 8:03:00 AM | 365.1 | 0.050 | < 0.050 | [1]@ |
| Settable Solids | ml/L | 5/31/2006 11:45:00 AM | 160.5 | 0.10 | **0.10** | |
| Sulfate | mg/L | 6/2/2006 1:10:05 AM | 300.0 | 10 | **34** | [1] |
| TDS | mg/L | 5/31/2006 3:00:00 PM | 160.1 | 10 | **230** | |
| TSS | mg/L | 5/31/2006 4:00:00 PM | 160.2 | 3.0 | **14** | |

*[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*
*@ High RPD due to suspected matrix interference.*
*# Sample required additional preservative upon receipt.*
** Sample was received in incorrect container.*



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-28931 | Arsenic | mg/L | 6020 | 0.2208 | 0.2 | 0 | 110 | 85-115 | | | | 6/12/2006 |
| LCS-28931 | Cadmium | mg/L | 6020 | 0.2240 | 0.2 | 0 | 112 | 85-115 | | | | 6/12/2006 |
| LCS-28931 | Copper | mg/L | 6020 | 0.1853 | 0.2 | 0 | 92.6 | 85-115 | | | | 6/12/2006 |
| LCS-28931 | Lead | mg/L | 6020 | 0.2100 | 0.2 | 0 | 105 | 85-115 | | | | 6/12/2006 |
| LCS-28931 | Selenium | mg/L | 6020 | 0.2221 | 0.2 | 0 | 111 | 85-115 | | | | 6/12/2006 |
| LCS-28931 | Zinc | mg/L | 6020 | 1.129 | 1 | 0.003792 | 113 | 85-115 | | | | 6/12/2006 |
| LCS-28931 | Manganese | mg/L | 6020 | 0.2102 | 0.2 | 0 | 105 | 85-115 | | | | 6/12/2006 |
| LCS-28932 | Manganese | mg/L | 6010B | 0.2144 | 0.2 | 0 | 107 | 75-125 | | | | 6/7/2006 |
| LCS-28932 | Iron | mg/L | 6010B | 1.070 | 1 | 0 | 107 | 75-125 | | | | 6/8/2006 |
| LCS-28931 | Aluminum | mg/L | 6010B | 1.037 | 1 | 0 | 104 | 75-125 | | | | 6/12/2006 |
| LCS-28931 | Boron | mg/L | 6010B | 1.049 | 1 | 0 | 105 | 75-125 | | | | 6/12/2006 |
| LCS-28931 | Calcium | mg/L | 6010B | 10.53 | 10 | 0 | 105 | 75-125 | | | | 6/12/2006 |
| LCS-28931 | Iron | mg/L | 6010B | 1.080 | 1 | 0 | 108 | 75-125 | | | | 6/12/2006 |
| LCS-28931 | Magnesium | mg/L | 6010B | 10.69 | 10 | 0 | 107 | 75-125 | | | | 6/12/2006 |
| LCS-28931 | Molybdenum | mg/L | 6010B | 0.2156 | 0.2 | 0 | 108 | 75-125 | | | | 6/12/2006 |
| LCS-28931 | Potassium | mg/L | 6010B | 9.709 | 10 | 0 | 97.1 | 75-125 | | | | 6/12/2006 |
| LCS-28931 | Sodium | mg/L | 6010B | 10.31 | 10 | 0 | 103 | 75-125 | | | | 6/12/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

**Dept:** ME

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-28931 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 6/12/2006 |
| MB-28931 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 6/12/2006 |
| MB-28931 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 6/12/2006 |
| MB-28931 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 6/12/2006 |
| MB-28931 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 6/12/2006 |
| MB-28931 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 6/12/2006 |
| MB-28931 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 6/12/2006 |
| MB-28932 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 6/7/2006 |
| MB-28932 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 6/8/2006 |
| MB-28931 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 6/12/2006 |
| MB-28931 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 6/12/2006 |
| MB-28931 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 6/12/2006 |
| MB-28931 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 6/12/2006 |
| MB-28931 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 6/12/2006 |
| MB-28931 | Molybdenum | mg/L | 6010B | < 0.10 | | | | - | | | | 6/12/2006 |
| MB-28931 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 6/12/2006 |
| MB-28931 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 6/12/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L72094-04AMS | Zinc | mg/L | 6020 | 3.250 | 1 | 2.157 | 109 | 70-130 | | | | 6/12/2006 |
| L72109-01EMS | Arsenic | mg/L | 6020 | 0.1945 | 0.2 | 0 | 97.3 | 70-130 | | | | 6/12/2006 |
| L72109-01EMS | Cadmium | mg/L | 6020 | 0.2023 | 0.2 | 0 | 101 | 70-130 | | | | 6/12/2006 |
| L72109-01EMS | Copper | mg/L | 6020 | 0.1743 | 0.2 | 0.001792 | 86.3 | 70-130 | | | | 6/12/2006 |
| L72109-01EMS | Lead | mg/L | 6020 | 0.1915 | 0.2 | 0 | 95.8 | 70-130 | | | | 6/12/2006 |
| L72109-01EMS | Selenium | mg/L | 6020 | 0.2190 | 0.2 | 0 | 110 | 70-130 | | | | 6/12/2006 |
| L72109-01EMS | Zinc | mg/L | 6020 | 1.016 | 1 | 0.0131 | 100 | 70-130 | | | | 6/12/2006 |
| L72109-01EMS | Manganese | mg/L | 6020 | 0.2037 | 0.2 | 0.001869 | 101 | 70-130 | | | | 6/13/2006 |
| L72109-01DMS | Manganese | mg/L | 6010B | 0.2958 | 0.2 | 0.09197 | 102 | 75-125 | | | | 6/7/2006 |
| L72109-01DMS | Iron | mg/L | 6010B | 1.379 | 1 | 0.3454 | 103 | 75-125 | | | | 6/8/2006 |
| L72109-01EMS | Aluminum | mg/L | 6010B | 0.8648 | 1 | 0 | 86.5 | 75-125 | | | | 6/12/2006 |
| L72109-01EMS | Boron | mg/L | 6010B | 0.9986 | 1 | 0 | 99.9 | 75-125 | | | | 6/12/2006 |
| L72109-01EMS | Calcium | mg/L | 6010B | 61.46 | 10 | 53.34 | 81.1 | 75-125 | | | | 6/12/2006 |
| L72109-01EMS | Iron | mg/L | 6010B | 1.016 | 1 | 0.01065 | 101 | 75-125 | | | | 6/12/2006 |
| L72109-01EMS | Magnesium | mg/L | 6010B | 25.34 | 10 | 16.26 | 90.8 | 75-125 | | | | 6/12/2006 |
| L72109-01EMS | Molybdenum | mg/L | 6010B | 0.1986 | 0.2 | 0 | 99.3 | 75-125 | | | | 6/12/2006 |
| L72109-01EMS | Potassium | mg/L | 6010B | 11.99 | 10 | 2.071 | 99.2 | 75-125 | | | | 6/12/2006 |
| L72109-01EMS | Sodium | mg/L | 6010B | 18.25 | 10 | 9.136 | 91.2 | 75-125 | | | | 6/12/2006 |

Sample L72094-4A required additional preservative upon receipt.



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L72094-04AMSD | Zinc | mg/L | 6020 | 3.188 | 1 | 2.157 | 103 | 70-130 | 1.95 | 20 | | 6/12/2006 |
| L72109-01EMSD | Arsenic | mg/L | 6020 | 0.2234 | 0.2 | 0 | 112 | 70-130 | 13.8 | 20 | | 6/12/2006 |
| L72109-01EMSD | Cadmium | mg/L | 6020 | 0.2156 | 0.2 | 0 | 108 | 70-130 | 6.35 | 20 | | 6/12/2006 |
| L72109-01EMSD | Copper | mg/L | 6020 | 0.1739 | 0.2 | 0.001792 | 86.1 | 70-130 | 0.230 | 20 | | 6/12/2006 |
| L72109-01EMSD | Lead | mg/L | 6020 | 0.2054 | 0.2 | 0 | 103 | 70-130 | 7.01 | 20 | | 6/12/2006 |
| L72109-01EMSD | Selenium | mg/L | 6020 | 0.2468 | 0.2 | 0 | 123 | 70-130 | 11.9 | 20 | | 6/12/2006 |
| L72109-01EMSD | Zinc | mg/L | 6020 | 1.079 | 1 | 0.0131 | 107 | 70-130 | 6.03 | 20 | | 6/12/2006 |
| L72109-01EMSD | Manganese | mg/L | 6020 | 0.2127 | 0.2 | 0.001869 | 105 | 70-130 | 4.28 | 20 | | 6/13/2006 |
| L72109-01DMSD | Manganese | mg/L | 6010B | 0.2942 | 0.2 | 0.09197 | 101 | 75-125 | 0.539 | 20 | | 6/7/2006 |
| L72109-01DMSD | Iron | mg/L | 6010B | 1.341 | 1 | 0.3454 | 99.5 | 75-125 | 2.81 | 20 | | 6/8/2006 |
| L72109-01EMSD | Aluminum | mg/L | 6010B | 1.078 | 1 | 0 | 108 | 75-125 | 21.9 | 20 | @ | 6/12/2006 |
| L72109-01EMSD | Boron | mg/L | 6010B | 1.051 | 1 | 0 | 105 | 75-125 | 5.13 | 20 | | 6/12/2006 |
| L72109-01EMSD | Calcium | mg/L | 6010B | 63.01 | 10 | 53.34 | 96.6 | 75-125 | 2.49 | 20 | | 6/12/2006 |
| L72109-01EMSD | Iron | mg/L | 6010B | 1.124 | 1 | 0.01065 | 111 | 75-125 | 10.0 | 20 | | 6/12/2006 |
| L72109-01EMSD | Magnesium | mg/L | 6010B | 25.98 | 10 | 16.26 | 97.2 | 75-125 | 2.49 | 20 | | 6/12/2006 |
| L72109-01EMSD | Molybdenum | mg/L | 6010B | 0.2115 | 0.2 | 0 | 106 | 75-125 | 6.27 | 20 | | 6/12/2006 |
| L72109-01EMSD | Potassium | mg/L | 6010B | 12.98 | 10 | 2.071 | 109 | 75-125 | 7.90 | 20 | | 6/12/2006 |
| L72109-01EMSD | Sodium | mg/L | 6010B | 18.99 | 10 | 9.136 | 98.5 | 75-125 | 3.94 | 20 | | 6/12/2006 |

@ High RPD due to suspected matrix interference.
Sample L72094-4A required additional preservative upon receipt.



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Kyle F. Gross
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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L72097-01CDUP | TDS | mg/L | 160.1 | 508.0 | 0 | 544 | | - | 6.84 | 20 | | 5/31/2006 |
| L72109-01ADUP | TDS | mg/L | 160.1 | 212.0 | 0 | 228 | | - | 7.27 | 20 | | 5/31/2006 |
| L72095-02ADUP | TSS | mg/L | 160.2 | 4.000 | 0 | 5 | | - | 22.2 | 20 | * | 5/31/2006 |
| L72097-02CDUP | TSS | mg/L | 160.2 | < 3.0 | 0 | 0 | | - | 0 | 20 | | 5/31/2006 |
| L72109-01ADUP | TSS | mg/L | 160.2 | 14.00 | 0 | 14 | | - | 0 | 20 | | 5/31/2006 |
| L72110-03ADUP | TSS | mg/L | 160.2 | 7.000 | 0 | 9 | | - | 25.0 | 20 | * | 5/31/2006 |

* High RPD due to low analyte concentration. In this range, high RPD's may be expected.



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R58360 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50740 | 50000 | 0 | 101 | 90-110 | | | | 6/1/2006 |
| LCS-R58446 | Chloride | mg/L | 300.0 | 5.010 | 5 | 0 | 100 | 90-110 | | | | 6/2/2006 |
| LCS-R58446 | Sulfate | mg/L | 300.0 | 5.277 | 5 | 0 | 106 | 90-110 | | | | 6/2/2006 |
| LCS-R58359 | Acidity | mg/L | 305.1 | 55.00 | 50 | 0 | 110 | 80-120 | | | | 6/1/2006 |
| LCS-28890 | Ammonia (as N) | mg/L | 350.1 | 1.033 | 1 | 0 | 103 | 90-110 | | | | 6/5/2006 |
| LCS-58324 | Nitrite (as N) | mg/L | 353.2 | 1.010 | 1 | 0 | 101 | 90-110 | | | | 5/31/2006 |
| LCS | Nitrate (as N) | mg/L | 353.2 | 1.054 | 1 | 0 | 105 | 90-110 | | | | 5/31/2006 |
| LCS-R58550 | Oil & Grease | mg/L | EPA 1664 | 44.60 | 40 | 0 | 112 | 79-114 | | | | 6/6/2006 |
| LCS-58358 | Phosphate, ortho (as P) | mg/L | 365.1 | 1.042 | 1 | 0 | 104 | 90-110 | | | | 6/1/2006 |
| LCS-R58370 | TDS | mg/L | 160.1 | 204.0 | 205 | 0 | 99.5 | 80-120 | | | | 5/31/2006 |
| LCS-R58364 | TSS | mg/L | 160.2 | 105.0 | 100 | 0 | 105 | 80-120 | | | | 5/31/2006 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

**Dept:** WC
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R58360 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 6/1/2006 |
| MB-R58360 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 6/1/2006 |
| MB-R58360 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 6/1/2006 |
| MB-R58446 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 6/2/2006 |
| MB-R58446 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 6/2/2006 |
| MB-R58359 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 6/1/2006 |
| MB-28890 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 6/5/2006 |
| MB-58324 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 5/31/2006 |
| MBLK | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 5/31/2006 |
| MB-R58550 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 6/6/2006 |
| MB-58358 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 6/1/2006 |
| MB-R58370 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 5/31/2006 |
| MB-R58364 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 5/31/2006 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

**Dept:** WC
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L72109-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 268.0 | 100 | 167 | 101 | 80-120 | | | | 6/1/2006 |
| L72109-01BMS | Chloride | mg/L | 300.0 | 8.508 | 5 | 3.635 | 97.5 | 90-110 | | | | 6/2/2006 |
| L72109-01BMS | Sulfate | mg/L | 300.0 | 91.09 | 50 | 34.46 | 113 | 90-110 | | | 1 | 6/2/2006 |
| L72110-05AMS | Ammonia (as N) | mg/L | 350.1 | 2.929 | 1 | 2.069 | 86.0 | 90-110 | | | 1 | 6/5/2006 |
| L72109-01CMS | Ammonia (as N) | mg/L | 350.1 | 0.9450 | 1 | 0.031 | 91.4 | 90-110 | | | | 6/5/2006 |
| L72109-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.005 | 1 | 0 | 101 | 90-110 | | | | 5/31/2006 |
| L72109-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.092 | 1 | 0.056 | 104 | 90-110 | | | | 5/31/2006 |
| L72109-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.128 | 1 | 0.02 | 111 | 90-110 | | | 1 | 6/1/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L72109-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 268.0 | 100 | 167 | 101 | 80-120 | 0 | 10 | | 6/1/2006 |
| L72109-01BMSD | Chloride | mg/L | 300.0 | 8.411 | 5 | 3.635 | 95.5 | 90-110 | 1.15 | 20 | | 6/2/2006 |
| L72109-01BMSD | Sulfate | mg/L | 300.0 | 87.02 | 50 | 34.46 | 105 | 90-110 | 4.57 | 20 | | 6/2/2006 |
| L72110-05AMSD | Ammonia (as N) | mg/L | 350.1 | 2.983 | 1 | 2.069 | 91.4 | 90-110 | 1.83 | 10 | | 6/5/2006 |
| L72109-01CMSD | Ammonia (as N) | mg/L | 350.1 | 0.9660 | 1 | 0.031 | 93.5 | 90-110 | 2.20 | 10 | | 6/5/2006 |
| L72109-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.003 | 1 | 0 | 100 | 90-110 | 0.199 | 10 | | 5/31/2006 |
| L72109-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.081 | 1 | 0.056 | 103 | 90-110 | 1.01 | 10 | | 5/31/2006 |
| L72109-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.018 | 1 | 0.02 | 99.8 | 90-110 | 10.3 | 10 | @ | 6/1/2006 |

@ High RPD due to suspected matrix interference.



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R58550 | Oil & Grease | mg/L | EPA 1664 | 40.20 | 40 | 0 | 100 | 79-114 | | | | 6/6/2006 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72109
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R58550 | Oil & Grease | mg/L | EPA 1664 | 41.80 | 40 | 0 | 104 | 79-114 | 3.90 | 18 | | 6/6/2006 |



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# American West Analytical Labs

## WORK ORDER Summary

*31-May-06*

**Work Order** L72109

**Client ID:** WHI100 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: 2+. Footnote report, O&G required additional preservative.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L72109-01A | Res-1 | 5/30/2006 9:30:00 AM | 5/31/2006 | 6/14/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 6/14/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 6/14/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L72109-01B | | | | 6/14/2006 | | 2320B-ALK-W | may 31 - wc | 1 |
| | | | | 6/14/2006 | | 300.0-W | may 31 - wc | 1 |
| | | | | 6/14/2006 | | ACIDITY-W | may 31 - wc | 1 |
| | | | | 6/14/2006 | | NO2-W | may 31 - wc | 1 |
| | | | | 6/14/2006 | | NO3-W | may 31 - wc | 1 |
| | | | | 6/14/2006 | | PO4-O | may 31 - wc | 1 |
| L72109-01C | | | | 6/14/2006 | | NH3-W | may 31 - nh3 | 1 |
| | | | | 6/14/2006 | | NH3-W-PREP | may 31 - nh3 | 1 |
| L72109-01D | | | | 6/14/2006 | | 3005A-ICPMS | may 31 - met | 1 |
| | | | | 6/14/2006 | | ICP-W | may 31 - met | 1 |
| L72109-01E | | | | 6/14/2006 | Aqueous-Dissolved | 3005A-Diss | may 31 - dis met | 1 |
| | | | | 6/14/2006 | | 6020-W-DISS | may 31 - dis met | 1 |
| | | | | 6/14/2006 | | HARD | may 31 - dis met | 1 |
| | | | | 6/14/2006 | | ICP-W-DIS | may 31 - dis met | 1 |
| L72109-01F | | | | 6/14/2006 | Aqueous | OGB-W | ogb | 1 |

72109

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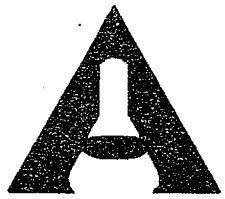
Project Name Scofield baseline
Project Number/P.O.#
Sampler Name Brad Lindsay



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# CHAIN OF CUSTODY

Lab Sample Set # 72109
Page 1 of 1

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | | table 3 | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Res-1 | 5.30.06 9:30 | W | 1 | | ✓ | | | | | | | | | |

Please indicate tests needed below

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 13:00 | PRINT NAME UPS |
| Relinquished By: Signature UPS | Date 5/31/06 | Received By: Signature |
| PRINT NAME | Time 10:20 | PRINT NAME KEBEKAH NIMMER |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

please filter for dissolved metals

O and G bottle preserved with approx. 2 ml 10% HCl

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes: UPS
2 Ambient or Chilled
Notes:
3 Temperature 3°C
4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:
5 Properly Preserved
Y N
Notes: O+G out
6 Received Within Holding Times
Y N
Notes:

COC Tape Was:
1 Present on Outer Package
Y N NA
2 Unbroken on Outer Package
Y N NA
3 Present on Sample
Y N NA
4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 72109

## Preservation Check Sheet

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | Except 01 | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | | 5 | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

July 12, 2006

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Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L72660

Dear Brad Lindsay:

American West Analytical Labs received 6 samples on 6/30/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-01D
Field Sample ID: **Miller Outlet**
Collected: 6/29/2006 12:00:00 PM
Received: 6/30/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Iron | mg/L | 7/11/2006 5:17:38 PM | 6010B | 0.050 | **2.4** | [2] |
| Manganese | mg/L | 7/11/2006 5:17:38 PM | 6010B | 0.0050 | **0.13** | |

[2] *Analyte concentration is too high for accurate spike recovery.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-03D
Field Sample ID: **Sulfer Spring**
Collected: 6/29/2006 11:00:00 AM
Received: 6/30/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 7/11/2006 5:41:23 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 7/11/2006 5:41:23 PM | 6010B | 0.0050 | **0.029** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-04D
Field Sample ID: **Mud Creek**
Collected: 6/29/2006 10:30:00 AM
Received: 6/30/2006

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Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 7/11/2006 5:45:19 PM | 6010B | 0.050 | **0.25** |
| Manganese | mg/L | 7/11/2006 5:45:19 PM | 6010B | 0.0050 | **0.030** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-05D
Field Sample ID: **Angle Spring**
Collected: 6/29/2006 10:00:00 AM
Received: 6/30/2006

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Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 7/11/2006 5:49:15 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 7/11/2006 5:49:15 PM | 6010B | 0.0050 | < 0.0050 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-06D
Field Sample ID: **CR-06-03-ABV**
Collected: 6/29/2006 9:00:00 AM
Received: 6/30/2006

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Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 7/11/2006 5:53:11 PM | 6010B | 0.050 | **0.31** |
| Manganese | mg/L | 7/11/2006 5:53:11 PM | 6010B | 0.0050 | **0.025** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-07D
Field Sample ID: **Scofield Res. 1**
Collected: 6/29/2006 11:30:00 AM
Received: 6/30/2006

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Kyle F. Gross
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Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 7/11/2006 5:57:07 PM | 6010B | 0.050 | **0.37** |
| Manganese | mg/L | 7/11/2006 5:57:07 PM | 6010B | 0.0050 | **0.058** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-01E
Field Sample ID: **Miller Outlet**
Collected: 6/29/2006 12:00:00 PM
Received: 6/30/2006

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QA Officer

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 7/12/2006 8:31:45 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 7/11/2006 5:35:50 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 7/12/2006 8:31:45 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 7/11/2006 5:35:50 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 7/12/2006 8:31:45 AM | 6010B | 10 | **67** |
| Copper | mg/L | 7/11/2006 5:35:50 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 7/12/2006 8:31:45 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 7/11/2006 5:35:50 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 7/12/2006 8:31:45 AM | 6010B | 1.0 | **16** |
| Manganese | mg/L | 7/11/2006 5:35:50 PM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 7/12/2006 8:31:45 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 7/12/2006 8:31:45 AM | 6010B | 1.0 | **1.9** |
| Selenium | mg/L | 7/12/2006 12:58:39 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 7/12/2006 8:31:45 AM | 6010B | 1.0 | **5.4** |
| Zinc | mg/L | 7/11/2006 5:35:50 PM | 6020 | 0.010 | **0.010** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-03E
Field Sample ID: **Sulfer Spring**
Collected: 6/29/2006 11:00:00 AM
Received: 6/30/2006


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Laboratory Director

Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 7/12/2006 8:35:42 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 7/11/2006 5:41:15 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 7/12/2006 8:35:42 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 7/11/2006 5:41:15 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 7/12/2006 8:35:42 AM | 6010B | 10 | **84** |
| Copper | mg/L | 7/11/2006 5:41:15 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 7/12/2006 8:35:42 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 7/11/2006 5:41:15 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 7/12/2006 8:35:42 AM | 6010B | 10 | **35** |
| Manganese | mg/L | 7/11/2006 5:41:15 PM | 6020 | 0.0050 | **0.029** |
| Molybdenum | mg/L | 7/12/2006 8:35:42 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 7/12/2006 8:35:42 AM | 6010B | 1.0 | **4.4** |
| Selenium | mg/L | 7/12/2006 1:04:00 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 7/12/2006 8:35:42 AM | 6010B | 1.0 | **7.8** |
| Zinc | mg/L | 7/11/2006 5:41:15 PM | 6020 | 0.010 | < 0.010 |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-04E
Field Sample ID: **Mud Creek**
Collected: 6/29/2006 10:30:00 AM
Received: 6/30/2006


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Laboratory Director

Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 7/12/2006 8:39:39 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 7/11/2006 5:46:39 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 7/12/2006 8:39:39 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 7/11/2006 5:46:39 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 7/12/2006 8:39:39 AM | 6010B | 10 | **71** |
| Copper | mg/L | 7/11/2006 5:46:39 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 7/12/2006 8:39:39 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 7/11/2006 5:46:39 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 7/12/2006 8:39:39 AM | 6010B | 10 | **39** |
| Manganese | mg/L | 7/11/2006 5:46:39 PM | 6020 | 0.0050 | **0.019** |
| Molybdenum | mg/L | 7/12/2006 8:39:39 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 7/12/2006 8:39:39 AM | 6010B | 1.0 | **6.0** |
| Selenium | mg/L | 7/12/2006 1:09:23 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 7/12/2006 8:39:39 AM | 6010B | 1.0 | **28** |
| Zinc | mg/L | 7/11/2006 5:46:39 PM | 6020 | 0.010 | < 0.010 |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-05E
Field Sample ID: **Angle Spring**
Collected: 6/29/2006 10:00:00 AM
Received: 6/30/2006


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Laboratory Director

Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 7/12/2006 8:51:28 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 7/11/2006 5:52:03 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 7/12/2006 8:51:28 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 7/11/2006 5:52:03 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 7/12/2006 8:51:28 AM | 6010B | 10 | **92** |
| Copper | mg/L | 7/11/2006 5:52:03 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 7/12/2006 8:51:28 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 7/11/2006 5:52:03 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 7/12/2006 8:51:28 AM | 6010B | 10 | **18** |
| Manganese | mg/L | 7/11/2006 5:52:03 PM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 7/12/2006 8:51:28 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 7/12/2006 8:51:28 AM | 6010B | 1.0 | **1.2** |
| Selenium | mg/L | 7/12/2006 1:14:47 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 7/12/2006 8:51:28 AM | 6010B | 1.0 | **8.7** |
| Zinc | mg/L | 7/11/2006 5:52:03 PM | 6020 | 0.010 | < 0.010 |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-06E
Field Sample ID: **CR-06-03-ABV**
Collected: 6/29/2006 9:00:00 AM
Received: 6/30/2006


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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 7/12/2006 8:55:20 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 7/11/2006 5:57:27 PM | 6020 | 0.0050 | **0.033** |
| Boron | mg/L | 7/12/2006 8:55:20 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 7/11/2006 5:57:27 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 7/12/2006 8:55:20 AM | 6010B | 10 | **110** |
| Copper | mg/L | 7/11/2006 5:57:27 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 7/12/2006 8:55:20 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 7/11/2006 5:57:27 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 7/12/2006 8:55:20 AM | 6010B | 10 | **29** |
| Manganese | mg/L | 7/11/2006 5:57:27 PM | 6020 | 0.0050 | **0.031** |
| Molybdenum | mg/L | 7/12/2006 8:55:20 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 7/12/2006 8:55:20 AM | 6010B | 1.0 | **2.0** |
| Selenium | mg/L | 7/12/2006 1:20:10 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 7/12/2006 8:55:20 AM | 6010B | 1.0 | **8.7** |
| Zinc | mg/L | 7/11/2006 5:57:27 PM | 6020 | 0.010 | **0.38** |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-07E
Field Sample ID: **Scofield Res. 1**
Collected: 6/29/2006 11:30:00 AM
Received: 6/30/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 7/12/2006 9:03:05 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 7/11/2006 6:02:52 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 7/12/2006 9:03:05 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 7/11/2006 6:02:52 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 7/12/2006 9:03:05 AM | 6010B | 10 | **32** |
| Copper | mg/L | 7/11/2006 6:02:52 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 7/12/2006 9:03:05 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 7/11/2006 6:02:52 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 7/12/2006 9:03:05 AM | 6010B | 1.0 | **16** |
| Manganese | mg/L | 7/11/2006 6:02:52 PM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 7/12/2006 9:03:05 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 7/12/2006 9:03:05 AM | 6010B | 1.0 | **1.3** |
| Selenium | mg/L | 7/12/2006 1:25:34 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 7/12/2006 9:03:05 AM | 6010B | 1.0 | **8.4** |
| Zinc | mg/L | 7/11/2006 6:02:52 PM | 6020 | 0.010 | < 0.010 |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-01
Field Sample ID: **Miller Outlet**
Collected: 6/29/2006 12:00:00 PM
Received: 6/30/2006

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Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 7/3/2006 8:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | **220** |
| Ammonia (as N) | mg/L | 7/7/2006 4:41:00 PM | 350.1 | 0.050 | **0.055** |
| Bicarbonate (As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | **220** |
| Carbonate (As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | < 20 |
| Chloride | mg/L | 7/5/2006 12:05:29 PM | 300.0 | 1.0 | **8.8** |
| Hardness (as CaCO3) | mg/L | 7/11/2006 | 2340B | 10 | **260** |
| Nitrate (as N) | mg/L | 6/30/2006 3:03:00 PM | 353.2 | 0.010 | **0.075** |
| Nitrite (as N) | mg/L | 6/30/2006 3:03:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 6/30/2006 | EPA 1664 | 3.0 | **3.9** |
| Phosphate, ortho (as P) | mg/L | 6/30/2006 12:20:00 PM | 365.1 | 0.050 | **0.077** |
| Settable Solids | ml/L | 6/30/2006 10:30:00 AM | 160.5 | 0.10 | **0.20** |
| Sulfate | mg/L | 7/5/2006 12:05:29 PM | 300.0 | 10 | **20** |
| TDS | mg/L | 6/30/2006 3:00:00 PM | 160.1 | 20 | **200** |
| TSS | mg/L | 6/30/2006 5:15:00 PM | 160.2 | 3.0 | **150** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-03
Field Sample ID: **Sulfer Spring**
Collected: 6/29/2006 11:00:00 AM
Received: 6/30/2006

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Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 7/3/2006 8:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | **330** |
| Ammonia (as N) | mg/L | 7/7/2006 4:41:00 PM | 350.1 | 0.050 | **0.064** |
| Bicarbonate (As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | **330** |
| Carbonate (As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | < 20 |
| Chloride | mg/L | 7/5/2006 1:45:11 AM | 300.0 | 1.0 | **6.2** |
| Hardness (as CaCO3) | mg/L | 7/11/2006 | 2340B | 10 | **390** |
| Nitrate (as N) | mg/L | 6/30/2006 3:03:00 PM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 6/30/2006 3:03:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 6/30/2006 | EPA 1664 | 3.0 | **4.4** |
| Phosphate, ortho (as P) | mg/L | 6/30/2006 12:20:00 PM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 6/30/2006 10:30:00 AM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 7/5/2006 1:45:11 AM | 300.0 | 10 | **44** |
| TDS | mg/L | 6/30/2006 3:00:00 PM | 160.1 | 20 | **310** |
| TSS | mg/L | 6/30/2006 5:15:00 PM | 160.2 | 3.0 | **6.0** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-04
Field Sample ID: **Mud Creek**
Collected: 6/29/2006 10:30:00 AM
Received: 6/30/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 7/3/2006 8:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | **230** |
| Ammonia (as N) | mg/L | 7/7/2006 4:41:00 PM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | **180** |
| Carbonate (As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | **55** |
| Chloride | mg/L | 7/5/2006 2:51:40 AM | 300.0 | 10 | **14** |
| Hardness (as CaCO3) | mg/L | 7/11/2006 | 2340B | 10 | **380** |
| Nitrate (as N) | mg/L | 6/30/2006 3:03:00 PM | 353.2 | 0.010 | **0.22** |
| Nitrite (as N) | mg/L | 6/30/2006 3:03:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 6/30/2006 | EPA 1664 | 3.0 | **4.4** |
| Phosphate, ortho (as P) | mg/L | 6/30/2006 12:20:00 PM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 6/30/2006 10:30:00 AM | 160.5 | 0.10 | **0.10** |
| Sulfate | mg/L | 7/5/2006 2:51:40 AM | 300.0 | 100 | **160** |
| TDS | mg/L | 6/30/2006 3:00:00 PM | 160.1 | 20 | **380** |
| TSS | mg/L | 6/30/2006 5:15:00 PM | 160.2 | 3.0 | **21** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-05
Field Sample ID: **Angle Spring**
Collected: 6/29/2006 10:00:00 AM
Received: 6/30/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 7/3/2006 8:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | **290** |
| Ammonia (as N) | mg/L | 7/7/2006 4:41:00 PM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | **290** |
| Carbonate (As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | < 20 |
| Chloride | mg/L | 7/5/2006 3:58:08 AM | 300.0 | 10 | **22** |
| Hardness (as CaCO3) | mg/L | 7/11/2006 | 2340B | 10 | **330** |
| Nitrate (as N) | mg/L | 6/30/2006 3:03:00 PM | 353.2 | 0.010 | **0.94** |
| Nitrite (as N) | mg/L | 6/30/2006 3:03:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 6/30/2006 | EPA 1664 | 3.0 | **3.1** |
| Phosphate, ortho (as P) | mg/L | 6/30/2006 12:20:00 PM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 6/30/2006 10:30:00 AM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 7/5/2006 3:58:08 AM | 300.0 | 10 | **18** |
| TDS | mg/L | 6/30/2006 3:00:00 PM | 160.1 | 20 | **280** |
| TSS | mg/L | 6/30/2006 5:15:00 PM | 160.2 | 3.0 | < 3.0 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-06
Field Sample ID: **CR-06-03-ABV**
Collected: 6/29/2006 9:00:00 AM
Received: 6/30/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 7/3/2006 8:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | **380** |
| Ammonia (as N) | mg/L | 7/7/2006 4:41:00 PM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | **380** |
| Carbonate (As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | < 20 |
| Chloride | mg/L | 7/5/2006 5:37:53 AM | 300.0 | 10 | **17** |
| Hardness (as CaCO3) | mg/L | 7/11/2006 | 2340B | 10 | **430** |
| Nitrate (as N) | mg/L | 6/30/2006 3:03:00 PM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 6/30/2006 3:03:00 PM | 353.2 | 0.010 | < 0.010 |
| Phosphate, ortho (as P) | mg/L | 6/30/2006 12:20:00 PM | 365.1 | 0.050 | < 0.050 |
| Sulfate | mg/L | 7/5/2006 5:37:53 AM | 300.0 | 10 | **39** |
| TDS | mg/L | 6/30/2006 3:00:00 PM | 160.1 | 20 | **370** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L72660-07
Field Sample ID: **Scofield Res. 1**
Collected: 6/29/2006 11:30:00 AM
Received: 6/30/2006


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Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 7/3/2006 8:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | **160** |
| Ammonia (as N) | mg/L | 7/7/2006 4:41:00 PM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | **120** |
| Carbonate (As CaCO3) | mg/L | 7/3/2006 7:40:00 AM | 2320B | 20 | **31** |
| Chloride | mg/L | 7/5/2006 7:17:35 AM | 300.0 | 1.0 | **6.9** |
| Hardness (as CaCO3) | mg/L | 7/11/2006 | 2340B | 10 | **170** |
| Nitrate (as N) | mg/L | 6/30/2006 3:03:00 PM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 6/30/2006 3:03:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 6/30/2006 | EPA 1664 | 3.0 | **3.2** |
| Phosphate, ortho (as P) | mg/L | 6/30/2006 12:20:00 PM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 6/30/2006 10:30:00 AM | 160.5 | 0.10 | **0.70** |
| Sulfate | mg/L | 7/5/2006 7:17:35 AM | 300.0 | 10 | **34** |
| TDS | mg/L | 6/30/2006 3:00:00 PM | 160.1 | 20 | **96** |
| TSS | mg/L | 6/30/2006 5:15:00 PM | 160.2 | 3.0 | **34** |




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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-29449 | Arsenic | mg/L | 6020 | 0.2148 | 0.2 | 0 | 107 | 85-115 | | | | 7/11/2006 |
| LCS-29449 | Cadmium | mg/L | 6020 | 0.2170 | 0.2 | 0 | 108 | 85-115 | | | | 7/11/2006 |
| LCS-29449 | Copper | mg/L | 6020 | 0.2021 | 0.2 | 0 | 101 | 85-115 | | | | 7/11/2006 |
| LCS-29449 | Lead | mg/L | 6020 | 0.2152 | 0.2 | 0 | 108 | 85-115 | | | | 7/11/2006 |
| LCS-29449 | Manganese | mg/L | 6020 | 0.2150 | 0.2 | 0.00446 | 105 | 85-115 | | | | 7/11/2006 |
| LCS-29449 | Zinc | mg/L | 6020 | 1.049 | 1 | 0 | 105 | 85-115 | | | | 7/11/2006 |
| LCS-29449 | Selenium | mg/L | 6020 | 0.2125 | 0.2 | 0 | 106 | 85-115 | | | | 7/12/2006 |
| LCS-29452 | Iron | mg/L | 6010B | 1.125 | 1 | 0 | 113 | 75-125 | | | | 7/11/2006 |
| LCS-29452 | Manganese | mg/L | 6010B | 0.2149 | 0.2 | 0 | 107 | 75-125 | | | | 7/11/2006 |
| LCS-29449 | Aluminum | mg/L | 6010B | 0.9971 | 1 | 0 | 99.7 | 75-125 | | | | 7/12/2006 |
| LCS-29449 | Boron | mg/L | 6010B | 1.063 | 1 | 0 | 106 | 75-125 | | | | 7/12/2006 |
| LCS-29449 | Calcium | mg/L | 6010B | 10.48 | 10 | 0 | 105 | 75-125 | | | | 7/12/2006 |
| LCS-29449 | Iron | mg/L | 6010B | 1.080 | 1 | 0 | 108 | 75-125 | | | | 7/12/2006 |
| LCS-29449 | Magnesium | mg/L | 6010B | 10.79 | 10 | 0 | 108 | 75-125 | | | | 7/12/2006 |
| LCS-29449 | Molybdenum | mg/L | 6010B | 0.2140 | 0.2 | 0 | 107 | 75-125 | | | | 7/12/2006 |
| LCS-29449 | Potassium | mg/L | 6010B | 10.35 | 10 | 0 | 104 | 75-125 | | | | 7/12/2006 |
| LCS-29449 | Sodium | mg/L | 6010B | 9.788 | 10 | 0 | 97.9 | 75-125 | | | | 7/12/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

**Dept:** ME

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-29449 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 7/11/2006 |
| MB-29449 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 7/11/2006 |
| MB-29449 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 7/11/2006 |
| MB-29449 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 7/11/2006 |
| MB-29449 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 7/11/2006 |
| MB-29449 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 7/12/2006 |
| MB-29449 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 7/12/2006 |
| MB-29452 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 7/11/2006 |
| MB-29452 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 7/11/2006 |
| MB-29449 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 7/12/2006 |
| MB-29449 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 7/12/2006 |
| MB-29449 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 7/12/2006 |
| MB-29449 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 7/12/2006 |
| MB-29449 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 7/12/2006 |
| MB-29449 | Molybdenum | mg/L | 6010B | < 0.10 | | | | - | | | | 7/12/2006 |
| MB-29449 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 7/12/2006 |
| MB-29449 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 7/12/2006 |



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Kyle F. Gross
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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L72660-07EMS | Arsenic | mg/L | 6020 | 0.2215 | 0.2 | 0 | 111 | 70-130 | | | | 7/11/2006 |
| L72660-07EMS | Cadmium | mg/L | 6020 | 0.2179 | 0.2 | 0 | 109 | 70-130 | | | | 7/11/2006 |
| L72660-07EMS | Copper | mg/L | 6020 | 0.2005 | 0.2 | 0 | 100 | 70-130 | | | | 7/11/2006 |
| L72660-07EMS | Lead | mg/L | 6020 | 0.2157 | 0.2 | 0 | 108 | 70-130 | | | | 7/11/2006 |
| L72660-07EMS | Manganese | mg/L | 6020 | 0.2197 | 0.2 | 0.002477 | 109 | 70-130 | | | | 7/11/2006 |
| L72660-07EMS | Zinc | mg/L | 6020 | 1.052 | 1 | 0.004945 | 105 | 70-130 | | | | 7/11/2006 |
| L72660-07EMS | Selenium | mg/L | 6020 | 0.2252 | 0.2 | 0 | 113 | 70-130 | | | | 7/12/2006 |
| L72660-01DMS | Iron | mg/L | 6010B | 2.966 | 1 | 2.366 | 60.0 | 75-125 | | | 2 | 7/11/2006 |
| L72660-01DMS | Manganese | mg/L | 6010B | 0.3310 | 0.2 | 0.134 | 98.5 | 75-125 | | | | 7/11/2006 |
| L72660-07EMS | Aluminum | mg/L | 6010B | 1.062 | 1 | 0 | 106 | 75-125 | | | | 7/12/2006 |
| L72660-07EMS | Boron | mg/L | 6010B | 1.141 | 1 | 0.04417 | 110 | 75-125 | | | | 7/12/2006 |
| L72660-07EMS | Calcium | mg/L | 6010B | 43.44 | 10 | 32.32 | 111 | 75-125 | | | | 7/12/2006 |
| L72660-07EMS | Iron | mg/L | 6010B | 1.084 | 1 | 0.0151 | 107 | 75-125 | | | | 7/12/2006 |
| L72660-07EMS | Magnesium | mg/L | 6010B | 26.84 | 10 | 16.49 | 104 | 75-125 | | | | 7/12/2006 |
| L72660-07EMS | Molybdenum | mg/L | 6010B | 0.2232 | 0.2 | 0 | 112 | 75-125 | | | | 7/12/2006 |
| L72660-07EMS | Potassium | mg/L | 6010B | 11.28 | 10 | 1.332 | 99.4 | 75-125 | | | | 7/12/2006 |
| L72660-07EMS | Sodium | mg/L | 6010B | 18.55 | 10 | 8.449 | 101 | 75-125 | | | | 7/12/2006 |

[2] Analyte concentration is too high for accurate spike recovery.



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L72660-07EMSD | Arsenic | mg/L | 6020 | 0.2265 | 0.2 | 0 | 113 | 70-130 | 2.26 | 20 | | 7/11/2006 |
| L72660-07EMSD | Cadmium | mg/L | 6020 | 0.2212 | 0.2 | 0 | 111 | 70-130 | 1.49 | 20 | | 7/11/2006 |
| L72660-07EMSD | Copper | mg/L | 6020 | 0.2019 | 0.2 | 0 | 101 | 70-130 | 0.664 | 20 | | 7/11/2006 |
| L72660-07EMSD | Lead | mg/L | 6020 | 0.2175 | 0.2 | 0 | 109 | 70-130 | 0.826 | 20 | | 7/11/2006 |
| L72660-07EMSD | Manganese | mg/L | 6020 | 0.2216 | 0.2 | 0.002477 | 110 | 70-130 | 0.869 | 20 | | 7/11/2006 |
| L72660-07EMSD | Zinc | mg/L | 6020 | 1.060 | 1 | 0.004945 | 106 | 70-130 | 0.717 | 20 | | 7/11/2006 |
| L72660-07EMSD | Selenium | mg/L | 6020 | 0.2321 | 0.2 | 0 | 116 | 70-130 | 2.98 | 20 | | 7/12/2006 |
| L72660-01DMSD | Iron | mg/L | 6010B | 3.092 | 1 | 2.366 | 72.5 | 75-125 | 4.14 | 20 | 2 | 7/11/2006 |
| L72660-01DMSD | Manganese | mg/L | 6010B | 0.3447 | 0.2 | 0.134 | 105 | 75-125 | 4.05 | 20 | | 7/11/2006 |
| L72660-07EMSD | Aluminum | mg/L | 6010B | 1.041 | 1 | 0 | 104 | 75-125 | 2.01 | 20 | | 7/12/2006 |
| L72660-07EMSD | Boron | mg/L | 6010B | 1.111 | 1 | 0.04417 | 107 | 75-125 | 2.67 | 20 | | 7/12/2006 |
| L72660-07EMSD | Calcium | mg/L | 6010B | 44.21 | 10 | 32.32 | 119 | 75-125 | 1.76 | 20 | | 7/12/2006 |
| L72660-07EMSD | Iron | mg/L | 6010B | 1.100 | 1 | 0.0151 | 108 | 75-125 | 1.42 | 20 | | 7/12/2006 |
| L72660-07EMSD | Magnesium | mg/L | 6010B | 26.96 | 10 | 16.49 | 105 | 75-125 | 0.430 | 20 | | 7/12/2006 |
| L72660-07EMSD | Molybdenum | mg/L | 6010B | 0.2170 | 0.2 | 0 | 108 | 75-125 | 2.83 | 20 | | 7/12/2006 |
| L72660-07EMSD | Potassium | mg/L | 6010B | 11.46 | 10 | 1.332 | 101 | 75-125 | 1.62 | 20 | | 7/12/2006 |
| L72660-07EMSD | Sodium | mg/L | 6010B | 18.68 | 10 | 8.449 | 102 | 75-125 | 0.674 | 20 | | 7/12/2006 |

[2] Analyte concentration is too high for accurate spike recovery.



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L72673-04DDUP | TDS | mg/L | 160.1 | 348.0 | 0 | 352 | | - | 1.14 | 20 | | 6/30/2006 |
| L72649-08DDUP | TDS | mg/L | 160.1 | 760.0 | 0 | 784 | | - | 3.11 | 20 | | 6/30/2006 |
| L72660-07ADUP | TDS | mg/L | 160.1 | 108.0 | 0 | 96 | | - | 11.8 | 20 | | 6/30/2006 |
| L72645-01ADUP | TSS | mg/L | 160.2 | 4.000 | 0 | 4 | | - | 0 | 20 | | 6/30/2006 |
| L72660-07ADUP | TSS | mg/L | 160.2 | 36.00 | 0 | 34 | | - | 5.71 | 20 | | 6/30/2006 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R59363 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50740 | 50000 | 0 | 101 | 90-110 | | | | 7/3/2006 |
| LCS-R59442 | Chloride | mg/L | 300.0 | 5.056 | 5 | 0 | 101 | 90-110 | | | | 7/5/2006 |
| LCS-R59442 | Sulfate | mg/L | 300.0 | 5.241 | 5 | 0 | 105 | 90-110 | | | | 7/5/2006 |
| LCS-R59362 | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 7/3/2006 |
| LCS-29445 | Ammonia (as N) | mg/L | 350.1 | 0.9840 | 1 | 0 | 98.4 | 90-110 | | | | 7/7/2006 |
| LCS-29445 | Ammonia (as N) | mg/L | 350.1 | 0.9840 | 1 | 0 | 98.4 | 90-110 | | | | 7/7/2006 |
| LCS-59344 | Nitrite (as N) | mg/L | 353.2 | 0.9390 | 1 | 0 | 93.9 | 90-110 | | | | 6/30/2006 |
| LCS-59345 | Nitrate (as N) | mg/L | 353.2 | 0.9320 | 1 | 0 | 93.2 | 90-110 | | | | 6/30/2006 |
| LCS-R59352 | Oil & Grease | mg/L | EPA 1664 | 35.60 | 40 | 0 | 89.0 | 79-114 | | | | 6/30/2006 |
| LCS-59340 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9230 | 1 | 0 | 92.3 | 90-110 | | | | 6/30/2006 |
| LCS-R59427 | TDS | mg/L | 160.1 | 198.0 | 205 | 0 | 96.6 | 80-120 | | | | 6/30/2006 |
| LCS-R59428 | TDS | mg/L | 160.1 | 190.0 | 205 | 0 | 92.7 | 80-120 | | | | 6/30/2006 |
| LCS-R59367 | TSS | mg/L | 160.2 | 99.00 | 100 | 0 | 99.0 | 80-120 | | | | 6/30/2006 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R59363 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 7/3/2006 |
| MB-R59363 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 7/3/2006 |
| MB-R59363 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 7/3/2006 |
| MB-R59442 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 7/5/2006 |
| MB-R59442 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 7/5/2006 |
| MB-R59362 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 7/3/2006 |
| MB-29445 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 7/7/2006 |
| MB-29445 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 7/7/2006 |
| MB-59344 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 6/30/2006 |
| MB-59345 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 6/30/2006 |
| MB-R59352 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 6/30/2006 |
| MB-59340 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 6/30/2006 |
| MB-R59427 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 6/30/2006 |
| MB-R59428 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 6/30/2006 |
| MB-R59367 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 6/30/2006 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L72660-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 320.0 | 100 | 222 | 98.0 | 80-120 | | | | 7/3/2006 |
| L72660-06BMS | Chloride | mg/L | 300.0 | 68.96 | 50 | 17.1 | 104 | 90-110 | | | | 7/5/2006 |
| L72660-06BMS | Sulfate | mg/L | 300.0 | 90.12 | 50 | 39.09 | 102 | 90-110 | | | | 7/5/2006 |
| L72673-02CMS | Chloride | mg/L | 300.0 | 661.3 | 500 | 142.3 | 104 | 90-110 | | | | 7/5/2006 |
| L72673-02CMS | Sulfate | mg/L | 300.0 | 80.87 | 50 | 26.34 | 109 | 90-110 | | | | 7/5/2006 |
| L72660-06BMS | Acidity | mg/L | 305.1 | 44.00 | 50 | 0 | 88.0 | 80-120 | | | | 7/3/2006 |
| L72649-01FMS | Ammonia (as N) | mg/L | 350.1 | 0.9760 | 1 | 0 | 97.6 | 90-110 | | | | 7/7/2006 |
| L72660-03CMS | Ammonia (as N) | mg/L | 350.1 | 1.054 | 1 | 0.064 | 99.0 | 90-110 | | | | 7/7/2006 |
| L72686-05AMS | Ammonia (as N) | mg/L | 350.1 | 1.317 | 1 | 0.335 | 98.2 | 90-110 | | | | 7/7/2006 |
| L72660-01BMS | Nitrite (as N) | mg/L | 353.2 | 0.9670 | 1 | 0.005 | 96.2 | 90-110 | | | | 6/30/2006 |
| L72660-01BMS | Nitrate (as N) | mg/L | 353.2 | 0.9750 | 1 | 0.075 | 90.0 | 90-110 | | | | 6/30/2006 |
| L72660-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.008 | 1 | 0.077 | 93.1 | 90-110 | | | | 6/30/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L72660-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 320.0 | 100 | 222 | 98.0 | 80-120 | 0 | 10 | | 7/3/2006 |
| L72660-06BMSD | Chloride | mg/L | 300.0 | 68.48 | 50 | 17.1 | 103 | 90-110 | 0.709 | 20 | | 7/5/2006 |
| L72660-06BMSD | Sulfate | mg/L | 300.0 | 89.73 | 50 | 39.09 | 101 | 90-110 | 0.440 | 20 | | 7/5/2006 |
| L72673-02CMSD | Chloride | mg/L | 300.0 | 667.5 | 500 | 142.3 | 105 | 90-110 | 0.919 | 20 | | 7/5/2006 |
| L72673-02CMSD | Sulfate | mg/L | 300.0 | 79.17 | 50 | 26.34 | 106 | 90-110 | 2.13 | 20 | | 7/5/2006 |
| L72660-06BMSD | Acidity | mg/L | 305.1 | 46.00 | 50 | 0 | 92.0 | 80-120 | 4.44 | 20 | | 7/3/2006 |
| L72649-01FMSD | Ammonia (as N) | mg/L | 350.1 | 0.9910 | 1 | 0 | 99.1 | 90-110 | 1.53 | 10 | | 7/7/2006 |
| L72660-03CMSD | Ammonia (as N) | mg/L | 350.1 | 1.096 | 1 | 0.064 | 103 | 90-110 | 3.91 | 10 | | 7/7/2006 |
| L72686-05AMSD | Ammonia (as N) | mg/L | 350.1 | 1.327 | 1 | 0.335 | 99.2 | 90-110 | 0.756 | 10 | | 7/7/2006 |
| L72660-01BMSD | Nitrite (as N) | mg/L | 353.2 | 0.9590 | 1 | 0.005 | 95.4 | 90-110 | 0.831 | 10 | | 6/30/2006 |
| L72660-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.036 | 1 | 0.075 | 96.1 | 90-110 | 6.07 | 10 | | 6/30/2006 |
| L72660-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9970 | 1 | 0.077 | 92.0 | 90-110 | 1.10 | 10 | | 6/30/2006 |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R59352 | Oil & Grease | mg/L | EPA 1664 | 36.90 | 40 | 0 | 92.2 | 79-114 | | | | 6/30/2006 |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L72660
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R59352 | Oil & Grease | mg/L | EPA 1664 | 33.90 | 40 | 0 | 84.8 | 79-114 | 8.47 | 18 | | 6/30/2006 |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# American West Analytical Labs

## WORK ORDER Summary

*30-Jun-06*

**Work Order** L72660

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+; Metals need to be filtered and preserved

DB

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L72660-01A | Miller Outlet | 6/29/2006 12:00:00 PM | 6/30/2006 | 7/14/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 7/14/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 7/14/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L72660-01B | | | | 7/14/2006 | | 2320B-ALK-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | 300.0-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | ACIDITY-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | NO2-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | NO3-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | PO4-O | June 30 - wc | 1 |
| L72660-01C | | | | 7/14/2006 | | NH3-W | June 30 - nh3 | 1 |
| | | | | 7/14/2006 | | NH3-W-PREP | June 30 - nh3 | 1 |
| L72660-01D | | | | 7/14/2006 | | 3005A-ICPMS | June 30 - met | 1 |
| | | | | 7/14/2006 | | ICP-W | June 30 - met | 1 |
| L72660-01E | | | | 7/14/2006 | Aqueous-Dissolved | 3005A-Diss | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | 6020-W-DISS | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | HARD | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | ICP-W-DIS | June 30 - dis met | 1 |
| L72660-01F | | | | 7/14/2006 | Aqueous | OGB-W | ogb | 1 |
| L72660-03A | Sulfer Spring | 6/29/2006 11:00:00 AM | | 7/14/2006 | | SS | ww - tss/tds/ss | 1 |
| | | | | 7/14/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 7/14/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L72660-03B | | | | 7/14/2006 | | 2320B-ALK-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | 300.0-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | ACIDITY-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | NO2-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | NO3-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | PO4-O | June 30 - wc | 1 |

# WORK ORDER Summary

*30-Jun-06*

**Work Order** L72660

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+; Metals need to be filtered and preserved

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L72660-03C | Sulfer Spring | 6/29/2006 11:00:00 AM | 6/30/2006 | 7/14/2006 | Aqueous | NH3-W | June 30 - nh3 | 1 |
| | | | | 7/14/2006 | | NH3-W-PREP | June 30 - nh3 | 1 |
| L72660-03D | | | | 7/14/2006 | | 3005A-ICPMS | June 30 - met | 1 |
| | | | | 7/14/2006 | | ICP-W | June 30 - met | 1 |
| L72660-03E | | | | 7/14/2006 | Aqueous-Dissolved | 3005A-Diss | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | 6020-W-DISS | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | HARD | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | ICP-W-DIS | June 30 - dis met | 1 |
| L72660-03F | | | | 7/14/2006 | Aqueous | OGB-W | ogb | 1 |
| L72660-04A | Mud Creek | 6/29/2006 10:30:00 AM | | 7/14/2006 | | SS | ww - tss/tds/ss | 1 |
| | | | | 7/14/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 7/14/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L72660-04B | | | | 7/14/2006 | | 2320B-ALK-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | 300.0-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | ACIDITY-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | NO2-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | NO3-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | PO4-O | June 30 - wc | 1 |
| L72660-04C | | | | 7/14/2006 | | NH3-W | June 30 - nh3 | 1 |
| | | | | 7/14/2006 | | NH3-W-PREP | June 30 - nh3 | 1 |
| L72660-04D | | | | 7/14/2006 | | 3005A-ICPMS | June 30 - met | 1 |
| | | | | 7/14/2006 | | ICP-W | June 30 - met | 1 |
| L72660-04E | | | | 7/14/2006 | Aqueous-Dissolved | 3005A-Diss | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | 6020-W-DISS | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | HARD | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | ICP-W-DIS | June 30 - dis met | 1 |
| L72660-04F | | | | 7/14/2006 | Aqueous | OGB-W | ogb | 1 |
| L72660-05A | Angle Spring | 6/29/2006 10:00:00 AM | | 7/14/2006 | | SS | ww - tss/tds/ss | 1 |

# WORK ORDER Summary

*30-Jun-06*

**Work Order** L72660

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+; Metals need to be filtered and preserved

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L72660-05A | Angle Spring | 6/29/2006 10:00:00 AM | 6/30/2006 | 7/14/2006 | Aqueous | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 7/14/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L72660-05B | | | | 7/14/2006 | | 2320B-ALK-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | 300.0-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | ACIDITY-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | NO2-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | NO3-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | PO4-O | June 30 - wc | 1 |
| L72660-05C | | | | 7/14/2006 | | NH3-W | June 30 - nh3 | 1 |
| | | | | 7/14/2006 | | NH3-W-PREP | June 30 - nh3 | 1 |
| L72660-05D | | | | 7/14/2006 | | 3005A-ICPMS | June 30 - met | 1 |
| | | | | 7/14/2006 | | ICP-W | June 30 - met | 1 |
| L72660-05E | | | | 7/14/2006 | Aqueous-Dissolved | 3005A-Diss | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | 6020-W-DISS | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | HARD | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | ICP-W-DIS | June 30 - dis met | 1 |
| L72660-05F | | | | 7/14/2006 | Aqueous | OGB-W | ogb | 1 |
| L72660-06A | CR-06-03-ABV | 6/29/2006 9:00:00 AM | | 7/14/2006 | | TDS-W | ww - /tds/ | 1 |
| L72660-06B | | | | 7/14/2006 | | 2320B-ALK-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | 300.0-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | ACIDITY-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | NO2-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | NO3-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | PO4-O | June 30 - wc | 1 |
| L72660-06C | | | | 7/14/2006 | | NH3-W | June 30 - nh3 | 1 |
| | | | | 7/14/2006 | | NH3-W-PREP | June 30 - nh3 | 1 |
| L72660-06D | | | | 7/14/2006 | | 3005A-ICPMS | June 30 - met | 1 |
| | | | | 7/14/2006 | | ICP-W | June 30 - met | 1 |

# WORK ORDER Summary

*30-Jun-06*

**Work Order** L72660

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+; Metals need to be filtered and preserved

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L72660-06E | CR-06-03-ABV | 6/29/2006 9:00:00 AM | 6/30/2006 | 7/14/2006 | Aqueous-Dissolved | 3005A-Diss | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | 6020-W-DISS | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | HARD | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | ICP-W-DIS | June 30 - dis met | 1 |
| L72660-07A | Scofield Res. 1 | 6/29/2006 11:30:00 AM | | 7/14/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 7/14/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 7/14/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L72660-07B | | | | 7/14/2006 | | 2320B-ALK-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | 300.0-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | ACIDITY-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | NO2-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | NO3-W | June 30 - wc | 1 |
| | | | | 7/14/2006 | | PO4-O | June 30 - wc | 1 |
| L72660-07C | | | | 7/14/2006 | | NH3-W | June 30 - nh3 | 1 |
| | | | | 7/14/2006 | | NH3-W-PREP | June 30 - nh3 | 1 |
| L72660-07D | | | | 7/14/2006 | | 3005A-ICPMS | June 30 - met | 1 |
| | | | | 7/14/2006 | | ICP-W | June 30 - met | 1 |
| L72660-07E | | | | 7/14/2006 | Aqueous-Dissolved | 3005A-Diss | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | 6020-W-DISS | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | HARD | June 30 - dis met | 1 |
| | | | | 7/14/2006 | | ICP-W-DIS | June 30 - dis met | 1 |
| L72660-07F | | | | 7/14/2006 | Aqueous | OGB-W | ogb | 1 |

Client Carbon Resources / Rock Logic Consulting
Address PO Box 544
Cedaredge CO 81413
City State Zip
Phone 435-851-9044 Fax
Contact Brad Lindsay
E-mail lindsay.brad@gmail.com
Project Name Scofield Baseline
Project Number/P.O.#
Sampler Name Brad Lindsay

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# CHAIN OF CUSTODY

Lab Sample Set # 72660
Page of

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

| | Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | Table 4 | Table 3 | COMMENTS |
|---|---|---|---|---|---|---|---|
| 1 | Miller Outlet | 6-29-06/12:00 | W | 6 | | ✓ | |
| 2 | Miller Spring | 6-29-06/12:30 | W | 6 | | ✓ | Not rec. |
| 3 | Sulfer Spring | 6-29-06/11:00 | W | 6 | | ✓ | |
| 4 | Mud Creek | 6-29-06/10:30 | W | 6 | | ✓ | |
| 5 | Angle Spring | 6-29-06/10:00 | W | 6 | | ✓ | |
| 6 | CR-06-03-ABV | 6-29-06/9:00 | W | 5 | ✓ | | |
| 7 | Scofield Res. 1 | 6-29-06/11:30 | W | 5 | | ✓ | |

Please indicate tests needed below

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes:
3 Temperature 2°
4 Received Broken/Leaking (Improperly Sealed) Y (N)
Notes:
5 Properly Preserved (Y) N
Notes:
6 Received Within Holding Times (Y) N
Notes:

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record? Y (N)
Notes:

DB

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 20:51 | PRINT NAME JEFFREY D. LINDSAY |
| Relinquished By: Signature | Date 30JUN06 | Received By: Signature Denise Bruun |
| PRINT NAME JEFFREY D. LINDSAY | Time 8:09 AM | PRINT NAME Denise Bruun |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

Please filter for dissolved metals

Client was called

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | | |
|---|---|---|---|---|
| * | - | Total Dissolved Solids | | mg/l |
| * | - | Total Hardness ($CaCO_3$) | | mg/l |
| * | - | Total Alkalinity | | mg/l |
| | - | Acidity | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved)[1] | | mg/l |
| * | - | Carbonate | | mg/l |
| * | - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| * | - | Calcium (Dissolved) | | mg/l |
| * | - | Chloride | mg/l | |
| | - | Copper (Dissolved) | | mg/l |
| * | - | Iron (Dissolved) | | mg/l |
| * | - | Iron (Total) | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| * | - | Magnesium (Dissolved) | | mg/l |
| * | - | Manganese (Dissolved) | | mg/l |
| * | - | Manganese (Total) | | mg/l |
| | - | Molybdenum (Dissolved) | | mg/l |
| | - | Ammonia | | mg/l |
| | - | Nitrates | | mg/l |
| | - | Nitrites | | mg/l |
| * | - | Potassium (Dissolved) | | mg/l |
| | - | Phosphate (Ortho) | | mg/l |
| | - | Selenium[1] (Dissolved) | | mg/l |
| * | - | Sodium (Dissolved) | | mg/l |
| * | - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| * | - | Cations | | meq/l |
| * | - | Anions | | meq/l |

---

1 These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 72660

## Preservation Check Sheet

| | | Sample Set Extension and pH | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

August 15, 2006

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L73160

Dear Brad Lindsay:

American West Analytical Labs received 6 samples on 8/1/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L73160-01D
Field Sample ID: **CR-06-03 ABV**
Collected: 7/31/2006 4:30:00 PM
Received: 8/1/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 8/8/2006 3:53:09 PM | 6010B | 0.050 | **0.64** |
| Manganese | mg/L | 8/8/2006 3:53:09 PM | 6010B | 0.0050 | **0.022** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-02D
Field Sample ID: **Angle Spring**
Collected: 7/31/2006 6:30:00 PM
Received: 8/1/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 8/8/2006 3:57:02 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 8/8/2006 3:57:02 PM | 6010B | 0.0050 | < 0.0050 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L73160-03D
Field Sample ID: **Mud Creek**
Collected: 7/31/2006 6:00:00 PM
Received: 8/1/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 8/8/2006 4:00:55 PM | 6010B | 0.050 | **0.24** |
| Manganese | mg/L | 8/8/2006 4:00:55 PM | 6010B | 0.0050 | **0.033** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L73160-04D
Field Sample ID: **Sulfer Spring**
Collected: 7/31/2006 7:30:00 PM
Received: 8/1/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 8/8/2006 4:04:49 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 8/8/2006 4:04:49 PM | 6010B | 0.0050 | **0.029** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-05D
Field Sample ID: **Scofield Res. 1**
Collected: 7/31/2006 8:00:00 PM
Received: 8/1/2006

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Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 8/8/2006 4:08:45 PM | 6010B | 0.050 | **0.096** |
| Manganese | mg/L | 8/8/2006 4:08:45 PM | 6010B | 0.0050 | **0.068** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L73160-06D
Field Sample ID: **Miller Outlet**
Collected: 7/31/2006 8:50:00 PM
Received: 8/1/2006

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**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Iron | mg/L | 8/8/2006 4:16:33 PM | 6010B | 0.050 | **2.4** | [1] |
| Manganese | mg/L | 8/8/2006 4:16:33 PM | 6010B | 0.0050 | **0.13** | |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-01E
Field Sample ID: **CR-06-03 ABV**
Collected: 7/31/2006 4:30:00 PM
Received: 8/1/2006


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Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 8/14/2006 6:31:14 PM | 6010B | 0.10 | **0.12** |
| Arsenic | mg/L | 8/4/2006 6:04:32 PM | 6020 | 0.0050 | **0.035** |
| Boron | mg/L | 8/14/2006 6:31:14 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 8/4/2006 6:04:32 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 8/15/2006 9:32:00 AM | 6010B | 10 | **120** |
| Copper | mg/L | 8/4/2006 6:04:32 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 8/14/2006 6:31:14 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 8/4/2006 6:04:32 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 8/14/2006 6:31:14 PM | 6010B | 1.0 | **29** |
| Manganese | mg/L | 8/4/2006 6:04:32 PM | 6020 | 0.0050 | **0.021** |
| Molybdenum | mg/L | 8/14/2006 6:31:14 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 8/14/2006 6:31:14 PM | 6010B | 1.0 | **1.9** |
| Selenium | mg/L | 8/4/2006 6:04:32 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 8/15/2006 10:10:31 AM | 6010B | 1.0 | **9.0** |
| Zinc | mg/L | 8/4/2006 6:04:32 PM | 6020 | 0.010 | **0.28** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-02E
Field Sample ID: **Angle Spring**
Collected: 7/31/2006 6:30:00 PM
Received: 8/1/2006

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Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 8/14/2006 6:35:07 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 8/4/2006 6:09:55 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 8/14/2006 6:35:07 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 8/4/2006 6:09:55 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 8/15/2006 9:35:53 AM | 6010B | 10 | **96** |
| Copper | mg/L | 8/4/2006 6:09:55 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 8/14/2006 6:35:07 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 8/4/2006 6:09:55 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 8/14/2006 6:35:07 PM | 6010B | 1.0 | **18** |
| Manganese | mg/L | 8/4/2006 6:09:55 PM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 8/14/2006 6:35:07 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 8/14/2006 6:35:07 PM | 6010B | 1.0 | **1.1** |
| Selenium | mg/L | 8/4/2006 6:09:55 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 8/15/2006 10:14:27 AM | 6010B | 1.0 | **9.4** |
| Zinc | mg/L | 8/4/2006 6:09:55 PM | 6020 | 0.010 | **0.021** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-03E
Field Sample ID: **Mud Creek**
Collected: 7/31/2006 6:00:00 PM
Received: 8/1/2006

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Laboratory Director

Peggy McNicol
QA Officer

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 8/14/2006 6:39:10 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 8/4/2006 6:15:19 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 8/14/2006 6:39:10 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 8/4/2006 6:15:19 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 8/15/2006 9:39:48 AM | 6010B | 10 | **70** |
| Copper | mg/L | 8/4/2006 6:15:19 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 8/14/2006 6:39:10 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 8/4/2006 6:15:19 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 8/14/2006 6:39:10 PM | 6010B | 1.0 | **38** |
| Manganese | mg/L | 8/4/2006 6:15:19 PM | 6020 | 0.0050 | **0.019** |
| Molybdenum | mg/L | 8/14/2006 6:39:10 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 8/14/2006 6:39:10 PM | 6010B | 1.0 | **6.1** |
| Selenium | mg/L | 8/4/2006 6:15:19 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 8/15/2006 10:18:20 AM | 6010B | 1.0 | **27** |
| Zinc | mg/L | 8/4/2006 6:15:19 PM | 6020 | 0.010 | **0.019** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-04E
Field Sample ID: **Sulfer Spring**
Collected: 7/31/2006 7:30:00 PM
Received: 8/1/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 8/14/2006 6:47:09 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 8/4/2006 6:20:42 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 8/14/2006 6:47:09 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 8/4/2006 6:20:42 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 8/15/2006 9:47:37 AM | 6010B | 10 | **90** [2] |
| Copper | mg/L | 8/4/2006 6:20:42 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 8/14/2006 6:47:09 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 8/4/2006 6:20:42 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 8/14/2006 6:47:09 PM | 6010B | 1.0 | **35** |
| Manganese | mg/L | 8/4/2006 6:20:42 PM | 6020 | 0.0050 | **0.030** |
| Molybdenum | mg/L | 8/14/2006 6:47:09 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 8/14/2006 6:47:09 PM | 6010B | 1.0 | **4.5** |
| Selenium | mg/L | 8/4/2006 6:20:42 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 8/15/2006 10:26:08 AM | 6010B | 1.0 | **8.4** |
| Zinc | mg/L | 8/4/2006 6:20:42 PM | 6020 | 0.010 | **0.022** |

[2] *Analyte concentration is too high for accurate spike recovery.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-05E
Field Sample ID: **Scofield Res. 1**
Collected: 7/31/2006 8:00:00 PM
Received: 8/1/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 8/14/2006 7:15:21 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 8/4/2006 6:58:25 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 8/14/2006 7:15:21 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 8/4/2006 6:58:25 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 8/14/2006 7:15:21 PM | 6010B | 1.0 | **28** |
| Copper | mg/L | 8/4/2006 6:58:25 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 8/14/2006 7:15:21 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 8/4/2006 6:58:25 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 8/14/2006 7:15:21 PM | 6010B | 1.0 | **20** |
| Manganese | mg/L | 8/4/2006 6:58:25 PM | 6020 | 0.0050 | **0.014** |
| Molybdenum | mg/L | 8/14/2006 7:15:21 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 8/14/2006 7:15:21 PM | 6010B | 1.0 | **2.8** |
| Selenium | mg/L | 8/4/2006 6:58:25 PM | 6020 | 0.0050 | **0.0056** |
| Sodium | mg/L | 8/15/2006 10:41:48 AM | 6010B | 1.0 | **11** |
| Zinc | mg/L | 8/4/2006 6:58:25 PM | 6020 | 0.010 | **0.018** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-06E
Field Sample ID: **Miller Outlet**
Collected: 7/31/2006 8:50:00 PM
Received: 8/1/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 8/14/2006 7:19:19 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 8/4/2006 7:03:49 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 8/14/2006 7:19:19 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 8/4/2006 7:03:49 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 8/14/2006 7:19:19 PM | 6010B | 1.0 | **67** |
| Copper | mg/L | 8/4/2006 7:03:49 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 8/14/2006 7:19:19 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 8/4/2006 7:03:49 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 8/14/2006 7:19:19 PM | 6010B | 1.0 | **15** |
| Manganese | mg/L | 8/4/2006 7:03:49 PM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 8/14/2006 7:19:19 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 8/14/2006 7:19:19 PM | 6010B | 1.0 | **2.4** |
| Selenium | mg/L | 8/4/2006 7:03:49 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 8/15/2006 10:45:43 AM | 6010B | 1.0 | **5.8** |
| Zinc | mg/L | 8/4/2006 7:03:49 PM | 6020 | 0.010 | **0.020** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L73160-01
Field Sample ID: **CR-06-03 ABV**
Collected: 7/31/2006 4:30:00 PM
Received: 8/1/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/2/2006 8:10:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | **380** |
| Ammonia (as N) | mg/L | 8/4/2006 12:43:00 PM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | **380** |
| Carbonate (As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | < 20 |
| Chloride | mg/L | 8/8/2006 11:46:14 AM | 300.0 | 10 | **63** |
| Hardness (as CaCO3) | mg/L | 8/15/2006 | 2340B | 10 | **430** |
| Nitrate (as N) | mg/L | 8/2/2006 11:01:00 AM | 353.2 | 0.010 | **0.069** |
| Nitrite (as N) | mg/L | 8/2/2006 11:01:00 AM | 353.2 | 0.010 | < 0.010 |
| Phosphate, ortho (as P) | mg/L | 8/2/2006 8:14:00 AM | 365.1 | 0.050 | < 0.050 [1] |
| Sulfate | mg/L | 8/8/2006 11:46:14 AM | 300.0 | 10 | **42** |
| TDS | mg/L | 8/3/2006 1:30:00 PM | 160.1 | 20 | **370** |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-02
Field Sample ID: **Angle Spring**
Collected: 7/31/2006 6:30:00 PM
Received: 8/1/2006


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Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/2/2006 8:10:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | **290** |
| Ammonia (as N) | mg/L | 8/4/2006 12:43:00 PM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | < 20 |
| Carbonate (As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | < 20 |
| Chloride | mg/L | 8/8/2006 12:19:28 PM | 300.0 | 10 | **67** |
| Hardness (as CaCO3) | mg/L | 8/15/2006 | 2340B | 10 | **310** |
| Nitrate (as N) | mg/L | 8/2/2006 11:01:00 AM | 353.2 | 0.010 | **1.0** |
| Nitrite (as N) | mg/L | 8/2/2006 11:01:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 8/8/2006 | EPA 1664 | 3.0 | < 3.0 |
| Phosphate, ortho (as P) | mg/L | 8/2/2006 8:14:00 AM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 8/2/2006 12:15:00 PM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 8/8/2006 12:19:28 PM | 300.0 | 10 | **18** |
| TDS | mg/L | 8/3/2006 1:30:00 PM | 160.1 | 20 | **290** |
| TSS | mg/L | 8/2/2006 4:15:00 PM | 160.2 | 3.0 | < 3.0 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-03
Field Sample ID: **Mud Creek**
Collected: 7/31/2006 6:00:00 PM
Received: 8/1/2006


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Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/2/2006 8:10:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | **230** |
| Ammonia (as N) | mg/L | 8/4/2006 12:43:00 PM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | **220** |
| Carbonate (As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | **< 20** |
| Chloride | mg/L | 8/8/2006 12:52:43 PM | 300.0 | 10 | **63** |
| Hardness (as CaCO3) | mg/L | 8/15/2006 | 2340B | 10 | **330** |
| Nitrate (as N) | mg/L | 8/2/2006 11:01:00 AM | 353.2 | 0.010 | **0.14** |
| Nitrite (as N) | mg/L | 8/2/2006 11:01:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 8/8/2006 | EPA 1664 | 3.0 | < 3.0 |
| Phosphate, ortho (as P) | mg/L | 8/2/2006 8:14:00 AM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 8/2/2006 12:15:00 PM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 8/8/2006 12:52:43 PM | 300.0 | 100 | **160** |
| TDS | mg/L | 8/3/2006 1:30:00 PM | 160.1 | 20 | **380** |
| TSS | mg/L | 8/2/2006 4:15:00 PM | 160.2 | 3.0 | **11** |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-04
Field Sample ID: **Sulfer Spring**
Collected: 7/31/2006 7:30:00 PM
Received: 8/1/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/2/2006 8:10:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | **340** |
| Ammonia (as N) | mg/L | 8/4/2006 12:43:00 PM | 350.1 | 0.050 | **0.089** |
| Bicarbonate (As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | **340** |
| Carbonate (As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | **< 20** |
| Chloride | mg/L | 8/4/2006 6:27:36 AM | 300.0 | 1.0 | **6.3** |
| Hardness (as CaCO3) | mg/L | 8/15/2006 | 2340B | 10 | **370** |
| Nitrate (as N) | mg/L | 8/2/2006 11:01:00 AM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 8/2/2006 11:01:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 8/8/2006 | EPA 1664 | 3.0 | **3.2** |
| Phosphate, ortho (as P) | mg/L | 8/2/2006 8:14:00 AM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 8/2/2006 12:15:00 PM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 8/4/2006 6:27:36 AM | 300.0 | 10 | **47** |
| TDS | mg/L | 8/3/2006 1:30:00 PM | 160.1 | 20 | **330** |
| TSS | mg/L | 8/2/2006 4:15:00 PM | 160.2 | 3.0 | < 3.0 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-05
Field Sample ID: **Scofield Res. 1**
Collected: 7/31/2006 8:00:00 PM
Received: 8/1/2006


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Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/2/2006 8:10:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | **170** |
| Ammonia (as N) | mg/L | 8/4/2006 12:43:00 PM | 350.1 | 0.050 | **0.055** |
| Bicarbonate (As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | **26** |
| Carbonate (As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | **140** |
| Chloride | mg/L | 8/5/2006 12:33:41 PM | 300.0 | 1.0 | **9.9** |
| Hardness (as CaCO3) | mg/L | 8/14/2006 | 2340B | 10 | **150** |
| Nitrate (as N) | mg/L | 8/2/2006 11:01:00 AM | 353.2 | 0.010 | **0.081** |
| Nitrite (as N) | mg/L | 8/2/2006 11:01:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 8/8/2006 | EPA 1664 | 3.0 | < 3.0 |
| Phosphate, ortho (as P) | mg/L | 8/2/2006 8:14:00 AM | 365.1 | 0.050 | **0.12** |
| Settable Solids | ml/L | 8/2/2006 12:15:00 PM | 160.5 | 0.10 | **0.50** |
| Sulfate | mg/L | 8/5/2006 12:33:41 PM | 300.0 | 10 | **24** |
| TDS | mg/L | 8/3/2006 1:30:00 PM | 160.1 | 20 | **170** |
| TSS | mg/L | 8/2/2006 4:15:00 PM | 160.2 | 3.0 | **26** |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73160-06
Field Sample ID: **Miller Outlet**
Collected: 7/31/2006 8:50:00 PM
Received: 8/1/2006


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Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/2/2006 8:10:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | **210** |
| Ammonia (as N) | mg/L | 8/4/2006 12:43:00 PM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | **210** |
| Carbonate (As CaCO3) | mg/L | 8/2/2006 7:30:00 AM | 2320B | 20 | < 20 |
| Hardness (as CaCO3) | mg/L | 8/14/2006 | 2340B | 10 | **230** |
| Nitrate (as N) | mg/L | 8/2/2006 11:01:00 AM | 353.2 | 0.010 | **0.14** |
| Nitrite (as N) | mg/L | 8/2/2006 11:01:00 AM | 353.2 | 0.010 | **0.015** |
| Oil & Grease | mg/L | 8/8/2006 | EPA 1664 | 3.0 | **3.4** |
| Phosphate, ortho (as P) | mg/L | 8/2/2006 8:14:00 AM | 365.1 | 0.050 | **0.078** |
| Settable Solids | ml/L | 8/2/2006 12:15:00 PM | 160.5 | 0.10 | **0.20** |
| TDS | mg/L | 8/3/2006 1:30:00 PM | 160.1 | 20 | **620** |
| TSS | mg/L | 8/2/2006 4:15:00 PM | 160.2 | 3.0 | **100** |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-29902 | Arsenic | mg/L | 6020 | 0.2129 | 0.2 | 0 | 106 | 85-115 | | | | 8/4/2006 |
| LCS-29902 | Cadmium | mg/L | 6020 | 0.2136 | 0.2 | 0 | 107 | 85-115 | | | | 8/4/2006 |
| LCS-29902 | Copper | mg/L | 6020 | 0.2092 | 0.2 | 0 | 105 | 85-115 | | | | 8/4/2006 |
| LCS-29902 | Lead | mg/L | 6020 | 0.2157 | 0.2 | 0 | 108 | 85-115 | | | | 8/4/2006 |
| LCS-29902 | Manganese | mg/L | 6020 | 0.2106 | 0.2 | 0.001927 | 104 | 85-115 | | | | 8/4/2006 |
| LCS-29902 | Selenium | mg/L | 6020 | 0.2206 | 0.2 | 0.001802 | 109 | 85-115 | | | | 8/4/2006 |
| LCS-29902 | Zinc | mg/L | 6020 | 1.074 | 1 | 0 | 107 | 85-115 | | | | 8/4/2006 |
| LCS-29903 | Iron | mg/L | 6010B | 1.080 | 1 | 0 | 108 | 75-125 | | | | 8/8/2006 |
| LCS-29903 | Manganese | mg/L | 6010B | 0.2125 | 0.2 | 0 | 106 | 75-125 | | | | 8/8/2006 |
| LCS-29902 | Aluminum | mg/L | 6010B | 1.011 | 1 | 0 | 101 | 75-125 | | | | 8/14/2006 |
| LCS-29902 | Boron | mg/L | 6010B | 1.044 | 1 | 0 | 104 | 75-125 | | | | 8/14/2006 |
| LCS-29902 | Calcium | mg/L | 6010B | 10.69 | 10 | 0 | 107 | 75-125 | | | | 8/14/2006 |
| LCS-29902 | Iron | mg/L | 6010B | 1.065 | 1 | 0 | 107 | 75-125 | | | | 8/14/2006 |
| LCS-29902 | Magnesium | mg/L | 6010B | 10.52 | 10 | 0 | 105 | 75-125 | | | | 8/14/2006 |
| LCS-29902 | Molybdenum | mg/L | 6010B | 0.2065 | 0.2 | 0 | 103 | 75-125 | | | | 8/14/2006 |
| LCS-29902 | Potassium | mg/L | 6010B | 9.907 | 10 | 0 | 99.1 | 75-125 | | | | 8/14/2006 |
| LCS-29902 | Sodium | mg/L | 6010B | 10.19 | 10 | 0 | 102 | 75-125 | | | | 8/15/2006 |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

**Dept:** ME
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-29902 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/4/2006 |
| MB-29902 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 8/4/2006 |
| MB-29902 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 8/4/2006 |
| MB-29902 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/4/2006 |
| MB-29902 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/4/2006 |
| MB-29902 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/4/2006 |
| MB-29902 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 8/7/2006 |
| MB-29903 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 8/8/2006 |
| MB-29903 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 8/8/2006 |
| MB-29902 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 8/14/2006 |
| MB-29902 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 8/14/2006 |
| MB-29902 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 8/14/2006 |
| MB-29902 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 8/14/2006 |
| MB-29902 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 8/14/2006 |
| MB-29902 | Molybdenum | mg/L | 6010B | < 0.10 | | | | - | | | | 8/14/2006 |
| MB-29902 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 8/14/2006 |
| MB-29902 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 8/15/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

**Dept:** ME
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L73160-04EMS | Arsenic | mg/L | 6020 | 0.2264 | 0.2 | 0.001839 | 112 | 70-130 | | | | 8/4/2006 |
| L73160-04EMS | Cadmium | mg/L | 6020 | 0.2152 | 0.2 | 0 | 108 | 70-130 | | | | 8/4/2006 |
| L73160-04EMS | Copper | mg/L | 6020 | 0.2021 | 0.2 | 0.001012 | 101 | 70-130 | | | | 8/4/2006 |
| L73160-04EMS | Lead | mg/L | 6020 | 0.2138 | 0.2 | 0 | 107 | 70-130 | | | | 8/4/2006 |
| L73160-04EMS | Manganese | mg/L | 6020 | 0.2356 | 0.2 | 0.02986 | 103 | 70-130 | | | | 8/4/2006 |
| L73160-04EMS | Selenium | mg/L | 6020 | 0.2311 | 0.2 | 0 | 116 | 70-130 | | | | 8/4/2006 |
| L73160-04EMS | Zinc | mg/L | 6020 | 1.067 | 1 | 0.02222 | 104 | 70-130 | | | | 8/4/2006 |
| L73160-06DMS | Iron | mg/L | 6010B | 3.629 | 1 | 2.362 | 127 | 75-125 | | | [1] | 8/8/2006 |
| L73160-06DMS | Manganese | mg/L | 6010B | 0.3391 | 0.2 | 0.1298 | 105 | 75-125 | | | | 8/8/2006 |
| L73160-04EMS | Aluminum | mg/L | 6010B | 1.011 | 1 | 0.04262 | 96.9 | 75-125 | | | | 8/14/2006 |
| L73160-04EMS | Boron | mg/L | 6010B | 1.091 | 1 | 0.01136 | 108 | 75-125 | | | | 8/14/2006 |
| L73160-04EMS | Iron | mg/L | 6010B | 1.070 | 1 | 0.01166 | 106 | 75-125 | | | | 8/14/2006 |
| L73160-04EMS | Magnesium | mg/L | 6010B | 43.34 | 10 | 34.53 | 88.1 | 75-125 | | | | 8/14/2006 |
| L73160-04EMS | Molybdenum | mg/L | 6010B | 0.2041 | 0.2 | 0 | 102 | 75-125 | | | | 8/14/2006 |
| L73160-04EMS | Potassium | mg/L | 6010B | 15.37 | 10 | 4.482 | 109 | 75-125 | | | | 8/14/2006 |
| L73160-04EMS | Calcium | mg/L | 6010B | 96.23 | 10 | 89.88 | 63.5 | 75-125 | | | [2] | 8/15/2006 |
| L73160-04EMS | Sodium | mg/L | 6010B | 18.65 | 10 | 8.392 | 103 | 75-125 | | | | 8/15/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
[2] Analyte concentration is too high for accurate spike recovery.



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L73160-04EMSD | Arsenic | mg/L | 6020 | 0.2288 | 0.2 | 0.001839 | 113 | 70-130 | 1.07 | 20 | | 8/4/2006 |
| L73160-04EMSD | Cadmium | mg/L | 6020 | 0.2167 | 0.2 | 0 | 108 | 70-130 | 0.691 | 20 | | 8/4/2006 |
| L73160-04EMSD | Copper | mg/L | 6020 | 0.1959 | 0.2 | 0.001012 | 97.4 | 70-130 | 3.10 | 20 | | 8/4/2006 |
| L73160-04EMSD | Lead | mg/L | 6020 | 0.2143 | 0.2 | 0 | 107 | 70-130 | 0.229 | 20 | | 8/4/2006 |
| L73160-04EMSD | Manganese | mg/L | 6020 | 0.2348 | 0.2 | 0.02986 | 102 | 70-130 | 0.329 | 20 | | 8/4/2006 |
| L73160-04EMSD | Selenium | mg/L | 6020 | 0.2332 | 0.2 | 0 | 117 | 70-130 | 0.928 | 20 | | 8/4/2006 |
| L73160-04EMSD | Zinc | mg/L | 6020 | 1.061 | 1 | 0.02222 | 104 | 70-130 | 0.549 | 20 | | 8/4/2006 |
| L73160-06DMSD | Iron | mg/L | 6010B | 3.664 | 1 | 2.362 | 130 | 75-125 | 0.984 | 20 | 1 | 8/8/2006 |
| L73160-06DMSD | Manganese | mg/L | 6010B | 0.3398 | 0.2 | 0.1298 | 105 | 75-125 | 0.182 | 20 | | 8/8/2006 |
| L73160-04EMSD | Aluminum | mg/L | 6010B | 1.053 | 1 | 0.04262 | 101 | 75-125 | 4.04 | 20 | | 8/14/2006 |
| L73160-04EMSD | Boron | mg/L | 6010B | 1.111 | 1 | 0.01136 | 110 | 75-125 | 1.83 | 20 | | 8/14/2006 |
| L73160-04EMSD | Iron | mg/L | 6010B | 1.075 | 1 | 0.01166 | 106 | 75-125 | 0.471 | 20 | | 8/14/2006 |
| L73160-04EMSD | Magnesium | mg/L | 6010B | 44.79 | 10 | 34.53 | 103 | 75-125 | 3.30 | 20 | | 8/14/2006 |
| L73160-04EMSD | Molybdenum | mg/L | 6010B | 0.2083 | 0.2 | 0 | 104 | 75-125 | 2.05 | 20 | | 8/14/2006 |
| L73160-04EMSD | Potassium | mg/L | 6010B | 15.83 | 10 | 4.482 | 113 | 75-125 | 2.92 | 20 | | 8/14/2006 |
| L73160-04EMSD | Calcium | mg/L | 6010B | 99.43 | 10 | 89.88 | 95.4 | 75-125 | 3.27 | 20 | | 8/15/2006 |
| L73160-04EMSD | Sodium | mg/L | 6010B | 19.05 | 10 | 8.392 | 107 | 75-125 | 2.10 | 20 | | 8/15/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L73160-06ADUP | TDS | mg/L | 160.1 | 604.0 | 0 | 624 | | - | 3.26 | 20 | | 8/3/2006 |
| L73160-06ADUP | TSS | mg/L | 160.2 | 106.0 | 0 | 104 | | - | 1.90 | 20 | | 8/2/2006 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

**Dept:** WC
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R60230 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50740 | 50000 | 0 | 101 | 90-110 | | | | 8/2/2006 |
| LCS-R60477 | Chloride | mg/L | 300.0 | 4.825 | 5 | 0 | 96.5 | 90-110 | | | | 8/8/2006 |
| LCS-R60477 | Sulfate | mg/L | 300.0 | 5.338 | 5 | 0 | 107 | 90-110 | | | | 8/8/2006 |
| LCS-R60231 | Acidity | mg/L | 305.1 | 55.00 | 50 | 0 | 110 | 80-120 | | | | 8/2/2006 |
| LCS-29858 | Ammonia (as N) | mg/L | 350.1 | 0.9210 | 1 | 0 | 92.1 | 90-110 | | | | 8/4/2006 |
| LCS-60243 | Nitrite (as N) | mg/L | 353.2 | 1.047 | 1 | 0 | 105 | 90-110 | | | | 8/2/2006 |
| LCS-60244 | Nitrate (as N) | mg/L | 353.2 | 0.9350 | 1 | 0 | 93.5 | 90-110 | | | | 8/2/2006 |
| LCS-R60451 | Oil & Grease | mg/L | EPA 1664 | 39.50 | 40 | 0 | 98.8 | 79-114 | | | | 8/8/2006 |
| LCS-60228 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9120 | 1 | 0 | 91.2 | 90-110 | | | | 8/2/2006 |
| LCS-R60404 | TDS | mg/L | 160.1 | 202.0 | 205 | 0 | 98.5 | 80-120 | | | | 8/3/2006 |
| LCS-R60282 | TSS | mg/L | 160.2 | 104.0 | 100 | 0 | 104 | 80-120 | | | | 8/2/2006 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R60230 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 8/2/2006 |
| MB-R60230 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 8/2/2006 |
| MB-R60230 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 8/2/2006 |
| MB-R60477 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 8/8/2006 |
| MB-R60477 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 8/8/2006 |
| MB-R60231 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 8/2/2006 |
| MB-29858 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 8/4/2006 |
| MB-60243 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 8/2/2006 |
| MB-60244 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 8/2/2006 |
| MB-R60451 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 8/8/2006 |
| MB-60228 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 8/2/2006 |
| MB-R60404 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 8/3/2006 |
| MB-R60282 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 8/2/2006 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L73160-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 478.0 | 100 | 375 | 103 | 80-120 | | | | 8/2/2006 |
| L73160-03BMS | Chloride | mg/L | 300.0 | 1069 | 1000 | 63.26 | 101 | 90-110 | | | | 8/8/2006 |
| L73160-03BMS | Sulfate | mg/L | 300.0 | 1137 | 1000 | 163.7 | 97.3 | 90-110 | | | | 8/8/2006 |
| L73160-01BMS | Acidity | mg/L | 305.1 | 42.00 | 50 | 0 | 84.0 | 80-120 | | | | 8/2/2006 |
| L73160-01CMS | Ammonia (as N) | mg/L | 350.1 | 0.9380 | 1 | 0.017 | 92.1 | 90-110 | | | | 8/4/2006 |
| L73160-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.032 | 1 | 0 | 103 | 90-110 | | | | 8/2/2006 |
| L73160-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.050 | 1 | 0.069 | 98.1 | 90-110 | | | | 8/2/2006 |
| L73160-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 0.5830 | 1 | 0 | 58.3 | 90-110 | | | [1] | 8/2/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L73160-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 475.0 | 100 | 375 | 100 | 80-120 | 0.630 | 10 | | 8/2/2006 |
| L73160-03BMSD | Chloride | mg/L | 300.0 | 1051 | 1000 | 63.26 | 98.8 | 90-110 | 1.70 | 20 | | 8/8/2006 |
| L73160-03BMSD | Sulfate | mg/L | 300.0 | 1195 | 1000 | 163.7 | 103 | 90-110 | 4.97 | 20 | | 8/8/2006 |
| L73160-01BMSD | Acidity | mg/L | 305.1 | 38.00 | 50 | 0 | 80.0 | 80-120 | 4.88 | 20 | | 8/2/2006 |
| L73160-01CMSD | Ammonia (as N) | mg/L | 350.1 | 0.9660 | 1 | 0.017 | 94.9 | 90-110 | 2.94 | 10 | | 8/4/2006 |
| L73160-01BMSD | Nitrite (as N) | mg/L | 353.2 | 0.9920 | 1 | 0 | 99.2 | 90-110 | 3.95 | 10 | | 8/2/2006 |
| L73160-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.035 | 1 | 0.069 | 96.6 | 90-110 | 1.44 | 10 | | 8/2/2006 |
| L73160-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 0.5380 | 1 | 0 | 53.8 | 90-110 | 8.03 | 10 | [1] | 8/2/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R60451 | Oil & Grease | mg/L | EPA 1664 | 39.20 | 40 | 0 | 98.0 | 79-114 | | | | 8/8/2006 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73160
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R60451 | Oil & Grease | mg/L | EPA 1664 | 40.00 | 40 | 0 | 100 | 79-114 | 2.02 | 18 | | 8/8/2006 |



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# American West Analytical Labs

## WORK ORDER Summary

*02-Aug-06*

**Work Order** L73160

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:** Huntsville DB

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format. LT/eh

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L73160-01A | CR-06-03 ABV | 7/31/2006 4:30:00 PM | 8/1/2006 | 8/15/2006 | Aqueous | TDS-W | ww - tds | 1 |
| L73160-01B | | | | 8/15/2006 | | 2320B-ALK-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | 300.0-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | ACIDITY-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | NO2-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | NO3-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | PO4-O | aug 1 wc | 1 |
| L73160-01C | | | | 8/15/2006 | | NH3-W | aug 1 - nh3 | 1 |
| | | | | 8/15/2006 | | NH3-W-PREP | aug 1 - nh3 | 1 |
| L73160-01D | | | | 8/15/2006 | | 3005A-ICPMS | Aug 1 - met | 1 |
| | | | | 8/15/2006 | | ICP-W | Aug 1 - met | 1 |
| L73160-01E | | | | 8/15/2006 | Aqueous-Dissolved | 3005A-Diss | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | 6020-W-DISS | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | HARD | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | ICP-W-DIS | Aug 1 - dis met | 1 |
| L73160-02A | Angle Spring | 7/31/2006 6:30:00 PM | | 8/15/2006 | Aqueous | SS | ww - tds.tss.ss | 1 |
| | | | | 8/15/2006 | | TDS-W | ww - tds.tss.ss | 1 |
| | | | | 8/15/2006 | | TSS-W | ww - tds.tss.ss | 1 |
| L73160-02B | | | | 8/15/2006 | | 2320B-ALK-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | 300.0-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | ACIDITY-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | NO2-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | NO3-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | PO4-O | aug 1 wc | 1 |
| L73160-02C | | | | 8/15/2006 | | NH3-W | aug 1 - nh3 | 1 |
| | | | | 8/15/2006 | | NH3-W-PREP | aug 1 - nh3 | 1 |
| L73160-02D | | | | 8/15/2006 | | 3005A-ICPMS | Aug 1 - met | 1 |

# WORK ORDER Summary

*02-Aug-06*

**Work Order** L73160

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L73160-02D | Angle Spring | 7/31/2006 6:30:00 PM | 8/1/2006 | 8/15/2006 | Aqueous | ICP-W | Aug 1 - met | 1 |
| L73160-02E | | | | 8/15/2006 | Aqueous-Dissolved | 3005A-Diss | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | 6020-W-DISS | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | HARD | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | ICP-W-DIS | Aug 1 - dis met | 1 |
| L73160-02F | | | | 8/15/2006 | Aqueous | OGB-W | OGBFridge | 1 |
| L73160-03A | Mud Creek | 7/31/2006 6:00:00 PM | | 8/15/2006 | | SS | ww - tds.tss.ss | 1 |
| | | | | 8/15/2006 | | TDS-W | ww - tds.tss.ss | 1 |
| | | | | 8/15/2006 | | TSS-W | ww - tds.tss.ss | 1 |
| L73160-03B | | | | 8/15/2006 | | 2320B-ALK-W | aug1 wc | 1 |
| | | | | 8/15/2006 | | 300.0-W | aug1 wc | 1 |
| | | | | 8/15/2006 | | ACIDITY-W | aug1 wc | 1 |
| | | | | 8/15/2006 | | NO2-W | aug1 wc | 1 |
| | | | | 8/15/2006 | | NO3-W | aug1 wc | 1 |
| | | | | 8/15/2006 | | PO4-O | aug1 wc | 1 |
| L73160-03C | | | | 8/15/2006 | | NH3-W | aug 1 - nh3 | 1 |
| | | | | 8/15/2006 | | NH3-W-PREP | aug 1 - nh3 | 1 |
| L73160-03D | | | | 8/15/2006 | | 3005A-ICPMS | Aug 1 - met | 1 |
| | | | | 8/15/2006 | | ICP-W | Aug 1 - met | 1 |
| L73160-03E | | | | 8/15/2006 | Aqueous-Dissolved | 3005A-Diss | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | 6020-W-DISS | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | HARD | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | ICP-W-DIS | Aug 1 - dis met | 1 |
| L73160-03F | | | | 8/15/2006 | Aqueous | OGB-W | OGBFridge | 1 |
| L73160-04A | Sulfer Spring | 7/31/2006 7:30:00 PM | | 8/15/2006 | | SS | ww - tds.tss.ss | 1 |
| | | | | 8/15/2006 | | TDS-W | ww - tds.tss.ss | 1 |
| | | | | 8/15/2006 | | TSS-W | ww - tds.tss.ss | 1 |
| L73160-04B | | | | 8/15/2006 | | 2320B-ALK-W | aug 1 wc | 1 |

# WORK ORDER Summary

*02-Aug-06*

**Work Order** L73160

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L73160-04B | Sulfer Spring | 7/31/2006 7:30:00 PM | 8/1/2006 | 8/15/2006 | Aqueous | 300.0-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | ACIDITY-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | NO2-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | NO3-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | PO4-O | aug 1 wc | 1 |
| L73160-04C | | | | 8/15/2006 | | NH3-W | aug 1 - nh3 | 1 |
| | | | | 8/15/2006 | | NH3-W-PREP | aug 1 - nh3 | 1 |
| L73160-04D | | | | 8/15/2006 | | 3005A-ICPMS | Aug 1 - met | 1 |
| | | | | 8/15/2006 | | ICP-W | Aug 1 - met | 1 |
| L73160-04E | | | | 8/15/2006 | Aqueous-Dissolved | 3005A-Diss | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | 6020-W-DISS | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | HARD | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | ICP-W-DIS | Aug 1 - dis met | 1 |
| L73160-04F | | | | 8/15/2006 | Aqueous | OGB-W | OGBFridge | 1 |
| L73160-05A | Scofield Res. 1 | 7/31/2006 8:00:00 PM | | 8/15/2006 | | SS | ww - tds.tss.ss | 1 |
| | | | | 8/15/2006 | | TDS-W | ww - tds.tss.ss | 1 |
| | | | | 8/15/2006 | | TSS-W | ww - tds.tss.ss | 1 |
| L73160-05B | | | | 8/15/2006 | | 2320B-ALK-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | 300.0-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | ACIDITY-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | NO2-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | NO3-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | PO4-O | aug 1 wc | 1 |
| L73160-05C | | | | 8/15/2006 | | NH3-W | aug 1 - nh3 | 1 |
| | | | | 8/15/2006 | | NH3-W-PREP | aug 1 - nh3 | 1 |
| L73160-05D | | | | 8/15/2006 | | 3005A-ICPMS | Aug 1 - met | 1 |
| | | | | 8/15/2006 | | ICP-W | Aug 1 - met | 1 |
| L73160-05E | | | | 8/15/2006 | Aqueous-Dissolved | 3005A-Diss | Aug 1 - dis met | 1 |

# WORK ORDER Summary

*02-Aug-06*

**Work Order** L73160

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L73160-05E | Scofield Res. 1 | 7/31/2006 8:00:00 PM | 8/1/2006 | 8/15/2006 | Aqueous-Dissolved | 6020-W-DISS | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | HARD | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | ICP-W-DIS | Aug 1 - dis met | 1 |
| L73160-05F | | | | 8/15/2006 | Aqueous | OGB-W | OGBFridge | 1 |
| L73160-06A | Miller Outlet | 7/31/2006 8:50:00 PM | | 8/15/2006 | | SS | ww - tds.tss.ss | 1 |
| | | | | 8/15/2006 | | TDS-W | ww - tds.tss.ss | 1 |
| | | | | 8/15/2006 | | TSS-W | ww - tds.tss.ss | 1 |
| L73160-06B | | | | 8/15/2006 | | 2320B-ALK-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | 300.0-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | ACIDITY-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | NO2-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | NO3-W | aug 1 wc | 1 |
| | | | | 8/15/2006 | | PO4-O | aug 1 wc | 1 |
| L73160-06C | | | | 8/15/2006 | | NH3-W | aug 1 - nh3 | 1 |
| | | | | 8/15/2006 | | NH3-W-PREP | aug 1 - nh3 | 1 |
| L73160-06D | | | | 8/15/2006 | | 3005A-ICPMS | Aug 1 - met | 1 |
| | | | | 8/15/2006 | | ICP-W | Aug 1 - met | 1 |
| L73160-06E | | | | 8/15/2006 | Aqueous-Dissolved | 3005A-Diss | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | 6020-W-DISS | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | HARD | Aug 1 - dis met | 1 |
| | | | | 8/15/2006 | | ICP-W-DIS | Aug 1 - dis met | 1 |
| L73160-06F | | | | 8/15/2006 | Aqueous | OGB-W | OGBFridge | 1 |

Client Carbon Resources / Rock Logic Consulting

Address PO Box 544

Cedaredge CO 81413
City State Zip

Phone 435-851-9044 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield baseline

Project Number/P.O.#

Sampler Name Brad Lindsay


AMERICAN WEST ANALYTICAL LABORATORIES
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Salt Lake City, Utah 84115
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(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com


# CHAIN OF CUSTODY

Lab Sample Set # 73160

Page _____ of _____

Turn Around Time (Circle One)

| 1 day | 2 day | 3 day | 4 day | 5 day | Standard |
|---|---|---|---|---|---|
| QC | 1 | (2) | 2+ | 3 | 3+ | 4 |

| Sample ID | Date/Time Collected (see attached) | Matrix | Number of Containers (Total) | table 3 | table 4 | COMMENTS |
|---|---|---|---|---|---|---|
| CR-06-03 ABV | 7-25-06/1800 | W | 5 | | ✓ | see letter |
| Angle Spring | 7-25-06/1950 | W | 6 | ✓ | | for correct |
| Mud Creek | 7-25-06/2000 | W | 6 | ✓ | | sampling date |
| Sulfer Spring | 7-25-06/2050 | W | 6 | ✓ | | and times |
| Scofield Res. 1 | 7-25-06/2100 | W | 6 | ✓ | | |
| Miller Outlet | 7-25-06/2150 | W | 6 | ✓ | | |

Please indicate tests needed below

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or (Chilled)
Notes:

3 Temperature 4 °

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Notes:

6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME Kalie Lindsay | Time 1305 | PRINT NAME Elana Hayward |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

Please filter for dissolved metals

## Lynn Turner

**From:** Brad Lindsay [lindsay.brad@gmail.com]
**Sent:** Tuesday, August 01, 2006 5:06 PM
**To:** Lynn Turner
**Subject:** Re: AWAL Set # 73160 (Scofield Baseline)

Lynn-

I messed it up again. That was the day I wanted to sample. I collected the samples yesterday the 31st. I changed the date and time on the bottles, but must have forgotten to fix the chain. Can you get that information off of the bottles? I am sorry about the hassle.

thanks,

brad

–
Brad Lindsay
Rock Logic Consulting LLC
P.O. Box 544
Cedaredge CO 81413
(435)851-9044

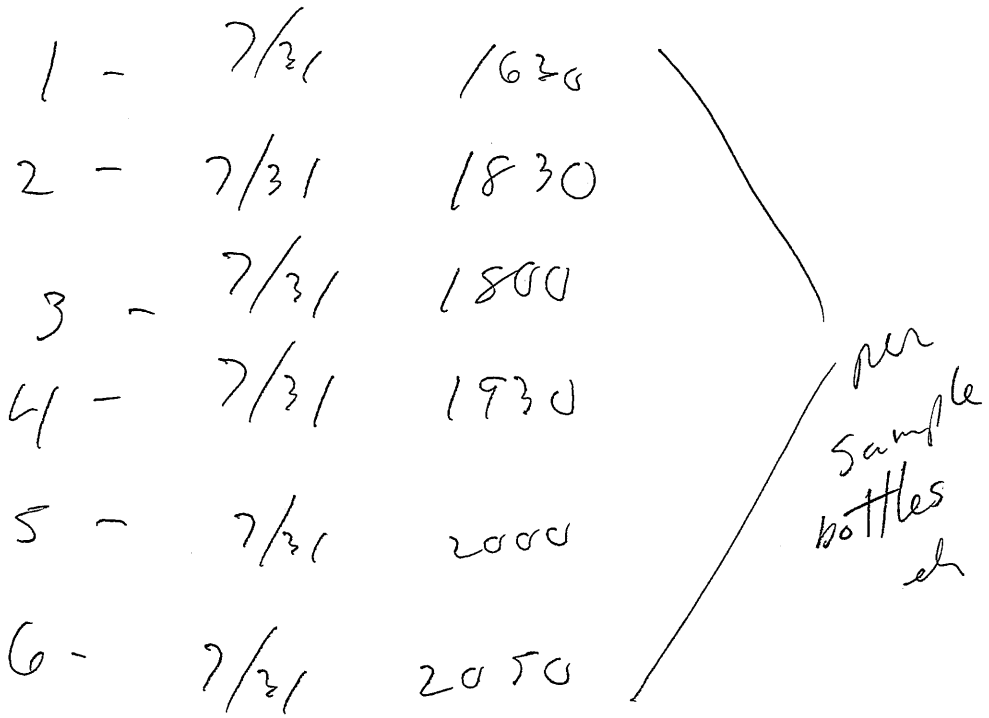

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphate (Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Client Carbon Resources | Rock Logic Consulting

Address po Box 344

Cedaredge (City) Co (State) 81413 (Zip)

Phone 435-851-9044 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield baseline

Project Number/P.O.#

Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
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Email:awal@awal-labs.com

**CHAIN OF CUSTODY**

Lab Sample Set # 73160

Page ____ of ____

*Turn Around Time (Circle One)*

1 day 2 day 3 day 4 day 5 day (Standard)

QC 1 2 2+ 3 3+ 4

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | Table 3 | Table 4 | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CR-06-03-ADV | 7.31.06 / 1630 | W | 8 | | ✓ | | | | | | | | | |
| Angle Spring | 7.31.06 / 1830 | W | 6 | ✓ | | | | | | | | | | |
| Mud Creek | 7.31.06 / 1900 | W | 10 | ✓ | | | | | | | | | | |
| Sulfer Spring | 7.31.06 / 1030 | W | 10 | ✓ | | | | | | | | | | |
| Scofield Res | 7.31.06 / 2000 | W | 10 | ✓ | | | | | | | | | | |
| Miller Outlet | 7.31.06 / 2030 | W | 10 | ✓ | | | | | | | | | | |

Please indicate tests needed below

| Relinquished By: *Signature* | Date | Received By: *Signature* |
|---|---|---|
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: *Signature* | Date | Received By: *Signature* |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: *Signature* | Date | Received By: *Signature* |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: *Signature* | Date | Received By: *Signature* |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

PLEASE FILTER

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
*Notes:*

2 Ambient or Chilled
*Notes:*

3 Temperature ____

4 Received Broken/Leaking (Improperly Sealed)
Y N
*Notes:*

5 Properly Preserved
Y N
*Notes:*

6 Received Within Holding Times
Y N
*Notes:*

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
*Notes:*

Discrepancies Between Sample Labels and COC Record?
Y N
*Notes:*

Sample Set: 73160

## Preservation Check Sheet

| | | Sample Set Extension and pH | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | | | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

September 05, 2006

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L73504

Dear Brad Lindsay:

American West Analytical Labs received 6 samples on 8/22/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Approved by: _____
Laboratory Director or designee



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-01D
Field Sample ID: **CR-06-03 ABV**
Collected: 8/21/2006 2:00:00 PM
Received: 8/22/2006

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Fax (801) 263-8687
e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 9/1/2006 3:59:37 PM | 6010B | 0.050 | **0.95** |
| Manganese | mg/L | 9/1/2006 3:59:37 PM | 6010B | 0.0050 | **0.018** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-02D
Field Sample ID: **Angle Spring**
Collected: 8/21/2006 4:00:00 PM
Received: 8/22/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 9/1/2006 4:15:28 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 9/1/2006 4:15:28 PM | 6010B | 0.0050 | < 0.0050 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-03D
Field Sample ID: **Mud Creek**
Collected: 8/21/2006 4:30:00 PM
Received: 8/22/2006

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Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 9/1/2006 4:19:28 PM | 6010B | 0.050 | **0.24** |
| Manganese | mg/L | 9/1/2006 4:19:28 PM | 6010B | 0.0050 | **0.028** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-04D
Field Sample ID: **Sulfer Spring**
Collected: 8/21/2006 5:00:00 PM
Received: 8/22/2006

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Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 9/1/2006 4:23:27 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 9/1/2006 4:23:27 PM | 6010B | 0.0050 | **0.031** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-05D
Field Sample ID: **Scofield Res. 1**
Collected: 8/21/2006 5:30:00 PM
Received: 8/22/2006

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Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 9/1/2006 4:36:10 PM | 6010B | 0.050 | **0.67** |
| Manganese | mg/L | 9/1/2006 4:36:10 PM | 6010B | 0.0050 | **0.17** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L73504-06D
Field Sample ID: **Miller Outlet**
Collected: 8/21/2006 6:00:00 PM
Received: 8/22/2006

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**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 9/1/2006 4:40:11 PM | 6010B | 0.050 | **3.3** |
| Manganese | mg/L | 9/1/2006 4:40:11 PM | 6010B | 0.0050 | **0.15** |

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Laboratory Director

Peggy McNicol
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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-01E
Field Sample ID: **CR-06-03 ABV**
Collected: 8/21/2006 2:00:00 PM
Received: 8/22/2006

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Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 9/5/2006 2:18:37 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 8/25/2006 10:37:00 AM | 6020 | 0.0050 | **0.037** |
| Boron | mg/L | 9/5/2006 2:18:37 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 8/25/2006 10:37:00 AM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 9/5/2006 11:59:15 AM | 6010B | 10 | **120** |
| Copper | mg/L | 8/25/2006 10:37:00 AM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 9/5/2006 2:18:37 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 8/25/2006 10:37:00 AM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 9/5/2006 11:59:15 AM | 6010B | 10 | **30** |
| Manganese | mg/L | 8/25/2006 10:37:00 AM | 6020 | 0.0050 | **0.021** |
| Molybdenum | mg/L | 9/5/2006 2:18:37 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 9/5/2006 2:18:37 PM | 6010B | 1.0 | **2.0** |
| Selenium | mg/L | 8/25/2006 10:37:00 AM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 9/5/2006 2:18:37 PM | 6010B | 1.0 | **9.8** |
| Zinc | mg/L | 8/25/2006 10:37:00 AM | 6020 | 0.010 | **0.23** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-02E
Field Sample ID: **Angle Spring**
Collected: 8/21/2006 4:00:00 PM
Received: 8/22/2006

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Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 9/5/2006 2:35:23 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 8/25/2006 11:03:57 AM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 9/5/2006 2:35:23 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 8/25/2006 11:03:57 AM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 9/5/2006 12:15:32 PM | 6010B | 10 | **100** |
| Copper | mg/L | 8/25/2006 11:03:57 AM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 9/5/2006 2:35:23 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 8/25/2006 11:03:57 AM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 9/5/2006 12:15:32 PM | 6010B | 10 | **19** |
| Manganese | mg/L | 8/25/2006 11:03:57 AM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 9/5/2006 2:35:23 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 9/5/2006 2:35:23 PM | 6010B | 1.0 | **1.5** |
| Selenium | mg/L | 8/25/2006 11:03:57 AM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 9/5/2006 2:35:23 PM | 6010B | 1.0 | **10** |
| Zinc | mg/L | 8/25/2006 11:03:57 AM | 6020 | 0.010 | < 0.010 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-03E
Field Sample ID: **Mud Creek**
Collected: 8/21/2006 4:30:00 PM
Received: 8/22/2006

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Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 9/5/2006 2:39:32 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 8/25/2006 11:09:21 AM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 9/5/2006 2:39:32 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 8/25/2006 11:09:21 AM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 9/5/2006 12:19:26 PM | 6010B | 10 | **74** |
| Copper | mg/L | 8/25/2006 11:09:21 AM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 9/5/2006 2:39:32 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 8/25/2006 11:09:21 AM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 9/5/2006 12:19:26 PM | 6010B | 10 | **42** |
| Manganese | mg/L | 8/25/2006 11:09:21 AM | 6020 | 0.0050 | **0.016** |
| Molybdenum | mg/L | 9/5/2006 2:39:32 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 9/5/2006 2:39:32 PM | 6010B | 1.0 | **7.6** |
| Selenium | mg/L | 8/25/2006 11:09:21 AM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 9/5/2006 2:39:32 PM | 6010B | 1.0 | **37** |
| Zinc | mg/L | 8/25/2006 11:09:21 AM | 6020 | 0.010 | < 0.010 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-04E
Field Sample ID: **Sulfer Spring**
Collected: 8/21/2006 5:00:00 PM
Received: 8/22/2006

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Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 9/5/2006 2:43:44 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 8/25/2006 11:14:45 AM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 9/5/2006 2:43:44 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 8/25/2006 11:14:45 AM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 9/5/2006 12:23:22 PM | 6010B | 10 | **88** |
| Copper | mg/L | 8/25/2006 11:14:45 AM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 9/5/2006 2:43:44 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 8/25/2006 11:14:45 AM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 9/5/2006 12:23:22 PM | 6010B | 10 | **35** |
| Manganese | mg/L | 8/25/2006 11:14:45 AM | 6020 | 0.0050 | **0.030** |
| Molybdenum | mg/L | 9/5/2006 2:43:44 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 9/5/2006 2:43:44 PM | 6010B | 1.0 | **4.7** |
| Selenium | mg/L | 8/25/2006 11:14:45 AM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 9/5/2006 2:43:44 PM | 6010B | 1.0 | **8.7** |
| Zinc | mg/L | 8/25/2006 11:14:45 AM | 6020 | 0.010 | < 0.010 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-05E
Field Sample ID: **Scofield Res. 1**
Collected: 8/21/2006 5:30:00 PM
Received: 8/22/2006


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Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 9/5/2006 2:47:57 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 8/25/2006 11:30:53 AM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 9/5/2006 2:47:57 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 8/25/2006 11:30:53 AM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 9/5/2006 12:27:17 PM | 6010B | 10 | **29** |
| Copper | mg/L | 8/25/2006 11:30:53 AM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 9/5/2006 2:47:57 PM | 6010B | 0.050 | **0.14** |
| Lead | mg/L | 8/25/2006 11:30:53 AM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 9/5/2006 12:27:17 PM | 6010B | 10 | **24** |
| Manganese | mg/L | 8/25/2006 11:30:53 AM | 6020 | 0.0050 | **0.045** |
| Molybdenum | mg/L | 9/5/2006 2:47:57 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 9/5/2006 2:47:57 PM | 6010B | 1.0 | **7.8** |
| Selenium | mg/L | 8/25/2006 11:30:53 AM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 9/5/2006 2:47:57 PM | 6010B | 1.0 | **22** |
| Zinc | mg/L | 8/25/2006 11:30:53 AM | 6020 | 0.010 | < 0.010 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-06E
Field Sample ID: **Miller Outlet**
Collected: 8/21/2006 6:00:00 PM
Received: 8/22/2006

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Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 9/5/2006 2:51:59 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 8/25/2006 11:36:18 AM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 9/5/2006 2:51:59 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 8/25/2006 11:36:18 AM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 9/5/2006 12:31:12 PM | 6010B | 10 | **63** |
| Copper | mg/L | 8/25/2006 11:36:18 AM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 9/5/2006 2:51:59 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 8/25/2006 11:36:18 AM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 9/5/2006 12:31:12 PM | 6010B | 10 | **15** |
| Manganese | mg/L | 8/25/2006 11:36:18 AM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 9/5/2006 2:51:59 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 9/5/2006 2:51:59 PM | 6010B | 1.0 | **2.3** |
| Selenium | mg/L | 8/25/2006 11:36:18 AM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 9/5/2006 2:51:59 PM | 6010B | 1.0 | **6.4** |
| Zinc | mg/L | 8/25/2006 11:36:18 AM | 6020 | 0.010 | < 0.010 |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-01
Field Sample ID: **CR-06-03-ABV**
Collected: 8/21/2006 2:00:00 PM
Received: 8/22/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 8/23/2006 6:00:00 AM | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 20 | **370** | |
| Ammonia (as N) | mg/L | 8/24/2006 7:33:05 AM | 350.1 | 0.050 | < 0.050 | 1 |
| Bicarbonate (As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 20 | **370** | |
| Carbonate (As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 20 | < 20 | |
| Chloride | mg/L | 8/24/2006 12:06:47 PM | 300.0 | 10 | **20** | |
| Hardness (as CaCO3) | mg/L | 9/5/2006 | 2340B | 10 | **420** | |
| Nitrate (as N) | mg/L | 8/23/2006 11:43:00 AM | 353.2 | 0.010 | < 0.010 | 1 |
| Nitrite (as N) | mg/L | 8/23/2006 11:43:00 AM | 353.2 | 0.010 | < 0.010 | |
| Phosphate, ortho (as P) | mg/L | 8/23/2006 10:15:00 AM | 365.1 | 0.050 | < 0.050 | |
| Sulfate | mg/L | 8/24/2006 12:06:47 PM | 300.0 | 10 | **40** | |
| TDS | mg/L | 8/25/2006 3:00:00 PM | 160.1 | 20 | **400** | |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-02
Field Sample ID: **Angle Spring**
Collected: 8/21/2006 4:00:00 PM
Received: 8/22/2006


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Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/23/2006 6:00:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 20 | **300** |
| Ammonia (as N) | mg/L | 8/24/2006 7:33:05 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 20 | **300** |
| Carbonate (As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 8/24/2006 7:07:37 AM | 300.0 | 10 | **23** |
| Hardness (as CaCO3) | mg/L | 9/5/2006 | 2340B | 10 | **330** |
| Nitrate (as N) | mg/L | 8/23/2006 11:43:00 AM | 353.2 | 0.010 | **0.94** |
| Nitrite (as N) | mg/L | 8/23/2006 11:43:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 8/23/2006 12:45:00 PM | EPA 1664 | 3.0 | < 3.0 |
| Phosphate, ortho (as P) | mg/L | 8/23/2006 10:15:00 AM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 8/23/2006 11:20:00 AM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 8/24/2006 7:07:37 AM | 300.0 | 10 | **18** |
| TDS | mg/L | 8/25/2006 3:00:00 PM | 160.1 | 20 | **270** |
| TSS | mg/L | 8/23/2006 3:30:00 PM | 160.2 | 3.0 | < 3.0 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-03
Field Sample ID: **Mud Creek**
Collected: 8/21/2006 4:30:00 PM
Received: 8/22/2006


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Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/23/2006 6:00:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 20 | **230** |
| Ammonia (as N) | mg/L | 8/24/2006 7:33:05 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 20 | **220** |
| Carbonate (As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 10 | **14** |
| Chloride | mg/L | 8/24/2006 1:13:16 AM | 300.0 | 10 | **22** |
| Hardness (as CaCO3) | mg/L | 9/5/2006 | 2340B | 10 | **360** |
| Nitrate (as N) | mg/L | 8/23/2006 11:43:00 AM | 353.2 | 0.010 | **0.16** |
| Nitrite (as N) | mg/L | 8/23/2006 11:43:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 8/23/2006 12:45:00 PM | EPA 1664 | 3.0 | **3.8** |
| Phosphate, ortho (as P) | mg/L | 8/23/2006 10:15:00 AM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 8/23/2006 11:20:00 AM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 8/28/2006 11:24:00 AM | 300.0 | 1.0 | **130** |
| TDS | mg/L | 8/25/2006 3:00:00 PM | 160.1 | 20 | **420** |
| TSS | mg/L | 8/23/2006 3:30:00 PM | 160.2 | 3.0 | **9.0** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-04
Field Sample ID: **Sulfer Spring**
Collected: 8/21/2006 5:00:00 PM
Received: 8/22/2006


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Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/23/2006 6:00:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 20 | **340** |
| Ammonia (as N) | mg/L | 8/24/2006 7:33:05 AM | 350.1 | 0.050 | **0.17** |
| Bicarbonate (As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 20 | **340** |
| Carbonate (As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 8/24/2006 10:27:04 AM | 300.0 | 1.0 | **6.6** |
| Hardness (as CaCO3) | mg/L | 9/5/2006 | 2340B | 10 | **360** |
| Nitrate (as N) | mg/L | 8/23/2006 11:43:00 AM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 8/23/2006 11:43:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 8/23/2006 12:45:00 PM | EPA 1664 | 3.0 | **5.3** |
| Phosphate, ortho (as P) | mg/L | 8/23/2006 10:15:00 AM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 8/23/2006 11:20:00 AM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 8/24/2006 10:27:04 AM | 300.0 | 10 | **47** |
| TDS | mg/L | 8/25/2006 3:00:00 PM | 160.1 | 20 | **320** |
| TSS | mg/L | 8/23/2006 3:30:00 PM | 160.2 | 3.0 | **3.0** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-05
Field Sample ID: **Scofield Res. 1**
Collected: 8/21/2006 5:30:00 PM
Received: 8/22/2006


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Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/23/2006 6:00:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 20 | **130** |
| Ammonia (as N) | mg/L | 8/24/2006 7:33:05 AM | 350.1 | 0.050 | **0.080** |
| Bicarbonate (As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 10 | **14** |
| Carbonate (As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 20 | **120** |
| Chloride | mg/L | 8/24/2006 4:32:21 AM | 300.0 | 10 | **32** |
| Hardness (as CaCO3) | mg/L | 9/5/2006 | 2340B | 10 | **170** |
| Nitrate (as N) | mg/L | 8/23/2006 11:43:00 AM | 353.2 | 0.010 | **0.070** |
| Nitrite (as N) | mg/L | 8/23/2006 11:43:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 8/23/2006 12:45:00 PM | EPA 1664 | 3.0 | < 3.0 |
| Phosphate, ortho (as P) | mg/L | 8/23/2006 10:15:00 AM | 365.1 | 0.050 | **0.060** |
| Settable Solids | ml/L | 8/23/2006 11:20:00 AM | 160.5 | 0.10 | **0.60** |
| Sulfate | mg/L | 8/24/2006 4:32:21 AM | 300.0 | 10 | **24** |
| TDS | mg/L | 8/25/2006 3:00:00 PM | 160.1 | 20 | **200** |
| TSS | mg/L | 8/23/2006 3:30:00 PM | 160.2 | 3.0 | **40** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L73504-06
Field Sample ID: **Miller Outlet**
Collected: 8/21/2006 6:00:00 PM
Received: 8/22/2006


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Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/23/2006 6:00:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 20 | **210** |
| Ammonia (as N) | mg/L | 8/24/2006 7:33:05 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 20 | **200** |
| Carbonate (As CaCO3) | mg/L | 8/23/2006 5:40:00 AM | 2320B | 10 | **17** |
| Chloride | mg/L | 8/24/2006 5:05:52 AM | 300.0 | 1.0 | **9.4** |
| Hardness (as CaCO3) | mg/L | 9/5/2006 | 2340B | 10 | **220** |
| Nitrate (as N) | mg/L | 8/23/2006 11:43:00 AM | 353.2 | 0.010 | **0.034** |
| Nitrite (as N) | mg/L | 8/23/2006 11:43:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 8/23/2006 12:45:00 PM | EPA 1664 | 3.0 | **4.8** |
| Phosphate, ortho (as P) | mg/L | 8/23/2006 10:15:00 AM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 8/23/2006 11:20:00 AM | 160.5 | 0.10 | **0.30** |
| Sulfate | mg/L | 8/24/2006 5:05:52 AM | 300.0 | 10 | **20** |
| TDS | mg/L | 8/25/2006 3:00:00 PM | 160.1 | 20 | **200** |
| TSS | mg/L | 8/23/2006 3:30:00 PM | 160.2 | 3.0 | **150** |




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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

**Dept:** ME
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-30230 | Arsenic | mg/L | 6020 | 0.2220 | 0.2 | 0 | 111 | 85-115 | | | | 8/25/2006 |
| LCS-30230 | Cadmium | mg/L | 6020 | 0.2170 | 0.2 | 0 | 108 | 85-115 | | | | 8/25/2006 |
| LCS-30230 | Copper | mg/L | 6020 | 0.2053 | 0.2 | 0 | 103 | 85-115 | | | | 8/25/2006 |
| LCS-30230 | Lead | mg/L | 6020 | 0.2259 | 0.2 | 0 | 113 | 85-115 | | | | 8/25/2006 |
| LCS-30230 | Manganese | mg/L | 6020 | 0.2028 | 0.2 | 0.002465 | 100 | 85-115 | | | | 8/25/2006 |
| LCS-30230 | Selenium | mg/L | 6020 | 0.2110 | 0.2 | 0 | 106 | 85-115 | | | | 8/25/2006 |
| LCS-30230 | Zinc | mg/L | 6020 | 1.088 | 1 | 0.006958 | 108 | 85-115 | | | | 8/25/2006 |
| LCS-30228 | Iron | mg/L | 6010B | 1.136 | 1 | 0 | 114 | 75-125 | | | | 9/1/2006 |
| LCS-30228 | Manganese | mg/L | 6010B | 0.2130 | 0.2 | 0 | 106 | 75-125 | | | | 9/1/2006 |
| LCS-30230 | Aluminum | mg/L | 6010B | 1.091 | 1 | 0 | 109 | 75-125 | | | | 9/5/2006 |
| LCS-30230 | Boron | mg/L | 6010B | 1.151 | 1 | 0 | 115 | 75-125 | | | | 9/5/2006 |
| LCS-30230 | Calcium | mg/L | 6010B | 10.70 | 10 | 0 | 107 | 75-125 | | | | 9/5/2006 |
| LCS-30230 | Iron | mg/L | 6010B | 1.113 | 1 | 0 | 111 | 75-125 | | | | 9/5/2006 |
| LCS-30230 | Magnesium | mg/L | 6010B | 10.80 | 10 | 0 | 108 | 75-125 | | | | 9/5/2006 |
| LCS-30230 | Molybdenum | mg/L | 6010B | 0.2170 | 0.2 | 0 | 109 | 75-125 | | | | 9/5/2006 |
| LCS-30230 | Potassium | mg/L | 6010B | 10.46 | 10 | 0 | 105 | 75-125 | | | | 9/5/2006 |
| LCS-30230 | Sodium | mg/L | 6010B | 10.80 | 10 | 0 | 108 | 75-125 | | | | 9/5/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

**Dept:** ME
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-30230 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/25/2006 |
| MB-30230 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 8/25/2006 |
| MB-30230 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 8/25/2006 |
| MB-30230 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/25/2006 |
| MB-30230 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/25/2006 |
| MB-30230 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/25/2006 |
| MB-30230 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 8/25/2006 |
| MB-30228 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 9/1/2006 |
| MB-30228 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 9/1/2006 |
| MB-30230 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 9/5/2006 |
| MB-30230 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 9/5/2006 |
| MB-30230 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 9/5/2006 |
| MB-30230 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 9/5/2006 |
| MB-30230 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 9/5/2006 |
| MB-30230 | Molybdenum | mg/L | 6010B | < 0.10 | | | | - | | | | 9/5/2006 |
| MB-30230 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 9/5/2006 |
| MB-30230 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 9/5/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

**Dept:** ME
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L73504-01EMS | Arsenic | mg/L | 6020 | 0.2720 | 0.2 | 0.03697 | 118 | 70-130 | | | | 8/25/2006 |
| L73504-01EMS | Cadmium | mg/L | 6020 | 0.2254 | 0.2 | 0 | 113 | 70-130 | | | | 8/25/2006 |
| L73504-01EMS | Copper | mg/L | 6020 | 0.2139 | 0.2 | 0.001167 | 106 | 70-130 | | | | 8/25/2006 |
| L73504-01EMS | Lead | mg/L | 6020 | 0.2362 | 0.2 | 0 | 118 | 70-130 | | | | 8/25/2006 |
| L73504-01EMS | Manganese | mg/L | 6020 | 0.2299 | 0.2 | 0.02105 | 104 | 70-130 | | | | 8/25/2006 |
| L73504-01EMS | Selenium | mg/L | 6020 | 0.2255 | 0.2 | 0.001698 | 112 | 70-130 | | | | 8/25/2006 |
| L73504-01EMS | Zinc | mg/L | 6020 | 1.385 | 1 | 0.2349 | 115 | 70-130 | | | | 8/25/2006 |
| L73504-01DMS | Iron | mg/L | 6010B | 2.014 | 1 | 0.9536 | 106 | 75-125 | | | | 9/1/2006 |
| L73504-01DMS | Manganese | mg/L | 6010B | 0.2280 | 0.2 | 0.01837 | 105 | 75-125 | | | | 9/1/2006 |
| L73504-01EMS | Calcium | mg/L | 6010B | 129.8 | 10 | 118.2 | 116 | 75-125 | | | | 9/5/2006 |
| L73504-01EMS | Magnesium | mg/L | 6010B | 39.41 | 10 | 29.9 | 95.1 | 75-125 | | | | 9/5/2006 |
| L73504-01EMS | Aluminum | mg/L | 6010B | 1.029 | 1 | 0.03513 | 99.4 | 75-125 | | | | 9/5/2006 |
| L73504-01EMS | Boron | mg/L | 6010B | 1.159 | 1 | 0.0388 | 112 | 75-125 | | | | 9/5/2006 |
| L73504-01EMS | Iron | mg/L | 6010B | 1.157 | 1 | 0.0429 | 111 | 75-125 | | | | 9/5/2006 |
| L73504-01EMS | Molybdenum | mg/L | 6010B | 0.2127 | 0.2 | 0 | 106 | 75-125 | | | | 9/5/2006 |
| L73504-01EMS | Potassium | mg/L | 6010B | 13.75 | 10 | 1.97 | 118 | 75-125 | | | | 9/5/2006 |
| L73504-01EMS | Sodium | mg/L | 6010B | 20.44 | 10 | 9.778 | 107 | 75-125 | | | | 9/5/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

**Dept:** ME
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L73504-01EMSD | Arsenic | mg/L | 6020 | 0.2794 | 0.2 | 0.03697 | 121 | 70-130 | 2.68 | 20 | | 8/25/2006 |
| L73504-01EMSD | Cadmium | mg/L | 6020 | 0.2301 | 0.2 | 0 | 115 | 70-130 | 2.06 | 20 | | 8/25/2006 |
| L73504-01EMSD | Copper | mg/L | 6020 | 0.2122 | 0.2 | 0.001167 | 106 | 70-130 | 0.804 | 20 | | 8/25/2006 |
| L73504-01EMSD | Lead | mg/L | 6020 | 0.2388 | 0.2 | 0 | 119 | 70-130 | 1.11 | 20 | | 8/25/2006 |
| L73504-01EMSD | Manganese | mg/L | 6020 | 0.2300 | 0.2 | 0.02105 | 104 | 70-130 | 0.0265 | 20 | | 8/25/2006 |
| L73504-01EMSD | Selenium | mg/L | 6020 | 0.2266 | 0.2 | 0.001698 | 112 | 70-130 | 0.500 | 20 | | 8/25/2006 |
| L73504-01EMSD | Zinc | mg/L | 6020 | 1.383 | 1 | 0.2349 | 115 | 70-130 | 0.148 | 20 | | 8/25/2006 |
| L73504-01DMSD | Iron | mg/L | 6010B | 2.059 | 1 | 0.9536 | 111 | 75-125 | 2.25 | 20 | | 9/1/2006 |
| L73504-01DMSD | Manganese | mg/L | 6010B | 0.2306 | 0.2 | 0.01837 | 106 | 75-125 | 1.15 | 20 | | 9/1/2006 |
| L73504-01EMSD | Calcium | mg/L | 6010B | 127.6 | 10 | 118.2 | 93.2 | 75-125 | 1.74 | 20 | | 9/5/2006 |
| L73504-01EMSD | Magnesium | mg/L | 6010B | 38.63 | 10 | 29.9 | 87.3 | 75-125 | 2.00 | 20 | | 9/5/2006 |
| L73504-01EMSD | Aluminum | mg/L | 6010B | 1.061 | 1 | 0.03513 | 103 | 75-125 | 3.08 | 20 | | 9/5/2006 |
| L73504-01EMSD | Boron | mg/L | 6010B | 1.167 | 1 | 0.0388 | 113 | 75-125 | 0.714 | 20 | | 9/5/2006 |
| L73504-01EMSD | Iron | mg/L | 6010B | 1.169 | 1 | 0.0429 | 113 | 75-125 | 1.05 | 20 | | 9/5/2006 |
| L73504-01EMSD | Molybdenum | mg/L | 6010B | 0.2149 | 0.2 | 0 | 107 | 75-125 | 0.992 | 20 | | 9/5/2006 |
| L73504-01EMSD | Potassium | mg/L | 6010B | 13.90 | 10 | 1.97 | 119 | 75-125 | 1.13 | 20 | | 9/5/2006 |
| L73504-01EMSD | Sodium | mg/L | 6010B | 20.93 | 10 | 9.778 | 112 | 75-125 | 2.38 | 20 | | 9/5/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L73504-06ADUP | TDS | mg/L | 160.1 | 188.0 | 0 | 196 | | - | 4.17 | 20 | | 8/25/2006 |
| L73573-02BDUP | TDS | mg/L | 160.1 | 37100 | 0 | 36600 | | - | 1.36 | 20 | | 8/25/2006 |
| L73504-06ADUP | TSS | mg/L | 160.2 | 172.0 | 0 | 150 | | - | 13.7 | 20 | | 8/23/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

**Dept:** WC
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R60917 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50740 | 50000 | 0 | 101 | 90-110 | | | | 8/23/2006 |
| LCS-R61018 | Chloride | mg/L | 300.0 | 4.843 | 5 | 0 | 96.9 | 90-110 | | | | 8/23/2006 |
| LCS-R61018 | Sulfate | mg/L | 300.0 | 4.654 | 5 | 0 | 93.1 | 90-110 | | | | 8/23/2006 |
| LCS-R61048 | Sulfate | mg/L | 300.0 | 4.868 | 5 | 0 | 97.4 | 90-110 | | | | 8/28/2006 |
| LCS-R60918 | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 8/23/2006 |
| LCS-30223 | Ammonia (as N) | mg/L | 350.1 | 0.9180 | 1 | 0 | 91.8 | 90-110 | | | | 8/24/2006 |
| LCS-60939 | Nitrite (as N) | mg/L | 353.2 | 0.9880 | 1 | 0 | 98.8 | 90-110 | | | | 8/23/2006 |
| LCS-60941 | Nitrate (as N) | mg/L | 353.2 | 0.9790 | 1 | 0 | 97.9 | 90-110 | | | | 8/23/2006 |
| LCS-R60957 | Oil & Grease | mg/L | EPA 1664 | 38.10 | 40 | 0 | 95.2 | 79-114 | | | | 8/23/2006 |
| LCS-60927 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9270 | 1 | 0 | 92.7 | 90-110 | | | | 8/23/2006 |
| LCS-R61087 | TDS | mg/L | 160.1 | 188.0 | 205 | 0 | 91.7 | 80-120 | | | | 8/25/2006 |
| LCS-R60977 | TSS | mg/L | 160.2 | 100.0 | 100 | 0 | 100 | 80-120 | | | | 8/23/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

**Dept:** WC
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R60917 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 8/23/2006 |
| MB-R60917 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 8/23/2006 |
| MB-R60917 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 8/23/2006 |
| MB-R61018 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 8/23/2006 |
| MB-R61018 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 8/23/2006 |
| MB-R61048 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 8/28/2006 |
| MB-R60918 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 8/23/2006 |
| MB-30223 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 8/24/2006 |
| MB-60939 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 8/23/2006 |
| MB-60941 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 8/23/2006 |
| MB-R60957 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 8/23/2006 |
| MB-60927 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 8/23/2006 |
| MB-R61087 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 8/25/2006 |
| MB-R60977 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 8/23/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L73504-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 473.0 | 100 | 373 | 100 | 80-120 | | | | 8/23/2006 |
| L73465-02BMS | Chloride | mg/L | 300.0 | 172.3 | 100 | 78.8 | 93.5 | 90-110 | | | | 8/23/2006 |
| L73465-02BMS | Sulfate | mg/L | 300.0 | 152.6 | 100 | 58.54 | 94.0 | 90-110 | | | | 8/23/2006 |
| L73504-03BMS | Chloride | mg/L | 300.0 | 69.14 | 50 | 21.91 | 94.5 | 90-110 | | | | 8/24/2006 |
| L73504-03BMS | Sulfate | mg/L | 300.0 | 638.8 | 500 | 130.7 | 102 | 90-110 | | | | 8/28/2006 |
| L73504-01BMS | Acidity | mg/L | 305.1 | 48.00 | 50 | 0 | 96.0 | 80-120 | | | | 8/23/2006 |
| L73504-01CMS | Ammonia (as N) | mg/L | 350.1 | 0.8590 | 1 | 0.038 | 82.1 | 90-110 | | | [1] | 8/24/2006 |
| L73515-02CMS | Ammonia (as N) | mg/L | 350.1 | 5.404 | 2 | 3.847 | 77.8 | 90-110 | | | [1] | 8/24/2006 |
| L73504-01BMS | Nitrite (as N) | mg/L | 353.2 | 0.9790 | 1 | 0 | 97.9 | 90-110 | | | | 8/23/2006 |
| L73504-01BMS | Nitrate (as N) | mg/L | 353.2 | 0.8770 | 1 | 0 | 87.7 | 90-110 | | | [1] | 8/23/2006 |
| L73504-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9700 | 1 | 0.022 | 94.8 | 90-110 | | | | 8/23/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L73504-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 476.0 | 100 | 373 | 103 | 80-120 | 0.632 | 10 | | 8/23/2006 |
| L73465-02BMSD | Chloride | mg/L | 300.0 | 173.6 | 100 | 78.8 | 94.8 | 90-110 | 0.734 | 20 | | 8/23/2006 |
| L73465-02BMSD | Sulfate | mg/L | 300.0 | 154.5 | 100 | 58.54 | 96.0 | 90-110 | 1.26 | 20 | | 8/23/2006 |
| L73504-03BMSD | Chloride | mg/L | 300.0 | 69.84 | 50 | 21.91 | 95.9 | 90-110 | 1.01 | 20 | | 8/24/2006 |
| L73504-03BMSD | Sulfate | mg/L | 300.0 | 637.6 | 500 | 130.7 | 101 | 90-110 | 0.182 | 20 | | 8/28/2006 |
| L73504-01BMSD | Acidity | mg/L | 305.1 | 46.00 | 50 | 0 | 92.0 | 80-120 | 4.26 | 20 | | 8/23/2006 |
| L73504-01CMSD | Ammonia (as N) | mg/L | 350.1 | 0.8650 | 1 | 0.038 | 82.7 | 90-110 | 0.696 | 10 | [1] | 8/24/2006 |
| L73515-02CMSD | Ammonia (as N) | mg/L | 350.1 | 5.399 | 2 | 3.847 | 77.6 | 90-110 | 0.0926 | 10 | [1] | 8/24/2006 |
| L73504-01BMSD | Nitrite (as N) | mg/L | 353.2 | 0.9440 | 1 | 0 | 94.4 | 90-110 | 3.64 | 10 | | 8/23/2006 |
| L73504-01BMSD | Nitrate (as N) | mg/L | 353.2 | 0.9030 | 1 | 0 | 90.3 | 90-110 | 2.92 | 10 | | 8/23/2006 |
| L73504-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9590 | 1 | 0.022 | 93.7 | 90-110 | 1.14 | 10 | | 8/23/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R60957 | Oil & Grease | mg/L | EPA 1664 | 40.00 | 40 | 0 | 100 | 79-114 | | | | 8/23/2006 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L73504
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R60957 | Oil & Grease | mg/L | EPA 1664 | 39.70 | 40 | 0 | 99.2 | 79-114 | 0.753 | 18 | | 8/23/2006 |



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# American West Analytical Labs

## WORK ORDER Summary

*22-Aug-06*

**Work Order** L73504

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L73504-01A | CR-06-03-ABV | 8/21/2006 2:00:00 PM | 8/22/2006 | 9/5/2006 | Aqueous | TDS-W | ww - tds | 1 |
| L73504-01B | CR-06-03 ABV | | | 9/5/2006 | | 2320B-ALK-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | 300.0-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | ACIDITY-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | NO2-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | NO3-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | PO4-O | aug 22 wc | 1 |
| L73504-01C | | | | 9/5/2006 | | NH3-W | aug 22 - nh3 | 1 |
| | | | | 9/5/2006 | | NH3-W-PREP | aug 22 - nh3 | 1 |
| L73504-01D | | | | 9/5/2006 | | 3005A-ICPMS | Aug 22 - met | 1 |
| | | | | 9/5/2006 | | ICP-W | Aug 22 - met | 1 |
| L73504-01E | | | | 9/5/2006 | Aqueous-Dissolved | 3005A-Diss | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | 6020-W-DISS | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | HARD | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | ICP-W-DIS | Aug 22 - dis met | 1 |
| L73504-02A | Angle Spring | 8/21/2006 4:00:00 PM | | 9/5/2006 | Aqueous | SS | ww - tds.tss.ss | 1 |
| | | | | 9/5/2006 | | TDS-W | ww - tds.tss.ss | 1 |
| | | | | 9/5/2006 | | TSS-W | ww - tds.tss.ss | 1 |
| L73504-02B | | | | 9/5/2006 | | 2320B-ALK-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | 300.0-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | ACIDITY-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | NO2-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | NO3-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | PO4-O | aug 22 wc | 1 |
| L73504-02C | | | | 9/5/2006 | | NH3-W | aug 22 - nh3 | 1 |
| | | | | 9/5/2006 | | NH3-W-PREP | aug 22 - nh3 | 1 |
| L73504-02D | | | | 9/5/2006 | | 3005A-ICPMS | Aug 22 - met | 1 |

# WORK ORDER Summary

*22-Aug-06*

**Work Order** L73504

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L73504-02D | Angle Spring | 8/21/2006 4:00:00 PM | 8/22/2006 | 9/5/2006 | Aqueous | ICP-W | Aug 22 - met | 1 |
| L73504-02E | | | | 9/5/2006 | Aqueous-Dissolved | 3005A-Diss | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | 6020-W-DISS | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | HARD | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | ICP-W-DIS | Aug 22 - dis met | 1 |
| L73504-02F | | | | 9/5/2006 | Aqueous | OGB-W | OGBFridge | 1 |
| L73504-03A | Mud Creek | 8/21/2006 4:30:00 PM | | 9/5/2006 | | SS | ww - tds.tss.ss | 1 |
| | | | | 9/5/2006 | | TDS-W | ww - tds.tss.ss | 1 |
| | | | | 9/5/2006 | | TSS-W | ww - tds.tss.ss | 1 |
| L73504-03B | | | | 9/5/2006 | | 2320B-ALK-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | 300.0-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | ACIDITY-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | NO2-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | NO3-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | PO4-O | aug 22 wc | 1 |
| L73504-03C | | | | 9/5/2006 | | NH3-W | aug 22 - nh3 | 1 |
| | | | | 9/5/2006 | | NH3-W-PREP | aug 22 - nh3 | 1 |
| L73504-03D | | | | 9/5/2006 | | 3005A-ICPMS | Aug 22 - met | 1 |
| | | | | 9/5/2006 | | ICP-W | Aug 22 - met | 1 |
| L73504-03E | | | | 9/5/2006 | Aqueous-Dissolved | 3005A-Diss | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | 6020-W-DISS | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | HARD | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | ICP-W-DIS | Aug 22 - dis met | 1 |
| L73504-03F | | | | 9/5/2006 | Aqueous | OGB-W | OGBFridge | 1 |
| L73504-04A | Sulfer Spring | 8/21/2006 5:00:00 PM | | 9/5/2006 | | SS | ww - tds.tss.ss | 1 |
| | | | | 9/5/2006 | | TDS-W | ww - tds.tss.ss | 1 |
| | | | | 9/5/2006 | | TSS-W | ww - tds.tss.ss | 1 |
| L73504-04B | | | | 9/5/2006 | | 2320B-ALK-W | aug 22 wc | 1 |

# WORK ORDER Summary

*22-Aug-06*

**Work Order** L73504

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L73504-04B | Sulfer Spring | 8/21/2006 5:00:00 PM | 8/22/2006 | 9/5/2006 | Aqueous | 300.0-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | ACIDITY-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | NO2-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | NO3-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | PO4-O | aug 22 wc | 1 |
| L73504-04C | | | | 9/5/2006 | | NH3-W | aug 22 - nh3 | 1 |
| | | | | 9/5/2006 | | NH3-W-PREP | aug 22 - nh3 | 1 |
| L73504-04D | | | | 9/5/2006 | | 3005A-ICPMS | Aug 22 - met | 1 |
| | | | | 9/5/2006 | | ICP-W | Aug 22 - met | 1 |
| L73504-04E | | | | 9/5/2006 | Aqueous-Dissolved | 3005A-Diss | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | 6020-W-DISS | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | HARD | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | ICP-W-DIS | Aug 22 - dis met | 1 |
| L73504-04F | | | | 9/5/2006 | Aqueous | OGB-W | OGBFridge | 1 |
| L73504-05A | Scofield Res. 1 | 8/21/2006 5:30:00 PM | | 9/5/2006 | | SS | ww - tds.tss.ss | 1 |
| | | | | 9/5/2006 | | TDS-W | ww - tds.tss.ss | 1 |
| | | | | 9/5/2006 | | TSS-W | ww - tds.tss.ss | 1 |
| L73504-05B | | | | 9/5/2006 | | 2320B-ALK-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | 300.0-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | ACIDITY-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | NO2-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | NO3-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | PO4-O | aug 22 wc | 1 |
| L73504-05C | | | | 9/5/2006 | | NH3-W | aug 22 - nh3 | 1 |
| | | | | 9/5/2006 | | NH3-W-PREP | aug 22 - nh3 | 1 |
| L73504-05D | | | | 9/5/2006 | | 3005A-ICPMS | Aug 22 - met | 1 |
| | | | | 9/5/2006 | | ICP-W | Aug 22 - met | 1 |
| L73504-05E | | | | 9/5/2006 | Aqueous-Dissolved | 3005A-Diss | Aug 22 - dis met | 1 |

# WORK ORDER Summary

*22-Aug-06*

**Work Order** L73504

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ Include EDD in Excel Format.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L73504-05E | Scofield Res. 1 | 8/21/2006 5:30:00 PM | 8/22/2006 | 9/5/2006 | Aqueous-Dissolved | 6020-W-DISS | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | HARD | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | ICP-W-DIS | Aug 22 - dis met | 1 |
| L73504-05F | | | | 9/5/2006 | Aqueous | OGB-W | OGBFridge | 1 |
| L73504-06A | Miller Outlet | 8/21/2006 6:00:00 PM | | 9/5/2006 | | SS | ww - tds.tss.ss | 1 |
| | | | | 9/5/2006 | | TDS-W | ww - tds.tss.ss | 1 |
| | | | | 9/5/2006 | | TSS-W | ww - tds.tss.ss | 1 |
| L73504-06B | | | | 9/5/2006 | | 2320B-ALK-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | 300.0-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | ACIDITY-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | NO2-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | NO3-W | aug 22 wc | 1 |
| | | | | 9/5/2006 | | PO4-O | aug 22 wc | 1 |
| L73504-06C | | | | 9/5/2006 | | NH3-W | aug 22 - nh3 | 1 |
| | | | | 9/5/2006 | | NH3-W-PREP | aug 22 - nh3 | 1 |
| L73504-06D | | | | 9/5/2006 | | 3005A-ICPMS | Aug 22 - met | 1 |
| | | | | 9/5/2006 | | ICP-W | Aug 22 - met | 1 |
| L73504-06E | | | | 9/5/2006 | Aqueous-Dissolved | 3005A-Diss | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | 6020-W-DISS | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | HARD | Aug 22 - dis met | 1 |
| | | | | 9/5/2006 | | ICP-W-DIS | Aug 22 - dis met | 1 |
| L73504-06F | | | | 9/5/2006 | Aqueous | OGB-W | OGBFridge | 1 |

Client Carbon Resources | Rock Logic Consulting

Address PO Box 544
Cedaredge CO 81413
City State Zip

Phone 435-851-9044 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield baseline

Project Number/P.O.#

Sampler Name Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES
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Salt Lake City, Utah 84115
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Email:awal@awal-labs.com

# CHAIN OF CUSTODY

Lab Sample Set # 73504

Page _____ of _____

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

| | Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | table 4 | table 3 | COMMENTS |
|---|---|---|---|---|---|---|---|
| 1 | CR-06-03-ABV | 8.21.06/1400 | W | 5 | ✓ | | |
| 2 | Angle Spring | 8.21.06/16:00 | W | 6 | | ✓ | |
| 3 | Mud Creek | 8.21.06/16:30 | W | 6 | | ✓ | |
| 4 | Sulfer Spring | 8.21.06/17:00 | W | 6 | | ✓ | |
| 5 | Scofield Res. 1 | 8.21.06/17:30 | W | 6 | | ✓ | |
| 6 | Miller Outlet | 8.21.06/18:00 | W | 6 | | ✓ | |

Please indicate tests needed below

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes:
3 Temperature 8°
4 Received Broken/Leaking (Improperly Sealed) Y (N)
Notes:
5 Properly Preserved Y N
Notes:
6 Received Within Holding Times Y N
Notes:

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record? Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 14:50 | PRINT NAME Elma Hayward |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

Please filter for dissolved metals

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | ✓Total Dissolved Solids | mg/l |
| * | - | ✓Total Settleable Solids | (UPDES) |
| * | - | ✓Total Suspended Solids | mg/l |
| * | - | ✓Total Hardness ($CaCO_3$) | mg/l |
| * | - | ✓Total Alkalinity | mg/l |
| | - | ✓Acidity | mg/l |
| | - | ✓Aluminum (Dissolved) | mg/l |
| | - | ✓Arsenic (Dissolved) | mg/l |
| | - | ✓Boron (Dissolved)[1] | mg/l |
| * | - | ✓ Carbonate | mg/l |
| * | - | ✓Bicarbonate | mg/l |
| | - | ✓Cadmium (Dissolved) | mg/l |
| * | - | ✓Calcium (Dissolved) | mg/l |
| * | - | ✓Chloride | mg/l |
| | - | ✓Copper (Dissolved) | mg/l |
| * | - | ✓Iron (Dissolved) | mg/l |
| * | - | ✓Iron (Total) | mg/l |
| | - | ✓ Lead (Dissolved) | mg/l |
| * | - | ✓Magnesium (Dissolved) | mg/l |
| * | - | ✓Manganese (Dissolved) | mg/l |
| * | - | ✓Manganese (Total) | mg/l |
| | - | ✓ Molybdenum (Dissolved) | mg/l |
| | - | ✓ Ammonia | mg/l |
| | - | ✓Nitrates | mg/l |
| | - | ✓Nitrites | mg/l |
| * | - | ✓Potassium (Dissolved) | mg/l |
| | - | ✓ Phosphates(Ortho) | mg/l |
| | - | ✓Selenium[1] (Dissolved) | mg/l |
| * | - | ✓Sodium (Dissolved) | mg/l |
| * | - | ✓ Sulfate | mg/l |
| | - | ✓Zinc (Dissolved) | mg/l |
| * | - | ✓Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | | |
|---|---|---|---|---|
| * | - | Total Dissolved Solids | | mg/l |
| * | - | Total Hardness ($CaCO_3$) | | mg/l |
| * | - | Total Alkalinity | | mg/l |
| | - | Acidity | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved)[1] | | mg/l |
| * | - | Carbonate | | mg/l |
| * | - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| * | - | Calcium (Dissolved) | | mg/l |
| * | - | Chloride | mg/l | |
| | - | Copper (Dissolved) | | mg/l |
| * | - | Iron (Dissolved) | | mg/l |
| * | - | Iron (Total) | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| * | - | Magnesium (Dissolved) | | mg/l |
| * | - | Manganese (Dissolved) | | mg/l |
| * | - | Manganese (Total) | | mg/l |
| | - | Molybdenum (Dissolved) | | mg/l |
| | - | Ammonia | | mg/l |
| | - | Nitrates | | mg/l |
| | - | Nitrites | | mg/l |
| * | - | Potassium (Dissolved) | | mg/l |
| | - | Phosphate (Ortho) | | mg/l |
| | - | Selenium[1] (Dissolved) | | mg/l |
| * | - | Sodium (Dissolved) | | mg/l |
| * | - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| * | - | Cations | | meq/l |
| * | - | Anions | | meq/l |

[1] These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 73504

## Preservation Check Sheet

| | | | Sample Set Extension and pH | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

**AMERICAN WEST ANALYTICAL LABORATORIES**

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October 12, 2006

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L74133

Dear Brad Lindsay:

American West Analytical Labs received 6 samples on 9/28/2006 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-01D
Field Sample ID: **Miller Outlet**
Collected: 9/27/2006 8:30:00 AM
Received: 9/28/2006

**AMERICAN WEST ANALYTICAL LABORATORIES**

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## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Iron | mg/L | 10/12/2006 8:03:42 AM | 6010B | 0.050 | **1.3** | [1] |
| Manganese | mg/L | 10/12/2006 8:03:42 AM | 6010B | 0.0050 | **0.062** | |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-02D
Field Sample ID: **RES-1**
Collected: 9/27/2006 8:45:00 AM
Received: 9/28/2006

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Salt Lake City, Utah
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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 10/12/2006 8:19:35 AM | 6010B | 0.050 | **2.0** |
| Manganese | mg/L | 10/12/2006 8:19:35 AM | 6010B | 0.0050 | **1.5** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-03D
Field Sample ID: **Sulfer Spring**
Collected: 9/27/2006 9:00:00 AM
Received: 9/28/2006

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 10/12/2006 8:43:14 AM | 6010B | 0.050 | **0.52** |
| Manganese | mg/L | 10/12/2006 8:43:14 AM | 6010B | 0.0050 | **0.037** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-04D
Field Sample ID: **Mud Creek**
Collected: 9/27/2006 9:15:00 AM
Received: 9/28/2006

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 10/12/2006 8:47:10 AM | 6010B | 0.050 | **0.31** |
| Manganese | mg/L | 10/12/2006 8:47:10 AM | 6010B | 0.0050 | **0.030** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-05D
Field Sample ID: **Angle Spring**
Collected: 9/27/2006 10:00:00 AM
Received: 9/28/2006

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Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 10/12/2006 8:51:12 AM | 6010B | 0.050 | **< 0.050** |
| Manganese | mg/L | 10/12/2006 8:51:12 AM | 6010B | 0.0050 | < 0.0050 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-06D
Field Sample ID: **CR-06-03-ABV**
Collected: 9/27/2006 11:00:00 AM
Received: 9/28/2006

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Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 10/12/2006 8:55:10 AM | 6010B | 0.050 | **4.0** |
| Manganese | mg/L | 10/12/2006 8:55:10 AM | 6010B | 0.0050 | **0.054** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L74133-01E
Field Sample ID: **Miller Outlet**
Collected: 9/27/2006 8:30:00 AM
Received: 9/28/2006

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Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 10/11/2006 7:01:59 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 10/5/2006 11:05:15 AM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 10/11/2006 7:01:59 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 10/5/2006 11:05:15 AM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 10/11/2006 7:01:59 AM | 6010B | 10 | **84** |
| Copper | mg/L | 10/5/2006 11:05:15 AM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 10/11/2006 7:01:59 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 10/5/2006 11:05:15 AM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 10/11/2006 7:01:59 AM | 6010B | 10 | **18** |
| Manganese | mg/L | 10/5/2006 11:05:15 AM | 6020 | 0.0050 | **0.0072** |
| Molybdenum | mg/L | 10/11/2006 7:01:59 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 10/11/2006 7:01:59 AM | 6010B | 1.0 | **1.8** |
| Selenium | mg/L | 10/5/2006 11:05:15 AM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 10/11/2006 7:01:59 AM | 6010B | 1.0 | **11** |
| Zinc | mg/L | 10/5/2006 11:05:15 AM | 6020 | 0.010 | **0.020** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-02E
Field Sample ID: **RES-1**
Collected: 9/27/2006 8:45:00 AM
Received: 9/28/2006

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Laboratory Director

Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 10/11/2006 7:05:55 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 10/5/2006 11:10:38 AM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 10/11/2006 7:05:55 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 10/5/2006 11:10:38 AM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 10/11/2006 7:05:55 AM | 6010B | 10 | **52** |
| Copper | mg/L | 10/5/2006 11:10:38 AM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 10/11/2006 7:05:55 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 10/5/2006 11:10:38 AM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 10/11/2006 7:05:55 AM | 6010B | 10 | **28** |
| Manganese | mg/L | 10/5/2006 11:10:38 AM | 6020 | 0.0050 | **0.85** |
| Molybdenum | mg/L | 10/11/2006 7:05:55 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 10/11/2006 7:05:55 AM | 6010B | 1.0 | **3.2** |
| Selenium | mg/L | 10/5/2006 11:10:38 AM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 10/11/2006 7:05:55 AM | 6010B | 10 | **22** |
| Zinc | mg/L | 10/5/2006 11:10:38 AM | 6020 | 0.010 | < 0.010 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-03E
Field Sample ID: **Sulfer Spring**
Collected: 9/27/2006 9:00:00 AM
Received: 9/28/2006

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Peggy McNicol
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 10/11/2006 7:09:48 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 10/5/2006 11:16:01 AM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 10/11/2006 7:09:48 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 10/5/2006 11:16:01 AM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 10/11/2006 7:09:48 AM | 6010B | 10 | **94** |
| Copper | mg/L | 10/5/2006 11:16:01 AM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 10/11/2006 7:09:48 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 10/5/2006 11:16:01 AM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 10/11/2006 7:09:48 AM | 6010B | 10 | **37** |
| Manganese | mg/L | 10/5/2006 11:16:01 AM | 6020 | 0.0050 | **0.038** |
| Molybdenum | mg/L | 10/11/2006 7:09:48 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 10/11/2006 7:09:48 AM | 6010B | 1.0 | **4.2** |
| Selenium | mg/L | 10/5/2006 11:16:01 AM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 10/11/2006 7:09:48 AM | 6010B | 10 | **12** |
| Zinc | mg/L | 10/5/2006 11:16:01 AM | 6020 | 0.010 | < 0.010 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-04E
Field Sample ID: **Mud Creek**
Collected: 9/27/2006 9:15:00 AM
Received: 9/28/2006


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## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/11/2006 7:17:38 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 10/5/2006 11:21:22 AM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 10/11/2006 7:17:38 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 10/5/2006 11:21:22 AM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 10/11/2006 7:17:38 AM | 6010B | 10 | **86** | 2 |
| Copper | mg/L | 10/5/2006 11:21:22 AM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 10/11/2006 7:17:38 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 10/5/2006 11:21:22 AM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 10/11/2006 7:17:38 AM | 6010B | 10 | **49** | 2 |
| Manganese | mg/L | 10/5/2006 11:21:22 AM | 6020 | 0.0050 | **0.019** | |
| Molybdenum | mg/L | 10/11/2006 7:17:38 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 10/11/2006 7:17:38 AM | 6010B | 1.0 | **8.0** | 1 |
| Selenium | mg/L | 10/5/2006 11:21:22 AM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 10/11/2006 7:17:38 AM | 6010B | 10 | **38** | 2 |
| Zinc | mg/L | 10/5/2006 11:21:22 AM | 6020 | 0.010 | < 0.010 | |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*
[2] *Analyte concentration is too high for accurate spike recovery.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-05E
Field Sample ID: **Angle Spring**
Collected: 9/27/2006 10:00:00 AM
Received: 9/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 10/11/2006 7:33:51 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 10/5/2006 11:48:21 AM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 10/11/2006 7:33:51 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 10/5/2006 11:48:21 AM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 10/11/2006 7:33:51 AM | 6010B | 10 | **100** |
| Copper | mg/L | 10/5/2006 11:48:21 AM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 10/11/2006 7:33:51 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 10/5/2006 11:48:21 AM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 10/11/2006 7:33:51 AM | 6010B | 10 | **19** |
| Manganese | mg/L | 10/5/2006 11:48:21 AM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 10/11/2006 7:33:51 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 10/11/2006 7:33:51 AM | 6010B | 1.0 | **1.5** |
| Selenium | mg/L | 10/5/2006 11:48:21 AM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 10/11/2006 7:33:51 AM | 6010B | 1.0 | **10** |
| Zinc | mg/L | 10/5/2006 11:48:21 AM | 6020 | 0.010 | < 0.010 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-06E
Field Sample ID: **CR-06-03-ABV**
Collected: 9/27/2006 11:00:00 AM
Received: 9/28/2006


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Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 10/11/2006 7:37:46 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 10/5/2006 11:53:46 AM | 6020 | 0.0050 | **0.047** |
| Boron | mg/L | 10/11/2006 7:37:46 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 10/5/2006 11:53:46 AM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 10/11/2006 7:37:46 AM | 6010B | 10 | **120** |
| Copper | mg/L | 10/5/2006 11:53:46 AM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 10/11/2006 7:37:46 AM | 6010B | 0.050 | **0.070** |
| Lead | mg/L | 10/5/2006 11:53:46 AM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 10/11/2006 7:37:46 AM | 6010B | 10 | **31** |
| Manganese | mg/L | 10/5/2006 11:53:46 AM | 6020 | 0.0050 | **0.022** |
| Molybdenum | mg/L | 10/11/2006 7:37:46 AM | 6010B | 0.10 | **< 0.10** |
| Potassium | mg/L | 10/11/2006 7:37:46 AM | 6010B | 1.0 | **1.6** |
| Selenium | mg/L | 10/5/2006 11:53:46 AM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 10/11/2006 7:37:46 AM | 6010B | 10 | **12** |
| Zinc | mg/L | 10/5/2006 11:53:46 AM | 6020 | 0.010 | **0.097** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-01
Field Sample ID: **Miller Outlet**
Collected: 9/27/2006 8:30:00 AM
Received: 9/28/2006


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Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 9/29/2006 8:00:00 AM | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 20 | **240** | |
| Ammonia (as N) | mg/L | 9/29/2006 3:12:00 PM | 350.1 | 0.050 | < 0.050 | 1 |
| Bicarbonate (As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 20 | **240** | |
| Carbonate (As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 10/2/2006 7:07:50 PM | 300.0 | 2.0 | **9.5** | |
| Hardness (as CaCO3) | mg/L | 10/11/2006 | 2340B | 10 | **280** | |
| Nitrate (as N) | mg/L | 9/28/2006 1:53:00 PM | 353.2 | 0.010 | **0.19** | |
| Nitrite (as N) | mg/L | 9/28/2006 1:53:00 PM | 353.2 | 0.010 | < 0.010 | |
| Oil & Grease | mg/L | 9/28/2006 1:45:00 PM | EPA 1664 | 3.0 | **4.5** | |
| pH @ 25° C | pH Units | 9/28/2006 11:30:00 AM | 150.1 | 0 | **8.44** | H |
| Phosphate, ortho (as P) | mg/L | 9/28/2006 12:45:00 PM | 365.1 | 0.050 | < 0.050 | |
| Settable Solids | ml/L | 9/28/2006 11:30:00 AM | 160.5 | 0.10 | **0.10** | |
| Sulfate | mg/L | 10/2/2006 7:07:50 PM | 300.0 | 10 | **22** | |
| TDS | mg/L | 9/28/2006 2:00:00 PM | 160.1 | 10 | **240** | |
| TSS | mg/L | 9/28/2006 3:30:00 PM | 160.2 | 3.0 | **39** | |

*H - Sample was received outside of holding time.*

*[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-02
Field Sample ID: **RES-1**
Collected: 9/27/2006 8:45:00 AM
Received: 9/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 9/29/2006 8:00:00 AM | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 20 | **180** | |
| Ammonia (as N) | mg/L | 9/29/2006 3:12:00 PM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 20 | **180** | |
| Carbonate (As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 10/2/2006 7:41:07 PM | 300.0 | 10 | **28** | |
| Hardness (as CaCO3) | mg/L | 10/11/2006 | 2340B | 10 | **240** | |
| Nitrate (as N) | mg/L | 9/28/2006 1:53:00 PM | 353.2 | 0.010 | < 0.010 | |
| Nitrite (as N) | mg/L | 9/28/2006 1:53:00 PM | 353.2 | 0.010 | < 0.010 | |
| Oil & Grease | mg/L | 9/28/2006 1:45:00 PM | EPA 1664 | 3.0 | **5.1** | |
| pH @ 25° C | pH Units | 9/28/2006 11:30:00 AM | 150.1 | 0 | **8.12** | **H** |
| Phosphate, ortho (as P) | mg/L | 9/28/2006 12:45:00 PM | 365.1 | 0.050 | < 0.050 | |
| Settable Solids | ml/L | 9/28/2006 11:30:00 AM | 160.5 | 0.10 | **0.10** | |
| Sulfate | mg/L | 10/2/2006 7:41:07 PM | 300.0 | 10 | **58** | |
| TDS | mg/L | 9/28/2006 2:00:00 PM | 160.1 | 10 | **320** | |
| TSS | mg/L | 9/28/2006 3:30:00 PM | 160.2 | 3.0 | **51** | |

*H - Sample was received outside of holding time.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-03
Field Sample ID: **Sulfer Spring**
Collected: 9/27/2006 9:00:00 AM
Received: 9/28/2006


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Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 9/29/2006 8:00:00 AM | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 20 | **350** | |
| Ammonia (as N) | mg/L | 9/29/2006 3:12:00 PM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 20 | **350** | |
| Carbonate (As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 10/2/2006 8:47:40 PM | 300.0 | 1.0 | **6.2** | |
| Hardness (as CaCO3) | mg/L | 10/11/2006 | 2340B | 10 | **390** | |
| Nitrate (as N) | mg/L | 9/28/2006 1:53:00 PM | 353.2 | 0.010 | < 0.010 | |
| Nitrite (as N) | mg/L | 9/28/2006 1:53:00 PM | 353.2 | 0.010 | < 0.010 | |
| Oil & Grease | mg/L | 9/28/2006 1:45:00 PM | EPA 1664 | 3.0 | **4.1** | |
| pH @ 25° C | pH Units | 9/28/2006 11:30:00 AM | 150.1 | 0 | **7.47** | **H** |
| Phosphate, ortho (as P) | mg/L | 9/28/2006 12:45:00 PM | 365.1 | 0.050 | < 0.050 | |
| Settable Solids | ml/L | 9/28/2006 11:30:00 AM | 160.5 | 0.10 | < 0.10 | |
| Sulfate | mg/L | 10/2/2006 8:47:40 PM | 300.0 | 10 | **46** | |
| TDS | mg/L | 9/28/2006 2:00:00 PM | 160.1 | 10 | **340** | |
| TSS | mg/L | 9/28/2006 3:30:00 PM | 160.2 | 3.0 | **4.0** | |

*H - Sample was received outside of holding time.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-04
Field Sample ID: **Mud Creek**
Collected: 9/27/2006 9:15:00 AM
Received: 9/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 9/29/2006 8:00:00 AM | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 20 | **250** | |
| Ammonia (as N) | mg/L | 9/29/2006 3:12:00 PM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 20 | **230** | |
| Carbonate (As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 20 | **< 20** | |
| Chloride | mg/L | 10/2/2006 9:54:14 PM | 300.0 | 10 | **15** | |
| Hardness (as CaCO3) | mg/L | 10/11/2006 | 2340B | 10 | **420** | |
| Nitrate (as N) | mg/L | 9/28/2006 1:53:00 PM | 353.2 | 0.010 | **0.28** | |
| Nitrite (as N) | mg/L | 9/28/2006 1:53:00 PM | 353.2 | 0.010 | < 0.010 | |
| Oil & Grease | mg/L | 9/28/2006 1:45:00 PM | EPA 1664 | 3.0 | **4.3** | |
| pH @ 25° C | pH Units | 9/28/2006 11:30:00 AM | 150.1 | 0 | **8.50** | H |
| Phosphate, ortho (as P) | mg/L | 9/28/2006 12:45:00 PM | 365.1 | 0.050 | < 0.050 | |
| Settable Solids | ml/L | 9/28/2006 11:30:00 AM | 160.5 | 0.10 | **0.10** | |
| Sulfate | mg/L | 10/2/2006 9:54:14 PM | 300.0 | 50 | **170** | |
| TDS | mg/L | 9/28/2006 2:00:00 PM | 160.1 | 10 | **490** | |
| TSS | mg/L | 9/28/2006 3:30:00 PM | 160.2 | 3.0 | **11** | |

*H - Sample was received outside of holding time.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-05
Field Sample ID: **Angle Spring**
Collected: 9/27/2006 10:00:00 AM
Received: 9/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 9/29/2006 8:00:00 AM | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 20 | **290** | |
| Ammonia (as N) | mg/L | 9/29/2006 3:12:00 PM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 20 | **290** | |
| Carbonate (As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 10/2/2006 10:27:31 PM | 300.0 | 10 | **21** | |
| Hardness (as CaCO3) | mg/L | 10/11/2006 | 2340B | 10 | **340** | |
| Nitrate (as N) | mg/L | 9/28/2006 1:53:00 PM | 353.2 | 0.010 | **0.98** | |
| Nitrite (as N) | mg/L | 9/28/2006 1:53:00 PM | 353.2 | 0.010 | < 0.010 | |
| Oil & Grease | mg/L | 9/28/2006 1:45:00 PM | EPA 1664 | 3.0 | **4.9** | |
| pH @ 25° C | pH Units | 9/28/2006 11:30:00 AM | 150.1 | 0 | **7.71** | **H** |
| Phosphate, ortho (as P) | mg/L | 9/28/2006 12:45:00 PM | 365.1 | 0.050 | < 0.050 | |
| Settable Solids | ml/L | 9/28/2006 11:30:00 AM | 160.5 | 0.10 | < 0.10 | |
| Sulfate | mg/L | 10/2/2006 10:27:31 PM | 300.0 | 10 | **16** | |
| TDS | mg/L | 9/28/2006 2:00:00 PM | 160.1 | 10 | **300** | |
| TSS | mg/L | 9/28/2006 3:30:00 PM | 160.2 | 3.0 | < 3.0 | |

*H - Sample was received outside of holding time.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L74133-06
Field Sample ID: **CR-06-03-ABV**
Collected: 9/27/2006 11:00:00 AM
Received: 9/28/2006


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 9/29/2006 8:00:00 AM | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 20 | **370** | |
| Ammonia (as N) | mg/L | 9/29/2006 3:12:00 PM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 20 | **370** | |
| Carbonate (As CaCO3) | mg/L | 9/28/2006 12:00:00 PM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 10/3/2006 12:07:21 AM | 300.0 | 10 | **17** | |
| Hardness (as CaCO3) | mg/L | 10/11/2006 | 2340B | 10 | **440** | |
| Nitrate (as N) | mg/L | 9/28/2006 1:53:00 PM | 353.2 | 0.010 | < 0.010 | |
| Nitrite (as N) | mg/L | 9/28/2006 1:53:00 PM | 353.2 | 0.010 | < 0.010 | |
| pH @ 25° C | pH Units | 9/28/2006 11:30:00 AM | 150.1 | 0 | **7.24** | **H** |
| Phosphate, ortho (as P) | mg/L | 9/28/2006 12:45:00 PM | 365.1 | 0.050 | < 0.050 | |
| Sulfate | mg/L | 10/3/2006 12:07:21 AM | 300.0 | 10 | **36** | |
| TDS | mg/L | 9/28/2006 2:00:00 PM | 160.1 | 10 | **420** | |

*H - Sample was received outside of holding time.*




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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

**Dept:** ME
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-30875 | Arsenic | mg/L | 6020 | 0.2106 | 0.2 | 0 | 105 | 80-120 | | | | 10/5/2006 |
| LCS-30875 | Cadmium | mg/L | 6020 | 0.1970 | 0.2 | 0 | 98.5 | 80-120 | | | | 10/5/2006 |
| LCS-30875 | Copper | mg/L | 6020 | 0.1920 | 0.2 | 0 | 96.0 | 80-120 | | | | 10/5/2006 |
| LCS-30875 | Lead | mg/L | 6020 | 0.2012 | 0.2 | 0 | 101 | 80-120 | | | | 10/5/2006 |
| LCS-30875 | Manganese | mg/L | 6020 | 0.2036 | 0.2 | 0 | 102 | 80-120 | | | | 10/5/2006 |
| LCS-30875 | Selenium | mg/L | 6020 | 0.2026 | 0.2 | 0 | 101 | 80-120 | | | | 10/5/2006 |
| LCS-30875 | Zinc | mg/L | 6020 | 0.9885 | 1 | 0 | 98.8 | 80-120 | | | | 10/5/2006 |
| LCS-30876 | Iron | mg/L | 6010B | 1.144 | 1 | 0 | 114 | 75-125 | | | | 10/12/2006 |
| LCS-30876 | Manganese | mg/L | 6010B | 0.2067 | 0.2 | 0 | 103 | 75-125 | | | | 10/12/2006 |
| LCS-30875 | Aluminum | mg/L | 6010B | 1.114 | 1 | 0 | 111 | 75-125 | | | | 10/11/2006 |
| LCS-30875 | Boron | mg/L | 6010B | 1.038 | 1 | 0 | 104 | 75-125 | | | | 10/11/2006 |
| LCS-30875 | Calcium | mg/L | 6010B | 10.51 | 10 | 0 | 105 | 75-125 | | | | 10/11/2006 |
| LCS-30875 | Iron | mg/L | 6010B | 1.025 | 1 | 0 | 102 | 75-125 | | | | 10/11/2006 |
| LCS-30875 | Magnesium | mg/L | 6010B | 10.10 | 10 | 0 | 101 | 75-125 | | | | 10/11/2006 |
| LCS-30875 | Molybdenum | mg/L | 6010B | 0.2161 | 0.2 | 0 | 108 | 75-125 | | | | 10/11/2006 |
| LCS-30875 | Potassium | mg/L | 6010B | 9.702 | 10 | 0 | 97.0 | 75-125 | | | | 10/11/2006 |
| LCS-30875 | Sodium | mg/L | 6010B | 10.14 | 10 | 0 | 101 | 75-125 | | | | 10/11/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

**Dept:** ME
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-30875 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 10/5/2006 |
| MB-30875 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 10/5/2006 |
| MB-30875 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 10/5/2006 |
| MB-30875 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 10/5/2006 |
| MB-30875 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 10/5/2006 |
| MB-30875 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 10/5/2006 |
| MB-30875 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 10/5/2006 |
| MB-30876 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 10/12/2006 |
| MB-30876 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 10/12/2006 |
| MB-30875 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 10/11/2006 |
| MB-30875 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 10/11/2006 |
| MB-30875 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 10/11/2006 |
| MB-30875 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 10/11/2006 |
| MB-30875 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 10/11/2006 |
| MB-30875 | Molybdenum | mg/L | 6010B | < 0.10 | | | | - | | | | 10/11/2006 |
| MB-30875 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 10/11/2006 |
| MB-30875 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 10/11/2006 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L74133-04EMS | Arsenic | mg/L | 6020 | 0.2090 | 0.2 | 0 | 105 | 70-130 | | | | 10/5/2006 |
| L74133-04EMS | Cadmium | mg/L | 6020 | 0.1994 | 0.2 | 0 | 99.7 | 70-130 | | | | 10/5/2006 |
| L74133-04EMS | Copper | mg/L | 6020 | 0.1896 | 0.2 | 0 | 94.8 | 70-130 | | | | 10/5/2006 |
| L74133-04EMS | Lead | mg/L | 6020 | 0.1971 | 0.2 | 0 | 98.6 | 70-130 | | | | 10/5/2006 |
| L74133-04EMS | Manganese | mg/L | 6020 | 0.2188 | 0.2 | 0.01896 | 99.9 | 70-130 | | | | 10/5/2006 |
| L74133-04EMS | Selenium | mg/L | 6020 | 0.1938 | 0.2 | 0 | 96.9 | 70-130 | | | | 10/5/2006 |
| L74133-04EMS | Zinc | mg/L | 6020 | 0.9679 | 1 | 0 | 96.8 | 70-130 | | | | 10/5/2006 |
| L74133-01DMS | Iron | mg/L | 6010B | 2.526 | 1 | 1.274 | 125 | 75-125 | | | [1] | 10/12/2006 |
| L74133-01DMS | Manganese | mg/L | 6010B | 0.2741 | 0.2 | 0.06246 | 106 | 75-125 | | | | 10/12/2006 |
| L74133-04EMS | Aluminum | mg/L | 6010B | 0.9683 | 1 | 0 | 96.8 | 75-125 | | | | 10/11/2006 |
| L74133-04EMS | Boron | mg/L | 6010B | 1.233 | 1 | 0 | 123 | 75-125 | | | | 10/11/2006 |
| L74133-04EMS | Calcium | mg/L | 6010B | 96.62 | 10 | 0 | 966 | 75-125 | | | [2] | 10/11/2006 |
| L74133-04EMS | Iron | mg/L | 6010B | 1.118 | 1 | 0 | 112 | 75-125 | | | | 10/11/2006 |
| L74133-04EMS | Magnesium | mg/L | 6010B | 59.26 | 10 | 0 | 593 | 75-125 | | | [2] | 10/11/2006 |
| L74133-04EMS | Molybdenum | mg/L | 6010B | 0.2122 | 0.2 | 0 | 106 | 75-125 | | | | 10/11/2006 |
| L74133-04EMS | Potassium | mg/L | 6010B | 19.38 | 10 | 0 | 194 | 75-125 | | | [1] | 10/11/2006 |
| L74133-04EMS | Sodium | mg/L | 6010B | 47.83 | 10 | 0 | 478 | 75-125 | | | [2] | 10/11/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

[2] Analyte concentration is too high for accurate spike recovery.



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

**Dept:** ME
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L74133-04EMSD | Arsenic | mg/L | 6020 | 0.2146 | 0.2 | 0 | 107 | 70-130 | 2.65 | 20 | | 10/5/2006 |
| L74133-04EMSD | Cadmium | mg/L | 6020 | 0.2016 | 0.2 | 0 | 101 | 70-130 | 1.13 | 20 | | 10/5/2006 |
| L74133-04EMSD | Copper | mg/L | 6020 | 0.1939 | 0.2 | 0 | 96.9 | 70-130 | 2.23 | 20 | | 10/5/2006 |
| L74133-04EMSD | Lead | mg/L | 6020 | 0.2014 | 0.2 | 0 | 101 | 70-130 | 2.13 | 20 | | 10/5/2006 |
| L74133-04EMSD | Manganese | mg/L | 6020 | 0.2242 | 0.2 | 0.01896 | 103 | 70-130 | 2.47 | 20 | | 10/5/2006 |
| L74133-04EMSD | Selenium | mg/L | 6020 | 0.1983 | 0.2 | 0 | 99.2 | 70-130 | 2.29 | 20 | | 10/5/2006 |
| L74133-04EMSD | Zinc | mg/L | 6020 | 0.9898 | 1 | 0 | 99.0 | 70-130 | 2.25 | 20 | | 10/5/2006 |
| L74133-01DMSD | Iron | mg/L | 6010B | 2.471 | 1 | 1.274 | 120 | 75-125 | 2.20 | 20 | | 10/12/2006 |
| L74133-01DMSD | Manganese | mg/L | 6010B | 0.2732 | 0.2 | 0.06246 | 105 | 75-125 | 0.329 | 20 | | 10/12/2006 |
| L74133-04EMSD | Aluminum | mg/L | 6010B | 0.9213 | 1 | 0 | 92.1 | 75-125 | 4.98 | 20 | | 10/11/2006 |
| L74133-04EMSD | Boron | mg/L | 6010B | 1.227 | 1 | 0 | 123 | 75-125 | 0.488 | 20 | | 10/11/2006 |
| L74133-04EMSD | Calcium | mg/L | 6010B | 95.75 | 10 | 0 | 958 | 75-125 | 0.905 | 20 | 2 | 10/11/2006 |
| L74133-04EMSD | Iron | mg/L | 6010B | 1.129 | 1 | 0 | 113 | 75-125 | 0.974 | 20 | | 10/11/2006 |
| L74133-04EMSD | Magnesium | mg/L | 6010B | 58.21 | 10 | 0 | 582 | 75-125 | 1.79 | 20 | 2 | 10/11/2006 |
| L74133-04EMSD | Molybdenum | mg/L | 6010B | 0.2204 | 0.2 | 0 | 110 | 75-125 | 3.76 | 20 | | 10/11/2006 |
| L74133-04EMSD | Potassium | mg/L | 6010B | 19.67 | 10 | 0 | 197 | 75-125 | 1.52 | 20 | 1 | 10/11/2006 |
| L74133-04EMSD | Sodium | mg/L | 6010B | 47.58 | 10 | 0 | 476 | 75-125 | 0.524 | 20 | 2 | 10/11/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
[2] Analyte concentration is too high for accurate spike recovery.



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

**Dept:** WC
**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L74133-01BDUP | pH @ 25° C | pH Units | 150.1 | 8.450 | 0 | 8.44 | | - | 0.118 | 5 | H | 9/28/2006 |
| L74157-01BDUP | pH @ 25° C | pH Units | 150.1 | 7.450 | 0 | 7.53 | | - | 1.07 | 5 | | 9/28/2006 |
| L74159-08BDUP | pH @ 25° C | pH Units | 150.1 | 7.060 | 0 | 7.13 | | - | 0.987 | 5 | | 9/28/2006 |
| L74124-02BDUP | TDS | mg/L | 160.1 | 25100 | 0 | 25500 | | - | 1.58 | 20 | | 9/28/2006 |
| L74133-06ADUP | TDS | mg/L | 160.1 | 424.0 | 0 | 424 | | - | 0 | 20 | | 9/28/2006 |
| L74118-02ADUP | TSS | mg/L | 160.2 | < 3.0 | 0 | 6 | | - | 0 | 20 | | 9/28/2006 |
| L74119-01BDUP | TSS | mg/L | 160.2 | 218.0 | 0 | 213 | | - | 2.32 | 20 | | 9/28/2006 |
| L74125-06BDUP | TSS | mg/L | 160.2 | 30.00 | 0 | 27 | | - | 10.5 | 20 | | 9/28/2006 |
| L74133-05ADUP | TSS | mg/L | 160.2 | < 3.0 | 0 | 0 | | - | 0 | 20 | | 9/28/2006 |

H - Sample was received outside of holding time.



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

**Dept:** WC
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R62147 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50740 | 50000 | 0 | 101 | 90-110 | | | | 9/28/2006 |
| LCS-R62249 | Chloride | mg/L | 300.0 | 4.972 | 5 | 0 | 99.4 | 90-110 | | | | 10/2/2006 |
| LCS-R62249 | Sulfate | mg/L | 300.0 | 5.200 | 5 | 0 | 104 | 90-110 | | | | 10/2/2006 |
| LCS-R62161 | Acidity | mg/L | 305.1 | 55.00 | 50 | 0 | 110 | 80-120 | | | | 9/29/2006 |
| LCS-30820 | Ammonia (as N) | mg/L | 350.1 | 0.9920 | 1 | 0 | 99.2 | 90-110 | | | | 9/29/2006 |
| LCS-62125 | Nitrite (as N) | mg/L | 353.2 | 0.9530 | 1 | 0 | 95.3 | 90-110 | | | | 9/28/2006 |
| LCS-62127 | Nitrate (as N) | mg/L | 353.2 | 0.9740 | 1 | 0 | 97.4 | 90-110 | | | | 9/28/2006 |
| LCS-R62139 | Oil & Grease | mg/L | EPA 1664 | 38.50 | 40 | 0 | 96.2 | 79-114 | | | | 9/28/2006 |
| LCS-R62142 | pH @ 25° C | pH Units | 150.1 | 8.960 | 9 | 0 | 99.6 | 98-102 | | | | 9/28/2006 |
| LCS-62120 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9650 | 1 | 0 | 96.5 | 90-110 | | | | 9/28/2006 |
| LCS-R62210 | TDS | mg/L | 160.1 | 174.0 | 205 | 0 | 84.9 | 80-120 | | | | 9/28/2006 |
| LCS-R62166 | TSS | mg/L | 160.2 | 98.00 | 100 | 0 | 98.0 | 80-120 | | | | 9/28/2006 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

**Dept:** WC
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R62147 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 9/28/2006 |
| MB-R62147 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 9/28/2006 |
| MB-R62147 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 9/28/2006 |
| MB-R62249 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 10/2/2006 |
| MB-R62249 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 10/2/2006 |
| MB-R62161 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 9/29/2006 |
| MB-30820 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 9/29/2006 |
| MB-62125 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 9/28/2006 |
| MB-62127 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 9/28/2006 |
| MB-R62139 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 9/28/2006 |
| MB-62120 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 9/28/2006 |
| MB-R62210 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 9/28/2006 |
| MB-R62166 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 9/28/2006 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L74133-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 341.0 | 100 | 237 | 104 | 80-120 | | | | 9/28/2006 |
| L74133-06BMS | Chloride | mg/L | 300.0 | 65.46 | 50 | 17.27 | 96.4 | 90-110 | | | | 10/3/2006 |
| L74133-06BMS | Sulfate | mg/L | 300.0 | 86.20 | 50 | 36.03 | 100 | 90-110 | | | | 10/3/2006 |
| L74133-01CMS | Ammonia (as N) | mg/L | 350.1 | 0.9200 | 1 | 0 | 92.0 | 90-110 | | | | 9/29/2006 |
| L74117-02AMS | Ammonia (as N) | mg/L | 350.1 | 154.2 | 2 | 147.6 | 329 | 90-110 | | | 2 | 9/29/2006 |
| L74133-01BMS | Nitrite (as N) | mg/L | 353.2 | 0.9310 | 1 | 0 | 93.1 | 90-110 | | | | 9/28/2006 |
| L74133-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.219 | 1 | 0.19 | 103 | 90-110 | | | | 9/28/2006 |
| L74133-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9700 | 1 | 0.04 | 93.0 | 90-110 | | | | 9/28/2006 |

[2] Analyte concentration is too high for accurate spike recovery.



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

**Dept:** WC
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L74133-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 341.0 | 100 | 237 | 104 | 80-120 | 0 | 10 | | 9/28/2006 |
| L74133-06BMSD | Chloride | mg/L | 300.0 | 65.19 | 50 | 17.27 | 95.8 | 90-110 | 0.418 | 20 | | 10/3/2006 |
| L74133-06BMSD | Sulfate | mg/L | 300.0 | 85.10 | 50 | 36.03 | 98.2 | 90-110 | 1.28 | 20 | | 10/3/2006 |
| L74133-01CMSD | Ammonia (as N) | mg/L | 350.1 | 0.8860 | 1 | 0 | 88.6 | 90-110 | 3.77 | 10 | [1] | 9/29/2006 |
| L74117-02AMSD | Ammonia (as N) | mg/L | 350.1 | 158.5 | 2 | 147.6 | 545 | 90-110 | 2.76 | 10 | [2] | 9/29/2006 |
| L74133-01BMSD | Nitrite (as N) | mg/L | 353.2 | 0.9460 | 1 | 0 | 94.6 | 90-110 | 1.60 | 10 | | 9/28/2006 |
| L74133-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.154 | 1 | 0.19 | 96.4 | 90-110 | 5.48 | 10 | | 9/28/2006 |
| L74133-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9930 | 1 | 0.04 | 95.3 | 90-110 | 2.34 | 10 | | 9/28/2006 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).
[2] Analyte concentration is too high for accurate spike recovery.



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R62139 | Oil & Grease | mg/L | EPA 1664 | 37.30 | 40 | 0 | 93.3 | 79-114 | | | | 9/28/2006 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L74133
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R62139 | Oil & Grease | mg/L | EPA 1664 | 38.30 | 40 | 0 | 95.8 | 79-114 | 2.65 | 18 | | 9/28/2006 |



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# American West Analytical Labs

## WORK ORDER Summary

*28-Sep-06*

**Work Order** L74133

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ / Footnote report, pH received outside of hold. Filter and preserve for dismetals

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L74133-01A | Miller Outlet | 9/27/2006 8:30:00 AM | 9/28/2006 | 10/12/2006 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 10/12/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 10/12/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L74133-01B | | | | 10/12/2006 | | 2320B-ALK-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | 300.0-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | ACIDITY-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | NO2-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | NO3-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | PH-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | PO4-O | sept 28 - wc | 1 |
| L74133-01C | | | | 10/12/2006 | | NH3-W | sept 28 - nh3 | 1 |
| | | | | 10/12/2006 | | NH3-W-PREP | sept 28 - nh3 | 1 |
| L74133-01D | | | | 10/12/2006 | | 3005A-ICPMS | sept 28 - met | 1 |
| | | | | 10/12/2006 | | ICP-W | sept 28 - met | 1 |
| L74133-01E | | | | 10/12/2006 | Aqueous-Dissolved | 3005A-Diss | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | 6020-W-DISS | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | HARD | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | ICP-W-DIS | sept 28 - dis met | 1 |
| L74133-01F | | | | 10/12/2006 | Aqueous | OGB-W | ogb | 1 |
| L74133-02A | RES-1 | 9/27/2006 8:45:00 AM | | 10/12/2006 | | SS | ww - tss/tds/ss | 1 |
| | | | | 10/12/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 10/12/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L74133-02B | | | | 10/12/2006 | | 2320B-ALK-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | 300.0-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | ACIDITY-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | NO2-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | NO3-W | sept 28 - wc | 1 |

# WORK ORDER Summary

*28-Sep-06*

**Work Order** L74133

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ / Footnote report, pH received outside of hold. Filter and preserve for dismetals

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L74133-02B | RES-I | 9/27/2006 8:45:00 AM | 9/28/2006 | 10/12/2006 | Aqueous | PH-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | PO4-O | sept 28 - wc | 1 |
| L74133-02C | | | | 10/12/2006 | | NH3-W | sept 28 - nh3 | 1 |
| | | | | 10/12/2006 | | NH3-W-PREP | sept 28 - nh3 | 1 |
| L74133-02D | | | | 10/12/2006 | | 3005A-ICPMS | sept 28 - met | 1 |
| | | | | 10/12/2006 | | ICP-W | sept 28 - met | 1 |
| L74133-02E | | | | 10/12/2006 | Aqueous-Dissolved | 3005A-Diss | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | 6020-W-DISS | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | HARD | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | ICP-W-DIS | sept 28 - dis met | 1 |
| L74133-02F | | | | 10/12/2006 | Aqueous | OGB-W | ogb | 1 |
| L74133-03A | Sulfer Spring | 9/27/2006 9:00:00 AM | | 10/12/2006 | | SS | ww - tss/tds/ss | 1 |
| | | | | 10/12/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 10/12/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L74133-03B | | | | 10/12/2006 | | 2320B-ALK-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | 300.0-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | ACIDITY-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | NO2-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | NO3-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | PH-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | PO4-O | sept 28 - wc | 1 |
| L74133-03C | | | | 10/12/2006 | | NH3-W | sept 28 - nh3 | 1 |
| | | | | 10/12/2006 | | NH3-W-PREP | sept 28 - nh3 | 1 |
| L74133-03D | | | | 10/12/2006 | | 3005A-ICPMS | sept 28 - met | 1 |
| | | | | 10/12/2006 | | ICP-W | sept 28 - met | 1 |
| L74133-03E | | | | 10/12/2006 | Aqueous-Dissolved | 3005A-Diss | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | 6020-W-DISS | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | HARD | sept 28 - dis met | 1 |

# WORK ORDER Summary

*28-Sep-06*

**Work Order** L74133

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ / Footnote report, pH received outside of hold. Filter and preserve for dismetals

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L74133-03E | Sulfer Spring | 9/27/2006 9:00:00 AM | 9/28/2006 | 10/12/2006 | Aqueous-Dissolved | ICP-W-DIS | sept 28 - dis met | 1 |
| L74133-03F | | | | 10/12/2006 | Aqueous | OGB-W | ogb | 1 |
| L74133-04A | Mud Creek | 9/27/2006 9:15:00 AM | | 10/12/2006 | | SS | ww - tss/tds/ss | 1 |
| | | | | 10/12/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 10/12/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L74133-04B | | | | 10/12/2006 | | 2320B-ALK-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | 300.0-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | ACIDITY-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | NO2-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | NO3-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | PH-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | PO4-O | sept 28 - wc | 1 |
| L74133-04C | | | | 10/12/2006 | | NH3-W | sept 28 - nh3 | 1 |
| | | | | 10/12/2006 | | NH3-W-PREP | sept 28 - nh3 | 1 |
| L74133-04D | | | | 10/12/2006 | | 3005A-ICPMS | sept 28 - met | 1 |
| | | | | 10/12/2006 | | ICP-W | sept 28 - met | 1 |
| L74133-04E | | | | 10/12/2006 | Aqueous-Dissolved | 3005A-Diss | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | 6020-W-DISS | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | HARD | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | ICP-W-DIS | sept 28 - dis met | 1 |
| L74133-04F | | | | 10/12/2006 | Aqueous | OGB-W | ogb | 1 |
| L74133-05A | Angle Spring | 9/27/2006 10:00:00 AM | | 10/12/2006 | | SS | ww - tss/tds/ss | 1 |
| | | | | 10/12/2006 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 10/12/2006 | | TSS-W | ww - tss/tds/ss | 1 |
| L74133-05B | | | | 10/12/2006 | | 2320B-ALK-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | 300.0-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | ACIDITY-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | NO2-W | sept 28 - wc | 1 |

# WORK ORDER Summary

*28-Sep-06*

**Work Order** L74133

**Client ID:** WHI100 **QC Level:** QC 2+

**Project:** Scofield Baseline **Location:**

**Comments:** QCLevel: QC 2+ / Footnote report, pH received outside of hold. Filter and preserve for dismetals

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L74133-05B | Angle Spring | 9/27/2006 10:00:00 AM | 9/28/2006 | 10/12/2006 | Aqueous | NO3-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | PH-W | sept 28 - wc | 1 |
| | | | | 10/12/2006 | | PO4-O | sept 28 - wc | 1 |
| L74133-05C | | | | 10/12/2006 | | NH3-W | sept 28 - nh3 | 1 |
| | | | | 10/12/2006 | | NH3-W-PREP | sept 28 - nh3 | 1 |
| L74133-05D | | | | 10/12/2006 | | 3005A-ICPMS | sept 28 - met | 1 |
| | | | | 10/12/2006 | | ICP-W | sept 28 - met | 1 |
| L74133-05E | | | | 10/12/2006 | Aqueous-Dissolved | 3005A-Diss | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | 6020-W-DISS | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | HARD | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | ICP-W-DIS | sept 28 - dis met | 1 |
| L74133-05F | | | | 10/12/2006 | Aqueous | OGB-W | ogb | 1 |
| L74133-06A | CR-06-03-ABV | 9/27/2006 11:00:00 AM | | 10/12/2006 | | TDS-W | ww - tds | 1 |
| L74133-06B | | | | 10/12/2006 | | 2320B-ALK-W | sept 28 wc | 1 |
| | | | | 10/12/2006 | | 300.0-W | sept 28 wc | 1 |
| | | | | 10/12/2006 | | ACIDITY-W | sept 28 wc | 1 |
| | | | | 10/12/2006 | | NO2-W | sept 28 wc | 1 |
| | | | | 10/12/2006 | | NO3-W | sept 28 wc | 1 |
| | | | | 10/12/2006 | | PH-W | sept 28 wc | 1 |
| | | | | 10/12/2006 | | PO4-O | sept 28 wc | 1 |
| L74133-06C | | | | 10/12/2006 | | NH3-W | sept 28 - nh3 | 1 |
| | | | | 10/12/2006 | | NH3-W-PREP | sept 28 - nh3 | 1 |
| L74133-06D | | | | 10/12/2006 | | 3005A-ICPMS | sept 28 - met | 1 |
| | | | | 10/12/2006 | | ICP-W | sept 28 - met | 1 |
| L74133-06E | | | | 10/12/2006 | Aqueous-Dissolved | 3005A-Diss | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | 6020-W-DISS | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | HARD | sept 28 - dis met | 1 |
| | | | | 10/12/2006 | | ICP-W-DIS | sept 28 - dis met | 1 |

Client CARBON RESOURCES / ROCK LOGIC

Address PO BOX 544

CEDAREDGE CO 81413

City State Zip

Phone 435 851-9044 Fax

Contact BRAD LINDSAY

E-mail LINDSAY.BRAD@GMAIL.COM

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY


AMERICAN WEST ANALYTICAL LABORATORIES
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# CHAIN OF CUSTODY

Lab Sample Set # 74133

Page _____ of _____

Turn Around Time (Circle One)

1 day 2 day 3 day 4 day 5 day (Standard)

QC 1 2 2+ 3 3+ 4

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TABLE 3 | TABLE 4 | pH | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MILLER OUTLET | 9-27-06 / 8:30 | W | 6 | ✓ | | ✓ | | | | | | | | |
| ~~SC~~ RES-1 | / 8:45 | \| | 6 | ✓ | | ✓ | | | | | | | | |
| SULFER SPRING | / 9:00 | \| | 6 | ✓ | | ✓ | | | | | | | | |
| MUD CREEK | / 9:15 | \| | 6 | ✓ | | ✓ | | | | | | | | |
| ANGLE SPRING | / 10:00 | \| | 6 | ✓ | | ✓ | | | | | | | | |
| CR-06-03-ABV | / 11:00 | \| | 5 | | ✓ | ✓ | | | | | | | | |

Please indicate tests needed below

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 16:30 | PRINT NAME UPS |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date 9-28-06 | Received By: Signature |
| PRINT NAME | Time 1005 | PRINT NAME Elena Hayward |

Special Instructions:

PLEASE FILTER FOR DISOLVED METALS

LABORATORY USE ONLY

SAMPLES WERE:

1 (Shipped) or hand delivered
Notes: UPS

2 Ambient or (Chilled)
Notes:

3 Temperature 1.5°

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Notes:

6 Received Within Holding Times
Y (N)
Notes:
pH

COC Tape Was:

1 Present on Outer Package
(Y) N NA

2 Unbroken on Outer Package
(Y) N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | | |
|---|---|---|---|---|
| * | - | Total Dissolved Solids | | mg/l |
| * | - | Total Hardness ($CaCO_3$) | | mg/l |
| * | - | Total Alkalinity | | mg/l |
| | - | Acidity | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved)[1] | | mg/l |
| * | - | Carbonate | | mg/l |
| * | - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| * | - | Calcium (Dissolved) | | mg/l |
| * | - | Chloride | mg/l | |
| | - | Copper (Dissolved) | | mg/l |
| * | - | Iron (Dissolved) | | mg/l |
| * | - | Iron (Total) | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| * | - | Magnesium (Dissolved) | | mg/l |
| * | - | Manganese (Dissolved) | | mg/l |
| * | - | Manganese (Total) | | mg/l |
| | - | Molybdenum (Dissolved) | | mg/l |
| | - | Ammonia | | mg/l |
| | - | Nitrates | | mg/l |
| | - | Nitrites | | mg/l |
| * | - | Potassium (Dissolved) | | mg/l |
| | - | Phosphate (Ortho) | | mg/l |
| | - | Selenium[1] (Dissolved) | | mg/l |
| * | - | Sodium (Dissolved) | | mg/l |
| * | - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| * | - | Cations | | meq/l |
| * | - | Anions | | meq/l |

[1] These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 24133

## Preservation Check Sheet

| | | | Sample Set Extension and pH | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

**AMERICAN WEST ANALYTICAL LABORATORIES**

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November 30, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX

RE: Scofield Baseline

Lab Set ID: L81026

Dear Brad Lindsay:

American West Analytical Labs received 5 samples on 11/14/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-01E
Field Sample ID: **Mud Creek**
Collected: 11/12/2007 1:15:00 PM
Received: 11/14/2007

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Kyle F. Gross
Laboratory Director

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/27/2007 4:18:00 PM | 6010B | 0.050 | **0.24** |
| Manganese | mg/L | 11/27/2007 4:18:00 PM | 6010B | 0.0050 | **0.022** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L81026-02E
Field Sample ID: **Sulfur Spring**
Collected: 11/12/2007 2:50:00 PM
Received: 11/14/2007

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Kyle F. Gross
Laboratory Director

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/27/2007 4:34:00 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 11/27/2007 4:34:00 PM | 6010B | 0.0050 | **0.028** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L81026-03E
Field Sample ID: **RES-1**
Collected: 11/12/2007 3:30:00 PM
Received: 11/14/2007

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Kyle F. Gross
Laboratory Director

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/27/2007 4:38:00 PM | 6010B | 0.050 | **0.77** |
| Manganese | mg/L | 11/27/2007 4:38:00 PM | 6010B | 0.0050 | **0.11** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-04E
Field Sample ID: **Miller Outlet**
Collected: 11/12/2007 12:30:00 PM
Received: 11/14/2007


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Kyle F. Gross
Laboratory Director


## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/27/2007 4:42:00 PM | 6010B | 0.050 | **0.64** |
| Manganese | mg/L | 11/27/2007 4:42:00 PM | 6010B | 0.0050 | **0.031** |




All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-05E
Field Sample ID: **Aspen Spring**
Collected: 11/12/2007 5:30:00 PM
Received: 11/14/2007

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Kyle F. Gross
Laboratory Director

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/27/2007 4:46:00 PM | 6010B | 0.050 | **5.2** |
| Manganese | mg/L | 11/27/2007 4:46:00 PM | 6010B | 0.0050 | **0.90** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-01F
Field Sample ID: **Mud Creek**
Collected: 11/12/2007 1:15:00 PM
Received: 11/14/2007


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Kyle F. Gross
Laboratory Director


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 11/27/2007 2:29:00 PM | 6010B | 0.10 | < 0.10 | 1 |
| Arsenic | mg/L | 11/16/2007 5:13:37 PM | 6020 | 0.00060 | < 0.00060 | |
| Boron | mg/L | 11/27/2007 2:29:00 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 11/16/2007 5:13:37 PM | 6020 | 0.00018 | < 0.00018 | |
| Calcium | mg/L | 11/27/2007 1:51:00 PM | 6010B | 10 | **62** | # |
| Copper | mg/L | 11/16/2007 5:13:37 PM | 6020 | 0.00080 | **0.0020** | |
| Iron | mg/L | 11/27/2007 2:29:00 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 11/16/2007 5:13:37 PM | 6020 | 0.00010 | **0.00025** | |
| Magnesium | mg/L | 11/27/2007 2:29:00 PM | 6010B | 1.0 | **40** | |
| Manganese | mg/L | 11/16/2007 5:13:37 PM | 6020 | 0.0012 | **0.011** | |
| Molybdenum | mg/L | 11/27/2007 2:29:00 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 11/27/2007 2:29:00 PM | 6010B | 1.0 | **5.2** | |
| Selenium | mg/L | 11/16/2007 5:13:37 PM | 6020 | 0.00080 | < 0.00080 | |
| Sodium | mg/L | 11/27/2007 1:51:00 PM | 6010B | 10 | **31** | # |
| Zinc | mg/L | 11/16/2007 5:13:37 PM | 6020 | 0.0054 | **0.0055** | |

*# The reporting limits were raised due to high analyte concentration.*

*[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-02F
Field Sample ID: **Sulfur Spring**
Collected: 11/12/2007 2:50:00 PM
Received: 11/14/2007


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Kyle F. Gross
Laboratory Director


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 11/27/2007 2:45:00 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 11/16/2007 5:56:24 PM | 6020 | 0.00060 | < 0.00060 | |
| Boron | mg/L | 11/27/2007 2:45:00 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 11/16/2007 5:56:24 PM | 6020 | 0.00018 | < 0.00018 | |
| Calcium | mg/L | 11/27/2007 2:03:00 PM | 6010B | 10 | **86** | # |
| Copper | mg/L | 11/16/2007 5:56:24 PM | 6020 | 0.00080 | **0.0012** | |
| Iron | mg/L | 11/27/2007 2:45:00 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 11/16/2007 5:56:24 PM | 6020 | 0.00010 | < 0.00010 | |
| Magnesium | mg/L | 11/27/2007 2:45:00 PM | 6010B | 1.0 | **36** | |
| Manganese | mg/L | 11/16/2007 5:56:24 PM | 6020 | 0.0012 | **0.028** | |
| Molybdenum | mg/L | 11/27/2007 2:45:00 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 11/27/2007 2:45:00 PM | 6010B | 1.0 | **4.4** | |
| Selenium | mg/L | 11/16/2007 5:56:24 PM | 6020 | 0.00080 | < 0.00080 | |
| Sodium | mg/L | 11/27/2007 2:45:00 PM | 6010B | 1.0 | **8.8** | |
| Zinc | mg/L | 11/16/2007 5:56:24 PM | 6020 | 0.0054 | **0.0064** | |

*# The reporting limits were raised due to high analyte concentration.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-03F
Field Sample ID: **RES-1**
Collected: 11/12/2007 3:30:00 PM
Received: 11/14/2007

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Kyle F. Gross
Laboratory Director

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 11/27/2007 2:49:00 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 11/16/2007 6:01:49 PM | 6020 | 0.00060 | < 0.00060 | |
| Boron | mg/L | 11/27/2007 2:49:00 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 11/16/2007 6:01:49 PM | 6020 | 0.00018 | < 0.00018 | |
| Calcium | mg/L | 11/27/2007 2:07:00 PM | 6010B | 10 | **63** | # |
| Copper | mg/L | 11/16/2007 6:01:49 PM | 6020 | 0.00080 | **0.0018** | |
| Iron | mg/L | 11/27/2007 2:49:00 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 11/16/2007 6:01:49 PM | 6020 | 0.00010 | < 0.00010 | |
| Magnesium | mg/L | 11/27/2007 2:49:00 PM | 6010B | 1.0 | **38** | |
| Manganese | mg/L | 11/16/2007 6:01:49 PM | 6020 | 0.0012 | **0.052** | |
| Molybdenum | mg/L | 11/27/2007 2:49:00 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 11/27/2007 2:49:00 PM | 6010B | 1.0 | **6.4** | |
| Selenium | mg/L | 11/16/2007 6:01:49 PM | 6020 | 0.00080 | < 0.00080 | |
| Sodium | mg/L | 11/27/2007 2:07:00 PM | 6010B | 10 | **32** | # |
| Zinc | mg/L | 11/16/2007 6:01:49 PM | 6020 | 0.0054 | < 0.0054 | |

*# The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-04F
Field Sample ID: **Miller Outlet**
Collected: 11/12/2007 12:30:00 PM
Received: 11/14/2007


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Kyle F. Gross
Laboratory Director


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 11/27/2007 2:53:00 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 11/16/2007 6:07:15 PM | 6020 | 0.00060 | < 0.00060 | |
| Boron | mg/L | 11/27/2007 2:53:00 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 11/16/2007 6:07:15 PM | 6020 | 0.00018 | < 0.00018 | |
| Calcium | mg/L | 11/27/2007 2:11:00 PM | 6010B | 10 | **74** | # |
| Copper | mg/L | 11/16/2007 6:07:15 PM | 6020 | 0.00080 | **0.0012** | |
| Iron | mg/L | 11/27/2007 2:53:00 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 11/16/2007 6:07:15 PM | 6020 | 0.00010 | < 0.00010 | |
| Magnesium | mg/L | 11/27/2007 2:53:00 PM | 6010B | 1.0 | **17** | |
| Manganese | mg/L | 11/16/2007 6:07:15 PM | 6020 | 0.0012 | **0.0070** | |
| Molybdenum | mg/L | 11/27/2007 2:53:00 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 11/27/2007 2:53:00 PM | 6010B | 1.0 | **1.7** | |
| Selenium | mg/L | 11/16/2007 6:07:15 PM | 6020 | 0.00080 | < 0.00080 | |
| Sodium | mg/L | 11/27/2007 2:53:00 PM | 6010B | 1.0 | **6.3** | |
| Zinc | mg/L | 11/16/2007 6:07:15 PM | 6020 | 0.0054 | < 0.0054 | |

*# The reporting limits were raised due to high analyte concentration.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L81026-05F
Field Sample ID: **Aspen Spring**
Collected: 11/12/2007 5:30:00 PM
Received: 11/14/2007

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Kyle F. Gross
Laboratory Director

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 11/27/2007 2:57:00 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 11/16/2007 6:12:40 PM | 6020 | 0.00060 | **0.0016** | |
| Boron | mg/L | 11/27/2007 2:57:00 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 11/16/2007 6:12:40 PM | 6020 | 0.00018 | < 0.00018 | |
| Calcium | mg/L | 11/27/2007 2:15:00 PM | 6010B | 10 | **64** | # |
| Copper | mg/L | 11/16/2007 6:12:40 PM | 6020 | 0.00080 | **0.0020** | |
| Iron | mg/L | 11/27/2007 2:57:00 PM | 6010B | 0.050 | **1.5** | |
| Lead | mg/L | 11/16/2007 6:12:40 PM | 6020 | 0.00010 | < 0.00010 | |
| Magnesium | mg/L | 11/27/2007 2:57:00 PM | 6010B | 1.0 | **13** | |
| Manganese | mg/L | 11/16/2007 6:12:40 PM | 6020 | 0.0012 | **0.75** | |
| Molybdenum | mg/L | 11/27/2007 2:57:00 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 11/27/2007 2:57:00 PM | 6010B | 1.0 | **15** | |
| Selenium | mg/L | 11/16/2007 6:12:40 PM | 6020 | 0.00080 | < 0.00080 | |
| Sodium | mg/L | 11/27/2007 2:57:00 PM | 6010B | 1.0 | **27** | |
| Zinc | mg/L | 11/16/2007 6:12:40 PM | 6020 | 0.0054 | < 0.0054 | |

*# The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L81026-01
Field Sample ID: **Mud Creek**
Collected: 11/12/2007 1:15:00 PM
Received: 11/14/2007


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Kyle F. Gross
Laboratory Director


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 11/15/2007 7:30:00 AM | 2310B | 15 | < 15 | |
| Alkalinity,(AsCaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 20 | **230** | |
| Ammonia (as N) | mg/L | 11/15/2007 6:50:00 PM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 20 | **230** | |
| Carbonate (As CaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 20 | < 20 | |
| Chloride | mg/L | 11/21/2007 12:13:50 AM | 300.0 | 5.0 | **6.9** | |
| Hardness (as CaCO3) | mg/L | 11/27/2007 | 2340B | 10 | **320** | |
| Nitrate (as N) | mg/L | 11/14/2007 11:16:00 AM | 353.2 | 0.010 | **0.16** | [1] |
| Nitrite (as N) | mg/L | 11/14/2007 11:16:00 AM | 353.2 | 0.010 | < 0.010 | [1@] |
| Oil & Grease | mg/L | 11/18/2007 1:15:00 PM | 1664A | 3.0 | < 3.0 | |
| Phosphate, ortho (as P) | mg/L | 11/14/2007 1:31:00 PM | 365.1 | 0.050 | < 0.050 | [1H] |
| SettleableSolids | ml/L | 11/14/2007 11:30:00 AM | 2540F | 0.10 | < 0.10 | |
| Sulfate | mg/L | 11/21/2007 12:13:50 AM | 300.0 | 5.0 | **64** | |
| TDS | mg/L | 11/14/2007 3:15:00 PM | 160.1 | 20 | **450** | |
| TSS | mg/L | 11/14/2007 4:30:00 PM | 2540D | 3.0 | **12** | |

*[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*
*@ High RPD due to suspected matrix interference.*
*H -Inadequate time given to run within hold time.*
*[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*




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# INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L81026-02
Field Sample ID: **SulfurSpring**
Collected: 11/12/2007 2:50:00 PM
Received: 11/14/2007


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Kyle F. Gross
Laboratory Director


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 11/15/2007 7:30:00 AM | 2310B | 15 | < 15 |
| Alkalinity,(AsCaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 20 | **340** |
| Ammonia (as N) | mg/L | 11/15/2007 6:55:00 PM | 350.1 | 0.050 | **0.085** |
| Bicarbonate (As CaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 20 | **340** |
| Carbonate (As CaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 11/21/2007 12:47:06 AM | 300.0 | 5.0 | **6.0** |
| Hardness (as CaCO3) | mg/L | 11/27/2007 | 2340B | 10 | **360** |
| Nitrate (as N) | mg/L | 11/14/2007 2:02:00 PM | 353.2 | 0.010 | < 0.010 [1] |
| Nitrite (as N) | mg/L | 11/14/2007 2:02:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/18/2007 1:15:00 PM | 1664A | 3.0 | **4.2** |
| Phosphate, ortho (as P) | mg/L | 11/14/2007 1:31:00 PM | 365.1 | 0.050 | < 0.050 |
| SettleableSolids | ml/L | 11/14/2007 11:30:00 AM | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 11/21/2007 12:47:06 AM | 300.0 | 5.0 | **43** |
| TDS | mg/L | 11/14/2007 3:15:00 PM | 160.1 | 20 | **440** |
| TSS | mg/L | 11/14/2007 4:30:00 PM | 2540D | 3.0 | < 3.0 |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*




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# INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L81026-03
Field Sample ID: **RES-1**
Collected: 11/12/2007 3:30:00 PM
Received: 11/14/2007


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Kyle F. Gross
Laboratory Director


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 11/15/2007 7:30:00 AM | 2310B | 15 | < 15 |
| Alkalinity,(AsCaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 20 | **220** |
| Ammonia (as N) | mg/L | 11/15/2007 6:55:00 PM | 350.1 | 0.050 | **0.055** |
| Bicarbonate (As CaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 20 | **220** |
| Carbonate (As CaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 11/21/2007 2:26:59 AM | 300.0 | 5.0 | **19** |
| Hardness (as CaCO3) | mg/L | 11/27/2007 | 2340B | 10 | **310** |
| Nitrate (as N) | mg/L | 11/14/2007 2:02:00 PM | 353.2 | 0.010 | **0.011** |
| Nitrite (as N) | mg/L | 11/14/2007 2:02:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/18/2007 1:15:00 PM | 1664A | 3.0 | < 3.0 |
| Phosphate, ortho (as P) | mg/L | 11/14/2007 1:31:00 PM | 365.1 | 0.050 | < 0.050 |
| SettleableSolids | ml/L | 11/14/2007 11:30:00 AM | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 11/21/2007 2:26:59 AM | 300.0 | 5.0 | **120** |
| TDS | mg/L | 11/14/2007 3:15:00 PM | 160.1 | 20 | **470** |
| TSS | mg/L | 11/14/2007 4:30:00 PM | 2540D | 3.0 | **18** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: CarbonResources
ProjectID: ScofieldBaseline

Contact: BradLindsay

Lab SampleID: L81026-04
Field SampleID: **Miller Outlet**
Collected: 11/12/2007 12:30:00 PM
Received: 11/14/2007


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Laboratory Director


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 11/15/2007 7:30:00 AM | 2310B | 15 | < 15 | |
| Alkalinity,(AsCaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 20 | **240** | |
| Ammonia (as N) | mg/L | 11/15/2007 6:56:00 PM | 350.1 | 0.050 | **0.054** | |
| Bicarbonate (As CaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 20 | **240** | |
| Carbonate (As CaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 11/21/2007 3:00:16 AM | 300.0 | 5.0 | **9.7** | |
| Hardness (as CaCO3) | mg/L | 11/27/2007 | 2340B | 10 | **250** | |
| Nitrate (as N) | mg/L | 11/14/2007 11:16:00 AM | 353.2 | 0.010 | **0.078** | |
| Nitrite (as N) | mg/L | 11/14/2007 11:16:00 AM | 353.2 | 0.010 | < 0.010 | |
| Oil & Grease | mg/L | 11/18/2007 1:15:00 PM | 1664A | 3.0 | **3.2** | |
| Phosphate, ortho (as P) | mg/L | 11/14/2007 1:31:00 PM | 365.1 | 0.050 | < 0.050 | **H** |
| SettleableSolids | ml/L | 11/14/2007 11:30:00 AM | 2540F | 0.10 | < 0.10 | |
| Sulfate | mg/L | 11/21/2007 3:00:16 AM | 300.0 | 5.0 | **25** | |
| TDS | mg/L | 11/14/2007 3:15:00 PM | 160.1 | 20 | **320** | |
| TSS | mg/L | 11/14/2007 4:30:00 PM | 2540D | 3.0 | **26** | |

*H -Inadequate time given to run within hold time.*




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# INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L81026-05
Field Sample ID: **AspenSpring**
Collected: 11/12/2007 5:30:00 PM
Received: 11/14/2007


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Kyle F. Gross
Laboratory Director


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 11/15/2007 7:30:00 AM | 2310B | 15 | < 15 |
| Alkalinity,(AsCaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 20 | **220** |
| Ammonia (as N) | mg/L | 11/15/2007 6:57:00 PM | 350.1 | 0.050 | **0.093** |
| Bicarbonate (As CaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 20 | **220** |
| Carbonate (As CaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 11/21/2007 3:33:33 AM | 300.0 | 10 | **26** |
| Hardness (as CaCO3) | mg/L | 11/27/2007 | 2340B | 10 | **210** |
| Nitrate (as N) | mg/L | 11/14/2007 2:02:00 PM | 353.2 | 0.010 | **0.36** |
| Nitrite (as N) | mg/L | 11/14/2007 2:02:00 PM | 353.2 | 0.010 | **0.012** |
| Oil & Grease | mg/L | 11/21/2007 12:20:00 PM | 1664A | 3.0 | **5.1** |
| Phosphate, ortho (as P) | mg/L | 11/14/2007 1:31:00 PM | 365.1 | 0.050 | < 0.050 |
| SettleableSolids | ml/L | 11/14/2007 11:30:00 AM | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 11/27/2007 10:23:59 AM | 300.0 | 1.0 | **1.7** |
| TDS | mg/L | 11/14/2007 3:15:00 PM | 160.1 | 20 | **340** |
| TSS | mg/L | 11/14/2007 4:30:00 PM | 2540D | 3.0 | **27** |



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# INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

Lab Sample ID: L81026-01
Field Sample ID: **Mud Creek**
Collected: 11/12/2007 1:15:00 PM
Received: 11/14/2007


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Kyle F. Gross
Laboratory Director


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 11/15/2007 7:30:00 AM | 2310B | 15 | < 15 | |
| Alkalinity,(AsCaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 20 | **230** | |
| Ammonia (as N) | mg/L | 11/15/2007 6:50:00 PM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 20 | **230** | |
| Carbonate (As CaCO3) | mg/L | 11/15/2007 7:00:00 AM | 2320B | 20 | < 20 | |
| Chloride | mg/L | 11/21/2007 12:13:50 AM | 300.0 | 5.0 | **6.9** | |
| Hardness (as CaCO3) | mg/L | 11/27/2007 | 2340B | 10 | **320** | |
| Nitrate (as N) | mg/L | 11/14/2007 11:16:00 AM | 353.2 | 0.010 | **0.16** | [1] |
| Nitrite (as N) | mg/L | 11/14/2007 11:16:00 AM | 353.2 | 0.010 | < 0.010 | [1]@ |
| Oil & Grease | mg/L | 11/18/2007 1:15:00 PM | 1664A | 3.0 | < 3.0 | |
| Phosphate, ortho (as P) | mg/L | 11/14/2007 1:31:00 PM | 365.1 | 0.050 | < 0.050 | [1]H |
| SettleableSolids | ml/L | 11/14/2007 11:30:00 AM | 2540F | 0.10 | < 0.10 | |
| Sulfate | mg/L | 11/21/2007 12:13:50 AM | 300.0 | 5.0 | **64** | |
| TDS | mg/L | 11/14/2007 3:15:00 PM | 160.1 | 20 | **450** | |
| TSS | mg/L | 11/14/2007 4:30:00 PM | 2540D | 3.0 | **12** | |

*[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*
*@ High RPD due to suspected matrix interference.*
*H -Inadequate time given to run within hold time.*




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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-37696 | Arsenic | mg/L | 6020 | 0.2083 | 0.2 | 0 | 104 | 85-115 | | | | 11/16/2007 |
| LCS-37696 | Cadmium | mg/L | 6020 | 0.2000 | 0.2 | 0 | 100 | 85-115 | | | | 11/16/2007 |
| LCS-37696 | Copper | mg/L | 6020 | 0.1981 | 0.2 | 0 | 99.1 | 85-115 | | | | 11/16/2007 |
| LCS-37696 | Lead | mg/L | 6020 | 0.2044 | 0.2 | 0 | 102 | 85-115 | | | | 11/16/2007 |
| LCS-37696 | Manganese | mg/L | 6020 | 0.2000 | 0.2 | 0 | 100 | 85-115 | | | | 11/16/2007 |
| LCS-37696 | Selenium | mg/L | 6020 | 0.2084 | 0.2 | 0 | 104 | 85-115 | | | | 11/16/2007 |
| LCS-37696 | Zinc | mg/L | 6020 | 1.006 | 1 | 0 | 101 | 85-115 | | | | 11/16/2007 |
| LCS-37697 | Iron | mg/L | 6010B | 1.085 | 1 | 0 | 109 | 75-125 | | | | 11/27/2007 |
| LCS-37697 | Manganese | mg/L | 6010B | 0.1993 | 0.2 | 0 | 99.6 | 75-125 | | | | 11/27/2007 |
| LCS-37696 | Aluminum | mg/L | 6010B | 0.9348 | 1 | 0 | 93.5 | 75-125 | | | | 11/27/2007 |
| LCS-37696 | Boron | mg/L | 6010B | 1.083 | 1 | 0 | 108 | 75-125 | | | | 11/27/2007 |
| LCS-37696 | Calcium | mg/L | 6010B | 10.23 | 10 | 0.03474 | 102 | 75-125 | | | | 11/27/2007 |
| LCS-37696 | Iron | mg/L | 6010B | 1.047 | 1 | 0 | 105 | 75-125 | | | | 11/27/2007 |
| LCS-37696 | Magnesium | mg/L | 6010B | 10.21 | 10 | 0 | 102 | 75-125 | | | | 11/27/2007 |
| LCS-37696 | Molybdenum | mg/L | 6010B | 0.1974 | 0.2 | 0 | 98.7 | 75-125 | | | | 11/27/2007 |
| LCS-37696 | Potassium | mg/L | 6010B | 9.966 | 10 | 0 | 99.7 | 75-125 | | | | 11/27/2007 |
| LCS-37696 | Sodium | mg/L | 6010B | 10.12 | 10 | 0 | 101 | 75-125 | | | | 11/27/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

**Dept:** ME
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-37696 | Arsenic | mg/L | 6020 | < 0.00060 | | | | - | | | | 11/16/2007 |
| MB-37696 | Cadmium | mg/L | 6020 | < 0.00018 | | | | - | | | | 11/16/2007 |
| MB-37696 | Copper | mg/L | 6020 | < 0.00080 | | | | - | | | | 11/16/2007 |
| MB-37696 | Lead | mg/L | 6020 | < 0.00010 | | | | - | | | | 11/16/2007 |
| MB-37696 | Manganese | mg/L | 6020 | < 0.0012 | | | | - | | | | 11/16/2007 |
| MB-37696 | Selenium | mg/L | 6020 | < 0.00080 | | | | - | | | | 11/16/2007 |
| MB-37696 | Zinc | mg/L | 6020 | < 0.0054 | | | | - | | | | 11/16/2007 |
| MB-37697 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 11/27/2007 |
| MB-37697 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 11/27/2007 |
| MB-37696 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 11/27/2007 |
| MB-37696 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 11/27/2007 |
| MB-37696 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/27/2007 |
| MB-37696 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 11/27/2007 |
| MB-37696 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/27/2007 |
| MB-37696 | Molybdenum | mg/L | 6010B | < 0.040 | | | | - | | | | 11/27/2007 |
| MB-37696 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/27/2007 |
| MB-37696 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/27/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

**Dept:** ME
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L81026-01FMS | Arsenic | mg/L | 6020 | 0.2108 | 0.2 | 0.000166 | 105 | 70-130 | | | | 11/16/2007 |
| L81026-01FMS | Cadmium | mg/L | 6020 | 0.2047 | 0.2 | 0 | 102 | 70-130 | | | | 11/16/2007 |
| L81026-01FMS | Copper | mg/L | 6020 | 0.1930 | 0.2 | 0.002013 | 95.5 | 70-130 | | | | 11/16/2007 |
| L81026-01FMS | Lead | mg/L | 6020 | 0.2047 | 0.2 | 0.000254 | 102 | 70-130 | | | | 11/16/2007 |
| L81026-01FMS | Manganese | mg/L | 6020 | 0.2107 | 0.2 | 0.01064 | 100 | 70-130 | | | | 11/16/2007 |
| L81026-01FMS | Selenium | mg/L | 6020 | 0.2108 | 0.2 | 0.000601 | 105 | 70-130 | | | | 11/16/2007 |
| L81026-01FMS | Zinc | mg/L | 6020 | 1.030 | 1 | 0.005545 | 102 | 70-130 | | | | 11/16/2007 |
| L81026-01EMS | Iron | mg/L | 6010B | 1.285 | 1 | 0.2436 | 104 | 75-125 | | | | 11/27/2007 |
| L81026-01EMS | Manganese | mg/L | 6010B | 0.2206 | 0.2 | 0.02174 | 99.4 | 75-125 | | | | 11/27/2007 |
| L81041-01HMS | Iron | mg/L | 6010B | 9.012 | 1 | 8.061 | 95.1 | 75-125 | | | | 11/27/2007 |
| L81026-01FMS | Calcium | mg/L | 6010B | 70.39 | 10 | 62.11 | 82.8 | 75-125 | | | | 11/27/2007 |
| L81026-01FMS | Sodium | mg/L | 6010B | 39.21 | 10 | 30.65 | 85.7 | 75-125 | | | | 11/27/2007 |
| L81026-01FMS | Aluminum | mg/L | 6010B | 0.6358 | 1 | 0 | 63.6 | 75-125 | | | I | 11/27/2007 |
| L81026-01FMS | Boron | mg/L | 6010B | 1.333 | 1 | 0.3591 | 97.3 | 75-125 | | | | 11/27/2007 |
| L81026-01FMS | Iron | mg/L | 6010B | 1.108 | 1 | 0.01834 | 109 | 75-125 | | | | 11/27/2007 |
| L81026-01FMS | Magnesium | mg/L | 6010B | 48.19 | 10 | 40.1 | 80.9 | 75-125 | | | | 11/27/2007 |
| L81026-01FMS | Molybdenum | mg/L | 6010B | 0.2070 | 0.2 | 0 | 104 | 75-125 | | | | 11/27/2007 |
| L81026-01FMS | Potassium | mg/L | 6010B | 16.58 | 10 | 5.175 | 114 | 75-125 | | | | 11/27/2007 |

I Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L81026-01FMSD | Arsenic | mg/L | 6020 | 0.2070 | 0.2 | 0.000166 | 103 | 70-130 | 1.83 | 20 | | 11/16/2007 |
| L81026-01FMSD | Cadmium | mg/L | 6020 | 0.2020 | 0.2 | 0 | 101 | 70-130 | 1.32 | 20 | | 11/16/2007 |
| L81026-01FMSD | Copper | mg/L | 6020 | 0.1918 | 0.2 | 0.002013 | 94.9 | 70-130 | 0.588 | 20 | | 11/16/2007 |
| L81026-01FMSD | Lead | mg/L | 6020 | 0.2017 | 0.2 | 0.000254 | 101 | 70-130 | 1.49 | 20 | | 11/16/2007 |
| L81026-01FMSD | Manganese | mg/L | 6020 | 0.2085 | 0.2 | 0.01064 | 98.9 | 70-130 | 1.02 | 20 | | 11/16/2007 |
| L81026-01FMSD | Selenium | mg/L | 6020 | 0.2052 | 0.2 | 0.000601 | 102 | 70-130 | 2.69 | 20 | | 11/16/2007 |
| L81026-01FMSD | Zinc | mg/L | 6020 | 1.009 | 1 | 0.005545 | 100 | 70-130 | 2.03 | 20 | | 11/16/2007 |
| L81026-01EMSD | Iron | mg/L | 6010B | 1.287 | 1 | 0.2436 | 104 | 75-125 | 0.134 | 20 | | 11/27/2007 |
| L81026-01EMSD | Manganese | mg/L | 6010B | 0.2219 | 0.2 | 0.02174 | 100 | 75-125 | 0.604 | 20 | | 11/27/2007 |
| L81041-01HMSD | Iron | mg/L | 6010B | 9.104 | 1 | 8.061 | 104 | 75-125 | 1.01 | 20 | | 11/27/2007 |
| L81026-01FMSD | Calcium | mg/L | 6010B | 69.84 | 10 | 62.11 | 77.3 | 75-125 | 0.781 | 20 | | 11/27/2007 |
| L81026-01FMSD | Sodium | mg/L | 6010B | 38.71 | 10 | 30.65 | 80.7 | 75-125 | 1.28 | 20 | | 11/27/2007 |
| L81026-01FMSD | Aluminum | mg/L | 6010B | 0.6472 | 1 | 0 | 64.7 | 75-125 | 1.78 | 20 | [1] | 11/27/2007 |
| L81026-01FMSD | Boron | mg/L | 6010B | 1.322 | 1 | 0.3591 | 96.3 | 75-125 | 0.766 | 20 | | 11/27/2007 |
| L81026-01FMSD | Iron | mg/L | 6010B | 1.068 | 1 | 0.01834 | 105 | 75-125 | 3.66 | 20 | | 11/27/2007 |
| L81026-01FMSD | Magnesium | mg/L | 6010B | 47.93 | 10 | 40.1 | 78.3 | 75-125 | 0.541 | 20 | | 11/27/2007 |
| L81026-01FMSD | Molybdenum | mg/L | 6010B | 0.2011 | 0.2 | 0 | 101 | 75-125 | 2.88 | 20 | | 11/27/2007 |
| L81026-01FMSD | Potassium | mg/L | 6010B | 16.46 | 10 | 5.175 | 113 | 75-125 | 0.712 | 20 | | 11/27/2007 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

**Dept:** WC
**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L80984-03BDUP | TDS | mg/L | 160.1 | 9800 | 0 | 9400 | | - | 4.17 | 20 | | 11/14/2007 |
| L81013-06DDUP | TDS | mg/L | 160.1 | 512.0 | 0 | 500 | | - | 2.37 | 20 | | 11/14/2007 |
| L81026-05ADUP | TDS | mg/L | 160.1 | 348.0 | 0 | 340 | | - | 2.33 | 20 | | 11/14/2007 |
| L81006-02ADUP | TSS | mg/L | 2540D | 6.000 | 0 | 8 | | - | 28.6 | 20 | * | 11/14/2007 |
| L81025-02ADUP | TSS | mg/L | 2540D | 24.00 | 0 | 23 | | - | 4.26 | 20 | | 11/14/2007 |
| L81026-05ADUP | TSS | mg/L | 2540D | 28.00 | 0 | 27 | | - | 3.64 | 20 | | 11/14/2007 |

* High RPD due to low analyte concentration. In this range, high RPD's may be expected.



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

**Dept:** WC
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R76468 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50120 | 50000 | 0 | 100 | 90-110 | | | | 11/15/2007 |
| LCS-R76720 | Chloride | mg/L | 300.0 | 5.103 | 5 | 0.008 | 102 | 90-110 | | | | 11/20/2007 |
| LCS-R76720 | Sulfate | mg/L | 300.0 | 5.234 | 5 | 0 | 105 | 90-110 | | | | 11/20/2007 |
| LCS-R76878 | Chloride | mg/L | 300.0 | 4.641 | 5 | 0.008 | 92.7 | 90-110 | | | | 11/26/2007 |
| LCS-R76878 | Sulfate | mg/L | 300.0 | 4.691 | 5 | 0 | 93.8 | 90-110 | | | | 11/26/2007 |
| LCS-R76469 | Acidity | mg/L | 2310B | 55.00 | 50 | 0 | 110 | 80-120 | | | | 11/15/2007 |
| LCS-37688 | Ammonia (as N) | mg/L | 350.1 | 0.9850 | 1 | 0 | 98.5 | 90-110 | | | | 11/15/2007 |
| LCS-R76422 | Nitrite (as N) | mg/L | 353.2 | 0.9000 | 1 | 0 | 90.0 | 90-110 | | | | 11/14/2007 |
| LCS-R76440 | Nitrite (as N) | mg/L | 353.2 | 0.9430 | 1 | 0 | 94.3 | 90-110 | | | | 11/14/2007 |
| LCS-R76421 | Nitrate (as N) | mg/L | 353.2 | 0.9840 | 1 | 0 | 98.4 | 90-110 | | | | 11/14/2007 |
| LCS-R76441 | Nitrate (as N) | mg/L | 353.2 | 1.023 | 1 | 0 | 102 | 90-110 | | | | 11/14/2007 |
| LCS-R76635 | Oil & Grease | mg/L | 1664A | 40.30 | 40 | 0 | 101 | 79-114 | | | | 11/18/2007 |
| LCS-R76760 | Oil & Grease | mg/L | 1664A | 40.30 | 40 | 0 | 101 | 79-114 | | | | 11/21/2007 |
| LCS-R76434 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9060 | 1 | 0 | 90.6 | 90-110 | | | | 11/14/2007 |
| LCS-R76498 | TDS | mg/L | 160.1 | 218.0 | 205 | 0 | 106 | 80-120 | | | | 11/14/2007 |
| LCS-R76479 | TSS | mg/L | 2540D | 95.00 | 100 | 0 | 95.0 | 80-120 | | | | 11/14/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R76468 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 11/15/2007 |
| MB-R76468 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 11/15/2007 |
| MB-R76468 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 11/15/2007 |
| MB-R76720 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 11/20/2007 |
| MB-R76720 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 11/20/2007 |
| MB-R76878 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 11/26/2007 |
| MB-R76878 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 11/26/2007 |
| MB-R76469 | Acidity | mg/L | 2310B | < 15 | | | | - | | | | 11/15/2007 |
| MB-37688 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 11/15/2007 |
| MB-R76422 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 11/14/2007 |
| MB-R76440 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 11/14/2007 |
| MB-R76421 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 11/14/2007 |
| MB-R76441 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 11/14/2007 |
| MB-R76635 | Oil & Grease | mg/L | 1664A | < 3.0 | | | | - | | | | 11/18/2007 |
| MB-R76760 | Oil & Grease | mg/L | 1664A | < 3.0 | | | | - | | | | 11/21/2007 |
| MB-R76434 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 11/14/2007 |
| MB-R76498 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 11/14/2007 |
| MB-R76479 | TSS | mg/L | 2540D | < 3.0 | | | | - | | | | 11/14/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L81026-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 329.0 | 100 | 229 | 100 | 80-120 | | | | 11/15/2007 |
| L81013-03CMS | Chloride | mg/L | 300.0 | 46.68 | 25 | 22.19 | 98.0 | 90-110 | | | | 11/20/2007 |
| L81026-02BMS | Chloride | mg/L | 300.0 | 54.03 | 50 | 6.006 | 96.1 | 90-110 | | | | 11/21/2007 |
| L81026-02BMS | Sulfate | mg/L | 300.0 | 92.79 | 50 | 42.63 | 100 | 90-110 | | | | 11/21/2007 |
| L81074-01CMS | Chloride | mg/L | 300.0 | 203.5 | 100 | 107.8 | 95.6 | 90-110 | | | | 11/26/2007 |
| L81074-01CMS | Sulfate | mg/L | 300.0 | 158.4 | 100 | 58.74 | 99.7 | 90-110 | | | | 11/26/2007 |
| L81105-01CMS | Chloride | mg/L | 300.0 | 1026 | 500 | 539.3 | 97.3 | 90-110 | | | | 11/27/2007 |
| L81105-01CMS | Sulfate | mg/L | 300.0 | 509.2 | 500 | 16.71 | 98.5 | 90-110 | | | | 11/27/2007 |
| L81026-01BMS | Acidity | mg/L | 2310B | 52.00 | 50 | 0 | 104 | 80-120 | | | | 11/15/2007 |
| L80787-01FMS | Ammonia (as N) | mg/L | 350.1 | 2.118 | 2 | 0.304 | 90.7 | 90-110 | | | | 11/15/2007 |
| L81026-01CMS | Ammonia (as N) | mg/L | 350.1 | 0.9630 | 1 | 0.032 | 93.1 | 90-110 | | | | 11/15/2007 |
| L81026-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.002 | 1 | 0 | 100 | 90-110 | | | | 11/14/2007 |
| L81026-02BMS | Nitrite (as N) | mg/L | 353.2 | 0.9930 | 1 | 0 | 99.3 | 90-110 | | | | 11/14/2007 |
| L81026-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.309 | 1 | 0.164 | 114 | 90-110 | | | [1] | 11/14/2007 |
| L81026-02BMS | Nitrate (as N) | mg/L | 353.2 | 1.137 | 1 | 0 | 114 | 90-110 | | | [1] | 11/14/2007 |
| L81026-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 0.8330 | 1 | 0.01 | 82.3 | 90-110 | | | [1]H | 11/14/2007 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

H - Inadequate time given to run within hold time.



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Kyle F. Gross
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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L81026-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 326.0 | 100 | 229 | 97.0 | 80-120 | 0.916 | 10 | | 11/15/2007 |
| L81013-03CMSD | Chloride | mg/L | 300.0 | 46.35 | 25 | 22.19 | 96.7 | 90-110 | 0.705 | 20 | | 11/20/2007 |
| L81026-02BMSD | Chloride | mg/L | 300.0 | 52.91 | 50 | 6.006 | 93.8 | 90-110 | 2.10 | 20 | | 11/21/2007 |
| L81026-02BMSD | Sulfate | mg/L | 300.0 | 90.37 | 50 | 42.63 | 95.5 | 90-110 | 2.64 | 20 | | 11/21/2007 |
| L81074-01CMSD | Chloride | mg/L | 300.0 | 199.1 | 100 | 107.8 | 91.3 | 90-110 | 2.16 | 20 | | 11/26/2007 |
| L81074-01CMSD | Sulfate | mg/L | 300.0 | 155.6 | 100 | 58.74 | 96.8 | 90-110 | 1.81 | 20 | | 11/26/2007 |
| L81105-01CMSD | Chloride | mg/L | 300.0 | 1019 | 500 | 539.3 | 95.9 | 90-110 | 0.702 | 20 | | 11/27/2007 |
| L81105-01CMSD | Sulfate | mg/L | 300.0 | 506.8 | 500 | 16.71 | 98.0 | 90-110 | 0.481 | 20 | | 11/27/2007 |
| L81026-01BMSD | Acidity | mg/L | 2310B | 50.00 | 50 | 0 | 100 | 80-120 | 3.92 | 20 | | 11/15/2007 |
| L80787-01FMSD | Ammonia (as N) | mg/L | 350.1 | 2.226 | 2 | 0.304 | 96.1 | 90-110 | 4.97 | 10 | | 11/15/2007 |
| L81026-01CMSD | Ammonia (as N) | mg/L | 350.1 | 0.9730 | 1 | 0.032 | 94.1 | 90-110 | 1.03 | 10 | | 11/15/2007 |
| L81026-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.110 | 1 | 0 | 111 | 90-110 | 10.2 | 10 | [1]@ | 11/14/2007 |
| L81026-02BMSD | Nitrite (as N) | mg/L | 353.2 | 0.9780 | 1 | 0 | 97.8 | 90-110 | 1.52 | 10 | | 11/14/2007 |
| L81026-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.402 | 1 | 0.164 | 124 | 90-110 | 6.86 | 10 | [1] | 11/14/2007 |
| L81026-02BMSD | Nitrate (as N) | mg/L | 353.2 | 1.105 | 1 | 0 | 110 | 90-110 | 2.85 | 10 | [1] | 11/14/2007 |
| L81026-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 0.8130 | 1 | 0.01 | 80.3 | 90-110 | 2.43 | 10 | [1]H | 11/14/2007 |

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

H - Inadequate time given to run within hold time.



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R76635 | Oil & Grease | mg/L | 1664A | 38.80 | 40 | 0 | 97.0 | 79-114 | | | | 11/18/2007 |
| QCS-R76760 | Oil & Grease | mg/L | 1664A | 37.90 | 40 | 0 | 94.8 | 79-114 | | | | 11/21/2007 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L81026
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R76635 | Oil & Grease | mg/L | 1664A | 38.70 | 40 | 0 | 96.8 | 79-114 | 0.258 | 18 | | 11/18/2007 |
| QCSD-R76760 | Oil & Grease | mg/L | 1664A | 37.30 | 40 | 0 | 93.3 | 79-114 | 1.60 | 18 | | 11/21/2007 |



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# American West Analytical Labs

## WORK ORDER Summary

*14-Nov-07*

**Work Order** L81026

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:**

**Contact:** Brad Lindsay

**Comments:** QCLevel: 2+.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L81026-01A | Mud Creek | 11/12/2007 1:15:00 PM | 11/14/2007 | 11/30/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 11/30/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/30/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L81026-01B | | | | 11/30/2007 | | 2320B-ALK-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | 300.0-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | ACIDITY-W-2310B | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | NO2-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | NO3-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | PO4-O | nov 14 - wc | 1 |
| L81026-01C | | | | 11/30/2007 | | NH3-W | nov 14 - nh3 | 1 |
| | | | | 11/30/2007 | | NH3-W-PREP | nov 14 - nh3 | 1 |
| L81026-01D | | | | 11/30/2007 | | OGB-W | ogb | 1 |
| L81026-01E | | | | 11/30/2007 | | 3005A-ICPMS | nov 14 - met | 1 |
| | | | | 11/30/2007 | | ICP-W | nov 14 - met | 1 |
| L81026-01F | | | | 11/30/2007 | Aqueous-Dissolved | 3005A-Diss | nov 14 - dis met | 1 |
| | | | | 11/30/2007 | | 6020-W-DISS | nov 14 - dis met | 1 |
| | | | | 11/30/2007 | | HARD | nov 14 - dis met | 1 |
| | | | | 11/30/2007 | | ICP-W-DIS | nov 14 - dis met | 1 |
| L81026-02A | Sulfur Spring | 11/12/2007 2:50:00 PM | | 11/30/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 11/30/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/30/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L81026-02B | | | | 11/30/2007 | | 2320B-ALK-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | 300.0-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | ACIDITY-W-2310B | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | NO2-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | NO3-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | PO4-O | nov 14 - wc | 1 |

# WORK ORDER Summary

*14-Nov-07*

**Work Order** L81026

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L81026-02C | Sulfur Spring | 11/12/2007 2:50:00 PM | 11/14/2007 | 11/30/2007 | Aqueous | NH3-W | nov 14 - nh3 | 1 |
| | | | | 11/30/2007 | | NH3-W-PREP | nov 14 - nh3 | 1 |
| L81026-02D | | | | 11/30/2007 | | OGB-W | ogb | 1 |
| L81026-02E | | | | 11/30/2007 | | 3005A-ICPMS | nov 14 - met | 1 |
| | | | | 11/30/2007 | | ICP-W | nov 14 - met | 1 |
| L81026-02F | | | | 11/30/2007 | Aqueous-Dissolved | 3005A-Diss | nov 14 - dis met | 1 |
| | | | | 11/30/2007 | | 6020-W-DISS | nov 14 - dis met | 1 |
| | | | | 11/30/2007 | | HARD | nov 14 - dis met | 1 |
| | | | | 11/30/2007 | | ICP-W-DIS | nov 14 - dis met | 1 |
| L81026-03A | RES-1 | 11/12/2007 3:30:00 PM | | 11/30/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 11/30/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/30/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L81026-03B | | | | 11/30/2007 | | 2320B-ALK-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | 300.0-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | ACIDITY-W-2310B | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | NO2-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | NO3-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | PO4-O | nov 14 - wc | 1 |
| L81026-03C | | | | 11/30/2007 | | NH3-W | nov 14 - nh3 | 1 |
| | | | | 11/30/2007 | | NH3-W-PREP | nov 14 - nh3 | 1 |
| L81026-03D | | | | 11/30/2007 | | OGB-W | ogb | 1 |
| L81026-03E | | | | 11/30/2007 | | 3005A-ICPMS | nov 14 - met | 1 |
| | | | | 11/30/2007 | | ICP-W | nov 14 - met | 1 |
| L81026-03F | | | | 11/30/2007 | Aqueous-Dissolved | 3005A-Diss | nov 14 - dis met | 1 |
| | | | | 11/30/2007 | | 6020-W-DISS | nov 14 - dis met | 1 |
| | | | | 11/30/2007 | | HARD | nov 14 - dis met | 1 |
| | | | | 11/30/2007 | | ICP-W-DIS | nov 14 - dis met | 1 |
| L81026-04A | Miller Outlet | 11/12/2007 12:30:00 PM | | 11/30/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |

# WORK ORDER Summary

*14-Nov-07*

**Work Order** L81026

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L81026-04A | Miller Outlet | 11/12/2007 12:30:00 PM | 11/14/2007 | 11/30/2007 | Aqueous | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/30/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L81026-04B | | | | 11/30/2007 | | 2320B-ALK-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | 300.0-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | ACIDITY-W-2310B | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | NO2-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | NO3-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | PO4-O | nov 14 - wc | 1 |
| L81026-04C | | | | 11/30/2007 | | NH3-W | nov 14 - nh3 | 1 |
| | | | | 11/30/2007 | | NH3-W-PREP | nov 14 - nh3 | 1 |
| L81026-04D | | | | 11/30/2007 | | OGB-W | ogb | 1 |
| L81026-04E | | | | 11/30/2007 | | 3005A-ICPMS | nov 14 - met | 1 |
| | | | | 11/30/2007 | | ICP-W | nov 14 - met | 1 |
| L81026-04F | | | | 11/30/2007 | Aqueous-Dissolved | 3005A-Diss | nov 14 - dis met | 1 |
| | | | | 11/30/2007 | | 6020-W-DISS | nov 14 - dis met | 1 |
| | | | | 11/30/2007 | | HARD | nov 14 - dis met | 1 |
| | | | | 11/30/2007 | | ICP-W-DIS | nov 14 - dis met | 1 |
| L81026-05A | Aspen Spring | 11/12/2007 5:30:00 PM | | 11/30/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 11/30/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/30/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L81026-05B | | | | 11/30/2007 | | 2320B-ALK-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | 300.0-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | ACIDITY-W-2310B | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | NO2-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | NO3-W | nov 14 - wc | 1 |
| | | | | 11/30/2007 | | PO4-O | nov 14 - wc | 1 |
| L81026-05C | | | | 11/30/2007 | | NH3-W | nov 14 - nh3 | 1 |
| | | | | 11/30/2007 | | NH3-W-PREP | nov 14 - nh3 | 1 |

# WORK ORDER Summary

*14-Nov-07*

**Work Order** L81026

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L81026-05D | Aspen Spring | 11/12/2007 5:30:00 PM | 11/14/2007 | 11/30/2007 | Aqueous | OGB-W | ogb | 1 |
| L81026-05E | | | | 11/30/2007 | | 3005A-ICPMS | nov 14 - met | 1 |
| | | | | 11/30/2007 | | ICP-W | nov 14 - met | 1 |
| L81026-05F | | | | 11/30/2007 | Aqueous-Dissolved | 3005A-Diss | nov 14 - dis met | 1 |
| | | | | 11/30/2007 | | 6020-W-DISS | nov 14 - dis met | 1 |
| | | | | 11/30/2007 | | HARD | nov 14 - dis met | 1 |
| | | | | 11/30/2007 | | ICP-W-DIS | nov 14 - dis met | 1 |

Client CARBON RESOURCES C/O ROCK LOGIC

Address P.O. BOX 544

CEDAREDGE CO 81413
City State Zip

Phone 435-851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGICCONSULTING@gmail.com

Project Name SCOFIELD BASELINE

Project Number/P.O.# —

Sampler Name BRAD LINDSAY

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Salt Lake City, Utah 84115
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# CHAIN OF CUSTODY

Lab Sample Set # 81026

Page _____ of _____

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day (Standard)

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TABLE 3 | | | | | | | | | | | QC LEVEL / COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MUD CREEK | 11-12-07 / 13:15 | W | 6 | X | | | | | | | | | | | |
| SULFUR SPRING | 11-12-07 / 14:50 | W | 6 | X | | | | | | | | | | | |
| RES-1 | 11-12-07 / 15:30 | W | 6 | X | | | | | | | | | | | |
| MILLER OUTLET | 11-12-07 / 12:30 | W | 6 | X | | | | | | | | | | | |
| ASPEN SPRING | 11-12-07 / 17:30 | W | 6 | X | | | | | | | | | | | |

QC LEVEL: 1 2 2+ 3 3+ 4

COMMENTS

| | | | |
|---|---|---|---|
| Relinquished By: *Signature* | Date 11-13-07 | Received By: *Signature* | |
| PRINT NAME BRAD LINDSAY | Time 3:00 | PRINT NAME UPS | |
| Relinquished By: *Signature* UPS | Date 11/14/07 | Received By: *Signature* | |
| PRINT NAME | Time 10:45 | PRINT NAME REBEKAH WINKLER | |
| Relinquished By: *Signature* | Date | Received By: *Signature* | |
| PRINT NAME | Time | PRINT NAME | |
| Relinquished By: *Signature* | Date | Received By: *Signature* | |
| PRINT NAME | Time | PRINT NAME | |

Special Instructions:

~~FIELD FILTER METALS~~ 11/14/07

Per Brad Lindsay, please filter for metals in lab.
-ew 11/14/07

**LABORATORY USE ONLY**

SAMPLES WERE:
1 Shipped or hand delivered 11/14/07
Notes: UPS

2 Ambient or Chilled
Notes:

3 Temperature 1.5°C

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Notes:

6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:

1 Present on Outer Package
Y (N) NA

2 Unbroken on Outer Package
Y N (NA)

3 Present on Sample
(Y) N NA

4 Unbroken on Sample
Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 81026

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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February 12, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX

RE: Scofield Baseline

Lab Set ID: L76053

Dear Brad Lindsay:

American West Analytical Labs received 3 samples on 2/2/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76053-01E
Field Sample ID: **Mud Creek**
Collected: 1/31/2007 4:30:00 PM
Received: 2/2/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 2/7/2007 1:13:19 PM | 6010B | 0.050 | **0.43** |
| Manganese | mg/L | 2/7/2007 1:13:19 PM | 6010B | 0.0050 | **0.030** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76053-02E
Field Sample ID: **Sulfur Spring**
Collected: 1/31/2007 4:45:00 PM
Received: 2/2/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 2/7/2007 1:29:09 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 2/7/2007 1:29:09 PM | 6010B | 0.0050 | **0.027** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76053-03E
Field Sample ID: **Miller Outlet**
Collected: 1/31/2007 5:15:00 PM
Received: 2/2/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 2/7/2007 1:33:05 PM | 6010B | 0.050 | **3.6** |
| Manganese | mg/L | 2/7/2007 1:33:05 PM | 6010B | 0.0050 | **0.17** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76053-01F
Field Sample ID: **Mud Creek**
Collected: 1/31/2007 4:30:00 PM
Received: 2/2/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 2/12/2007 9:31:37 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 2/5/2007 2:37:51 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 2/12/2007 9:31:37 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 2/5/2007 2:37:51 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 2/12/2007 9:00:58 AM | 6010B | 10 | **72** | * |
| Copper | mg/L | 2/5/2007 2:37:51 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 2/12/2007 9:31:37 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 2/5/2007 2:37:51 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 2/12/2007 9:31:37 AM | 6010B | 1.0 | **41** | |
| Manganese | mg/L | 2/5/2007 2:37:51 PM | 6020 | 0.0050 | **0.013** | |
| Molybdenum | mg/L | 2/12/2007 9:31:37 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 2/12/2007 9:31:37 AM | 6010B | 1.0 | **7.1** | |
| Selenium | mg/L | 2/5/2007 2:37:51 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 2/12/2007 9:31:37 AM | 6010B | 1.0 | **28** | |
| Zinc | mg/L | 2/5/2007 2:37:51 PM | 6020 | 0.010 | < 0.010 | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76053-02F
Field Sample ID: **Sulfur Spring**
Collected: 1/31/2007 4:45:00 PM
Received: 2/2/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 2/12/2007 9:47:34 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 2/5/2007 3:15:34 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 2/12/2007 9:47:34 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 2/5/2007 3:15:34 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 2/12/2007 9:12:42 AM | 6010B | 10 | **89** * |
| Copper | mg/L | 2/5/2007 3:15:34 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 2/12/2007 9:47:34 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 2/5/2007 3:15:34 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 2/12/2007 9:47:34 AM | 6010B | 1.0 | **37** |
| Manganese | mg/L | 2/5/2007 3:15:34 PM | 6020 | 0.0050 | **0.025** |
| Molybdenum | mg/L | 2/12/2007 9:47:34 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 2/12/2007 9:47:34 AM | 6010B | 1.0 | **5.1** |
| Selenium | mg/L | 2/5/2007 3:15:34 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 2/12/2007 9:47:34 AM | 6010B | 1.0 | **8.8** |
| Zinc | mg/L | 2/5/2007 3:15:34 PM | 6020 | 0.010 | **0.010** |

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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76053-03F
Field Sample ID: **Miller Outlet**
Collected: 1/31/2007 5:15:00 PM
Received: 2/2/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 2/12/2007 9:51:38 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 2/5/2007 3:20:57 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 2/12/2007 9:51:38 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 2/5/2007 3:20:57 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 2/12/2007 9:16:38 AM | 6010B | 10 | **90** | * |
| Copper | mg/L | 2/5/2007 3:20:57 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 2/12/2007 9:51:38 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 2/5/2007 3:20:57 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 2/12/2007 9:51:38 AM | 6010B | 1.0 | **17** | |
| Manganese | mg/L | 2/5/2007 3:20:57 PM | 6020 | 0.0050 | **0.023** | |
| Molybdenum | mg/L | 2/12/2007 9:51:38 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 2/12/2007 9:51:38 AM | 6010B | 1.0 | **1.9** | |
| Selenium | mg/L | 2/5/2007 3:20:57 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 2/12/2007 9:51:38 AM | 6010B | 1.0 | **6.3** | |
| Zinc | mg/L | 2/5/2007 3:20:57 PM | 6020 | 0.010 | **0.027** | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: CarbonResources
ProjectID: ScofieldBaseline

Contact: BradLindsay

Lab Sample ID: L76053-01
Field Sample ID: **Mud Creek**
Collected: 1/31/2007 4:30:00 PM
Received: 2/2/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 2/5/2007 7:30:00 AM | 305.1 | 15 | < 15 | |
| Alkalinity,(AsCaCO3) | mg/L | 2/5/2007 7:00:00 AM | 2320B | 20 | **240** | |
| Ammonia (as N) | mg/L | 2/5/2007 8:45:00 AM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 2/5/2007 7:00:00 AM | 2320B | 20 | **240** | |
| Carbonate (As CaCO3) | mg/L | 2/5/2007 7:00:00 AM | 2320B | 20 | < 20 | |
| Chloride | mg/L | 2/2/2007 3:56:46 PM | 300.0 | 5.0 | **15** | |
| Hardness (as CaCO3) | mg/L | 2/12/2007 | 2340B | 10 | **350** | |
| Nitrate (as N) | mg/L | 2/2/2007 3:14:00 PM | 353.2 | 0.010 | **0.27** | [1] @ |
| Nitrite (as N) | mg/L | 2/2/2007 3:14:00 PM | 353.2 | 0.010 | < 0.010 | |
| Oil & Grease | mg/L | 2/9/2007 1:10:00 PM | EPA1664 | 3.0 | **3.4** | |
| Phosphate, ortho (as P) | mg/L | 2/2/2007 11:39:00 AM | 365.1 | 0.050 | < 0.050 | [1] |
| SettableSolids | ml/L | 2/2/2007 11:00:00 AM | 160.5 | 0.10 | **0.15** | |
| Sulfate | mg/L | 2/2/2007 3:56:46 PM | 300.0 | 50 | **120** | |
| TDS | mg/L | 2/2/2007 2:00:00 PM | 160.1 | 20 | **420** | |
| TSS | mg/L | 2/2/2007 3:30:00 PM | 160.2 | 3.0 | **30** | |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*
*@ High RPD due to suspected matrix interference.*




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# INORGANIC ANALYSIS REPORT

Client: CarbonResources
Contact: BradLindsay
ProjectID: ScofieldBaseline

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L76053-02
Field Sample ID: **SulfurSpring**
Collected: 1/31/2007 4:45:00 PM
Received: 2/2/2007

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 2/5/2007 7:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(AsCaCO3) | mg/L | 2/5/2007 7:00:00 AM | 2320B | 20 | **340** |
| Ammonia (as N) | mg/L | 2/5/2007 8:45:00 AM | 350.1 | 0.050 | **0.097** |
| Bicarbonate (As CaCO3) | mg/L | 2/5/2007 7:00:00 AM | 2320B | 20 | **340** |
| Carbonate (As CaCO3) | mg/L | 2/5/2007 7:00:00 AM | 2320B | 20 | < 20 |
| Chloride | mg/L | 2/2/2007 3:56:46 PM | 300.0 | 1.0 | **6.4** |
| Hardness (as CaCO3) | mg/L | 2/12/2007 | 2340B | 10 | **370** |
| Nitrate (as N) | mg/L | 2/2/2007 3:14:00 PM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 2/2/2007 3:14:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 2/9/2007 1:10:00 PM | EPA1664 | 3.0 | **3.8** |
| Phosphate, ortho (as P) | mg/L | 2/2/2007 11:39:00 AM | 365.1 | 0.050 | < 0.050 |
| SettableSolids | ml/L | 2/2/2007 11:00:00 AM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 2/2/2007 3:56:46 PM | 300.0 | 5.0 | **41** |
| TDS | mg/L | 2/2/2007 2:00:00 PM | 160.1 | 20 | **390** |
| TSS | mg/L | 2/2/2007 3:30:00 PM | 160.2 | 3.0 | < 3.0 |



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# INORGANIC ANALYSIS REPORT

Client: CarbonResources
ProjectID: ScofieldBaseline

Contact: BradLindsay

Lab Sample ID: L76053-03
Field Sample ID: **Miller Outlet**
Collected: 1/31/2007 5:15:00 PM
Received: 2/2/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 2/5/2007 7:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(AsCaCO3) | mg/L | 2/5/2007 7:00:00 AM | 2320B | 20 | **280** |
| Ammonia (as N) | mg/L | 2/5/2007 8:45:00 AM | 350.1 | 0.050 | **0.055** |
| Bicarbonate (As CaCO3) | mg/L | 2/5/2007 7:00:00 AM | 2320B | 20 | **260** |
| Carbonate (As CaCO3) | mg/L | 2/5/2007 7:00:00 AM | 2320B | 20 | **< 20** |
| Chloride | mg/L | 2/2/2007 3:56:46 PM | 300.0 | 2.0 | **9.6** |
| Hardness (as CaCO3) | mg/L | 2/12/2007 | 2340B | 10 | **290** |
| Nitrate (as N) | mg/L | 2/2/2007 3:14:00 PM | 353.2 | 0.010 | **0.92** |
| Nitrite (as N) | mg/L | 2/2/2007 3:14:00 PM | 353.2 | 0.010 | **0.010** |
| Oil & Grease | mg/L | 2/9/2007 1:10:00 PM | EPA1664 | 3.0 | **3.5** |
| Phosphate, ortho (as P) | mg/L | 2/2/2007 11:39:00 AM | 365.1 | 0.050 | < 0.050 |
| SettableSolids | ml/L | 2/2/2007 11:00:00 AM | 160.5 | 0.10 | **0.30** |
| Sulfate | mg/L | 2/2/2007 3:56:46 PM | 300.0 | 5.0 | **21** [1] |
| TDS | mg/L | 2/2/2007 2:00:00 PM | 160.1 | 20 | **310** |
| TSS | mg/L | 2/2/2007 3:30:00 PM | 160.2 | 3.0 | **200** |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*




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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

**Dept:** ME
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-32823 | Arsenic | mg/L | 6020 | 0.2224 | 0.2 | 0 | 111 | 85-115 | | | | 2/5/2007 |
| LCS-32823 | Cadmium | mg/L | 6020 | 0.2095 | 0.2 | 0 | 105 | 85-115 | | | | 2/5/2007 |
| LCS-32823 | Copper | mg/L | 6020 | 0.1945 | 0.2 | 0 | 97.3 | 85-115 | | | | 2/5/2007 |
| LCS-32823 | Lead | mg/L | 6020 | 0.2221 | 0.2 | 0 | 111 | 85-115 | | | | 2/5/2007 |
| LCS-32823 | Manganese | mg/L | 6020 | 0.2030 | 0.2 | 0 | 101 | 85-115 | | | | 2/5/2007 |
| LCS-32823 | Selenium | mg/L | 6020 | 0.2122 | 0.2 | 0 | 106 | 85-115 | | | | 2/5/2007 |
| LCS-32823 | Zinc | mg/L | 6020 | 1.012 | 1 | 0.00316 | 101 | 85-115 | | | | 2/5/2007 |
| LCS-32802 | Iron | mg/L | 6010B | 1.086 | 1 | 0 | 109 | 75-125 | | | | 2/7/2007 |
| LCS-32802 | Manganese | mg/L | 6010B | 0.2058 | 0.2 | 0 | 103 | 75-125 | | | | 2/7/2007 |
| LCS-32823 | Aluminum | mg/L | 6010B | 1.041 | 1 | 0 | 104 | 75-125 | | | | 2/12/2007 |
| LCS-32823 | Boron | mg/L | 6010B | 1.080 | 1 | 0 | 108 | 75-125 | | | | 2/12/2007 |
| LCS-32823 | Calcium | mg/L | 6010B | 10.70 | 10 | 0 | 107 | 75-125 | | | | 2/12/2007 |
| LCS-32823 | Iron | mg/L | 6010B | 1.082 | 1 | 0 | 108 | 75-125 | | | | 2/12/2007 |
| LCS-32823 | Magnesium | mg/L | 6010B | 10.65 | 10 | 0 | 107 | 75-125 | | | | 2/12/2007 |
| LCS-32823 | Molybdenum | mg/L | 6010B | 0.2089 | 0.2 | 0 | 104 | 75-125 | | | | 2/12/2007 |
| LCS-32823 | Potassium | mg/L | 6010B | 10.49 | 10 | 0 | 105 | 75-125 | | | | 2/12/2007 |
| LCS-32823 | Sodium | mg/L | 6010B | 10.58 | 10 | 0 | 106 | 75-125 | | | | 2/12/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

**Dept:** ME
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-32823 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 2/5/2007 |
| MB-32823 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 2/5/2007 |
| MB-32823 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 2/5/2007 |
| MB-32823 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 2/5/2007 |
| MB-32823 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 2/5/2007 |
| MB-32823 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 2/5/2007 |
| MB-32823 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 2/5/2007 |
| MB-32802 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 2/7/2007 |
| MB-32802 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 2/7/2007 |
| MB-32823 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 2/12/2007 |
| MB-32823 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 2/12/2007 |
| MB-32823 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 2/12/2007 |
| MB-32823 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 2/12/2007 |
| MB-32823 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 2/12/2007 |
| MB-32823 | Molybdenum | mg/L | 6010B | < 0.040 | | | | - | | | | 2/12/2007 |
| MB-32823 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 2/12/2007 |
| MB-32823 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 2/12/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76053-01FMS | Arsenic | mg/L | 6020 | 0.2382 | 0.2 | 0 | 119 | 70-130 | | | | 2/5/2007 |
| L76053-01FMS | Cadmium | mg/L | 6020 | 0.2194 | 0.2 | 0 | 110 | 70-130 | | | | 2/5/2007 |
| L76053-01FMS | Copper | mg/L | 6020 | 0.2035 | 0.2 | 0 | 102 | 70-130 | | | | 2/5/2007 |
| L76053-01FMS | Lead | mg/L | 6020 | 0.2303 | 0.2 | 0 | 115 | 70-130 | | | | 2/5/2007 |
| L76053-01FMS | Manganese | mg/L | 6020 | 0.2292 | 0.2 | 0.01303 | 108 | 70-130 | | | | 2/5/2007 |
| L76053-01FMS | Selenium | mg/L | 6020 | 0.2257 | 0.2 | 0.003947 | 111 | 70-130 | | | | 2/5/2007 |
| L76053-01FMS | Zinc | mg/L | 6020 | 1.043 | 1 | 0.008995 | 103 | 70-130 | | | | 2/5/2007 |
| L76053-01EMS | Iron | mg/L | 6010B | 1.501 | 1 | 0.4257 | 108 | 75-125 | | | | 2/7/2007 |
| L76053-01EMS | Manganese | mg/L | 6010B | 0.2344 | 0.2 | 0.03027 | 102 | 75-125 | | | | 2/7/2007 |
| L76053-01FMS | Calcium | mg/L | 6010B | 83.14 | 10 | 71.97 | 112 | 75-125 | | | | 2/12/2007 |
| L76053-01FMS | Aluminum | mg/L | 6010B | 1.096 | 1 | 0 | 110 | 75-125 | | | | 2/12/2007 |
| L76053-01FMS | Boron | mg/L | 6010B | 1.233 | 1 | 0.1304 | 110 | 75-125 | | | | 2/12/2007 |
| L76053-01FMS | Iron | mg/L | 6010B | 1.098 | 1 | 0 | 110 | 75-125 | | | | 2/12/2007 |
| L76053-01FMS | Magnesium | mg/L | 6010B | 51.93 | 10 | 41.39 | 105 | 75-125 | | | | 2/12/2007 |
| L76053-01FMS | Molybdenum | mg/L | 6010B | 0.2061 | 0.2 | 0 | 103 | 75-125 | | | | 2/12/2007 |
| L76053-01FMS | Potassium | mg/L | 6010B | 18.82 | 10 | 7.146 | 117 | 75-125 | | | | 2/12/2007 |
| L76053-01FMS | Sodium | mg/L | 6010B | 38.41 | 10 | 28.07 | 103 | 75-125 | | | | 2/12/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76053-01FMSD | Arsenic | mg/L | 6020 | 0.2415 | 0.2 | 0 | 121 | 70-130 | 1.37 | 20 | | 2/5/2007 |
| L76053-01FMSD | Cadmium | mg/L | 6020 | 0.2326 | 0.2 | 0 | 116 | 70-130 | 5.82 | 20 | | 2/5/2007 |
| L76053-01FMSD | Copper | mg/L | 6020 | 0.2220 | 0.2 | 0 | 111 | 70-130 | 8.71 | 20 | | 2/5/2007 |
| L76053-01FMSD | Lead | mg/L | 6020 | 0.2418 | 0.2 | 0 | 121 | 70-130 | 4.89 | 20 | | 2/5/2007 |
| L76053-01FMSD | Manganese | mg/L | 6020 | 0.2407 | 0.2 | 0.01303 | 114 | 70-130 | 4.89 | 20 | | 2/5/2007 |
| L76053-01FMSD | Selenium | mg/L | 6020 | 0.2243 | 0.2 | 0.003947 | 110 | 70-130 | 0.640 | 20 | | 2/5/2007 |
| L76053-01FMSD | Zinc | mg/L | 6020 | 1.115 | 1 | 0.008995 | 111 | 70-130 | 6.60 | 20 | | 2/5/2007 |
| L76053-01EMSD | Iron | mg/L | 6010B | 1.513 | 1 | 0.4257 | 109 | 75-125 | 0.841 | 20 | | 2/7/2007 |
| L76053-01EMSD | Manganese | mg/L | 6010B | 0.2292 | 0.2 | 0.03027 | 99.5 | 75-125 | 2.24 | 20 | | 2/7/2007 |
| L76053-01FMSD | Calcium | mg/L | 6010B | 83.29 | 10 | 71.97 | 113 | 75-125 | 0.177 | 20 | | 2/12/2007 |
| L76053-01FMSD | Aluminum | mg/L | 6010B | 1.026 | 1 | 0 | 103 | 75-125 | 6.56 | 20 | | 2/12/2007 |
| L76053-01FMSD | Boron | mg/L | 6010B | 1.250 | 1 | 0.1304 | 112 | 75-125 | 1.33 | 20 | | 2/12/2007 |
| L76053-01FMSD | Iron | mg/L | 6010B | 1.140 | 1 | 0 | 114 | 75-125 | 3.68 | 20 | | 2/12/2007 |
| L76053-01FMSD | Magnesium | mg/L | 6010B | 52.10 | 10 | 41.39 | 107 | 75-125 | 0.326 | 20 | | 2/12/2007 |
| L76053-01FMSD | Molybdenum | mg/L | 6010B | 0.2091 | 0.2 | 0 | 105 | 75-125 | 1.43 | 20 | | 2/12/2007 |
| L76053-01FMSD | Potassium | mg/L | 6010B | 18.84 | 10 | 7.146 | 117 | 75-125 | 0.0948 | 20 | | 2/12/2007 |
| L76053-01FMSD | Sodium | mg/L | 6010B | 38.62 | 10 | 28.07 | 106 | 75-125 | 0.542 | 20 | | 2/12/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L75998-01BDUP | TDS | mg/L | 160.1 | 14240 | 0 | 14280 | | - | 0.281 | 20 | | 2/2/2007 |
| L76053-03ADUP | TDS | mg/L | 160.1 | 304.0 | 0 | 312 | | - | 2.60 | 20 | | 2/2/2007 |
| L76053-01ADUP | TSS | mg/L | 160.2 | 31.00 | 0 | 30 | | - | 3.28 | 20 | | 2/2/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

**Dept:** WC
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R66046 | Alkalinity,(As CaCO3) | mg/L | 2320B | 51600 | 50000 | 0 | 103 | 90-110 | | | | 2/5/2007 |
| LCS-R66050 | Chloride | mg/L | 300.0 | 5.007 | 5 | 0 | 100 | 90-110 | | | | 2/2/2007 |
| LCS-R66050 | Sulfate | mg/L | 300.0 | 5.396 | 5 | 0 | 108 | 90-110 | | | | 2/2/2007 |
| LCS-R66048 | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 2/5/2007 |
| LCS-32794 | Ammonia (as N) | mg/L | 350.1 | 0.9770 | 1 | 0 | 97.7 | 90-110 | | | | 2/5/2007 |
| LCS-66027 | Nitrite (as N) | mg/L | 353.2 | 1.035 | 1 | 0 | 104 | 90-110 | | | | 2/2/2007 |
| LCS-66028 | Nitrate (as N) | mg/L | 353.2 | 1.000 | 1 | 0 | 100 | 90-110 | | | | 2/2/2007 |
| LCS-R66256 | Oil & Grease | mg/L | EPA 1664 | 39.10 | 40 | 0 | 97.8 | 79-114 | | | | 2/9/2007 |
| LCS-66010 | Phosphate, ortho (as P) | mg/L | 365.1 | 1.002 | 1 | 0 | 100 | 90-110 | | | | 2/2/2007 |
| LCS-R66091 | TDS | mg/L | 160.1 | 186.0 | 205 | 0 | 90.7 | 80-120 | | | | 2/2/2007 |
| LCS-R66052 | TSS | mg/L | 160.2 | 99.00 | 100 | 0 | 99.0 | 80-120 | | | | 2/2/2007 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R66046 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 2/5/2007 |
| MB-R66046 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 2/5/2007 |
| MB-R66046 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 2/5/2007 |
| MB-R66050 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 2/2/2007 |
| MB-R66050 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 2/2/2007 |
| MB-R66048 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 2/5/2007 |
| MB-32794 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 2/5/2007 |
| MB-66027 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 2/2/2007 |
| MB-66028 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 2/2/2007 |
| MB-R66256 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 2/9/2007 |
| MB-66010 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 2/2/2007 |
| MB-R66091 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 2/2/2007 |
| MB-R66052 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 2/2/2007 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76053-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 342.0 | 100 | 239 | 103 | 80-120 | | | | 2/5/2007 |
| L76053-01BMS | Chloride | mg/L | 300.0 | 39.95 | 25 | 14.96 | 100 | 90-110 | | | | 2/2/2007 |
| L76053-01BMS | Sulfate | mg/L | 300.0 | 399.3 | 250 | 123.5 | 110 | 90-110 | | | | 2/2/2007 |
| L76053-01BMS | Acidity | mg/L | 305.1 | 48.00 | 50 | 0 | 96.0 | 80-120 | | | | 2/5/2007 |
| L76053-01CMS | Ammonia (as N) | mg/L | 350.1 | 0.9840 | 1 | 0 | 98.4 | 90-110 | | | | 2/5/2007 |
| L76053-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.085 | 1 | 0 | 108 | 90-110 | | | | 2/2/2007 |
| L76053-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.473 | 1 | 0.266 | 121 | 90-110 | | | I | 2/2/2007 |
| L76053-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.165 | 1 | 0.008 | 116 | 90-110 | | | I | 2/2/2007 |

I Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

**Dept:** WC
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76053-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 344.0 | 100 | 239 | 105 | 80-120 | 0.583 | 10 | | 2/5/2007 |
| L76053-01BMSD | Chloride | mg/L | 300.0 | 39.99 | 25 | 14.96 | 100 | 90-110 | 0.113 | 20 | | 2/2/2007 |
| L76053-01BMSD | Sulfate | mg/L | 300.0 | 425.2 | 250 | 123.5 | 121 | 90-110 | 6.27 | 20 | ' | 2/2/2007 |
| L76053-01BMSD | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | 4.08 | 20 | | 2/5/2007 |
| L76053-01CMSD | Ammonia (as N) | mg/L | 350.1 | 1.000 | 1 | 0 | 100 | 90-110 | 1.61 | 10 | | 2/5/2007 |
| L76053-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.039 | 1 | 0 | 104 | 90-110 | 4.33 | 10 | | 2/2/2007 |
| L76053-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.295 | 1 | 0.266 | 103 | 90-110 | 12.9 | 10 | @ | 2/2/2007 |
| L76053-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.122 | 1 | 0.008 | 111 | 90-110 | 3.76 | 10 | ' | 2/2/2007 |

@ High RPD due to suspected matrix interference.

' Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R66256 | Oil & Grease | mg/L | EPA 1664 | 39.20 | 40 | 0 | 98.0 | 79-114 | | | | 2/9/2007 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76053
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R66256 | Oil & Grease | mg/L | EPA 1664 | 39.50 | 40 | 0 | 98.8 | 79-114 | 0.762 | 18 | | 2/9/2007 |



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# American West Analytical Labs

## WORK ORDER Summary

*02-Feb-07*

**Work Order** L76053

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+ HOF-DB

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L76053-01A | Mud Creek | 1/31/2007 4:30:00 PM | 2/2/2007 | 2/16/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 2/16/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 2/16/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L76053-01B | | | | 2/16/2007 | | 2320B-ALK-W | feb 2 - wc | 1 |
| | | | | 2/16/2007 | | 300.0-W | feb 2 - wc | 1 |
| | | | | 2/16/2007 | | ACIDITY-W | feb 2 - wc | 1 |
| | | | | 2/16/2007 | | NO2-W | feb 2 - wc | 1 |
| | | | | 2/16/2007 | | NO3-W | feb 2 - wc | 1 |
| | | | | 2/16/2007 | | PO4-O | feb 2 - wc | 1 |
| L76053-01C | | | | 2/16/2007 | | NH3-W | feb 2 - nh3 | 1 |
| | | | | 2/16/2007 | | NH3-W-PREP | feb 2 - nh3 | 1 |
| L76053-01D | | | | 2/16/2007 | | OGB-W | ogb | 1 |
| L76053-01E | | | | 2/16/2007 | | 3005A-ICPMS | feb 2 - met | 1 |
| | | | | 2/16/2007 | | ICP-W | feb 2 - met | 1 |
| L76053-01F | | | | 2/16/2007 | Aqueous-Dissolved | 3005A-Diss | feb 2 - met | 1 |
| | | | | 2/16/2007 | | 6020-W-DISS | feb 2 - met | 1 |
| | | | | 2/16/2007 | | HARD | feb 2 - met | 1 |
| | | | | 2/16/2007 | | ICP-W-DIS | feb 2 - met | 1 |
| L76053-02A | Sulfur Spring | 1/31/2007 4:45:00 PM | | 2/16/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 2/16/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 2/16/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L76053-02B | | | | 2/16/2007 | | 2320B-ALK-W | feb 2 - wc | 1 |
| | | | | 2/16/2007 | | 300.0-W | feb 2 - wc | 1 |
| | | | | 2/16/2007 | | ACIDITY-W | feb 2 - wc | 1 |
| | | | | 2/16/2007 | | NO2-W | feb 2 - wc | 1 |
| | | | | 2/16/2007 | | NO3-W | feb 2 - wc | 1 |
| | | | | 2/16/2007 | | PO4-O | feb 2 - wc | 1 |

# WORK ORDER Summary

*02-Feb-07*

**Work Order** L76053

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L76053-02C | Sulfur Spring | 1/31/2007 4:45:00 PM | 2/2/2007 | 2/16/2007 | Aqueous | NH3-W | feb 2 - nh3 | 1 |
| | | | | 2/16/2007 | | NH3-W-PREP | feb 2 - nh3 | 1 |
| L76053-02D | | | | 2/16/2007 | | OGB-W | ogb | 1 |
| L76053-02E | | | | 2/16/2007 | | 3005A-ICPMS | feb 2 - met | 1 |
| | | | | 2/16/2007 | | ICP-W | feb 2 - met | 1 |
| L76053-02F | | | | 2/16/2007 | Aqueous-Dissolved | 3005A-Diss | feb 2 - met | 1 |
| | | | | 2/16/2007 | | 6020-W-DISS | feb 2 - met | 1 |
| | | | | 2/16/2007 | | HARD | feb 2 - met | 1 |
| | | | | 2/16/2007 | | ICP-W-DIS | feb 2 - met | 1 |
| L76053-03A | Miller Outlet | 1/31/2007 5:15:00 PM | | 2/16/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 2/16/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 2/16/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L76053-03B | | | | 2/16/2007 | | 2320B-ALK-W | feb 2 - wc | 1 |
| | | | | 2/16/2007 | | 300.0-W | feb 2 - wc | 1 |
| | | | | 2/16/2007 | | ACIDITY-W | feb 2 - wc | 1 |
| | | | | 2/16/2007 | | NO2-W | feb 2 - wc | 1 |
| | | | | 2/16/2007 | | NO3-W | feb 2 - wc | 1 |
| | | | | 2/16/2007 | | PO4-O | feb 2 - wc | 1 |
| L76053-03C | | | | 2/16/2007 | | NH3-W | feb 2 - nh3 | 1 |
| | | | | 2/16/2007 | | NH3-W-PREP | feb 2 - nh3 | 1 |
| L76053-03D | | | | 2/16/2007 | | OGB-W | ogb | 1 |
| L76053-03E | | | | 2/16/2007 | | 3005A-ICPMS | feb 2 - met | 1 |
| | | | | 2/16/2007 | | ICP-W | feb 2 - met | 1 |
| L76053-03F | | | | 2/16/2007 | Aqueous-Dissolved | 3005A-Diss | feb 2 - met | 1 |
| | | | | 2/16/2007 | | 6020-W-DISS | feb 2 - met | 1 |
| | | | | 2/16/2007 | | HARD | feb 2 - met | 1 |
| | | | | 2/16/2007 | | ICP-W-DIS | feb 2 - met | 1 |

Client ROCK LOGIC

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City State Zip

Phone (435) 851-9044 Fax (970) 856-3400

Contact BRAD LINDSAY

E-mail rocklogicconsulting@gmail.com

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY


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# CHAIN OF CUSTODY

Lab Sample Set # 76053

Page _____ of _____

Turn Around Time (Circle One)

| 1 day | 2 day | 3 day | 4 day | 5 day | ~~Standard~~ |
|---|---|---|---|---|---|
| QC | 1 | 2 | 2+ | 3 | 3+ | 4 |

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TABLE M | | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MUD CREEK | 1-31-07 16:30 | W | 6 | ✓ | | | | | | | | | | |
| SULFUR SPRING | 16:45 | W | 6 | ✓ | | | | | | | | | | |
| MILLER OUTLET | 17:15 | W | 6 | ✓ | | | | | | | | | | |

Please indicate tests needed below

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 18:00 | PRINT NAME UPS |
| Relinquished By: Signature UPS | Date 2/2/07 | Received By: Signature |
| PRINT NAME | Time 10:25 | PRINT NAME DEBBIE WINKLER |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

PLEASE FILTER

LABORATORY USE ONLY

SAMPLES WERE:

1 Shipped or hand delivered DB
Notes: UPS

2 Ambient or Chilled
Notes:

3 Temperature 2°

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 76053

## Preservation Check Sheet

| | | | Sample Set Extension and pH | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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February 28, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L76314

Dear Brad Lindsay:

American West Analytical Labs received 3 samples on 2/20/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76314-01E
Field Sample ID: **Mud Creek**
Collected: 2/19/2007 11:30:00 AM
Received: 2/20/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 2/23/2007 12:35:55 PM | 6010B | 0.050 | **0.29** |
| Manganese | mg/L | 2/23/2007 12:35:55 PM | 6010B | 0.0050 | **0.026** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76314-02E
Field Sample ID: **Sulfur Spring**
Collected: 2/19/2007 12:00:00 PM
Received: 2/20/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 2/23/2007 12:51:42 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 2/23/2007 12:51:42 PM | 6010B | 0.0050 | **0.027** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76314-03E
Field Sample ID: **Miller Outlet**
Collected: 2/19/2007 12:30:00 PM
Received: 2/20/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 2/23/2007 12:55:41 PM | 6010B | 0.050 | **4.3** |
| Manganese | mg/L | 2/23/2007 12:55:41 PM | 6010B | 0.0050 | **0.23** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76314-01F
Field Sample ID: **Mud Creek**
Collected: 2/19/2007 11:30:00 AM
Received: 2/20/2007


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Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 2/26/2007 11:15:43 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 2/22/2007 5:50:38 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 2/26/2007 11:15:43 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 2/22/2007 5:50:38 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 2/26/2007 10:30:11 AM | 6010B | 10 | 77 * |
| Copper | mg/L | 2/22/2007 5:50:38 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 2/26/2007 11:15:43 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 2/22/2007 5:50:38 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 2/26/2007 11:15:43 AM | 6010B | 1.0 | **40** |
| Manganese | mg/L | 2/22/2007 5:50:38 PM | 6020 | 0.0050 | < 0.0050 |
| Molybdenum | mg/L | 2/26/2007 11:15:43 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 2/26/2007 11:15:43 AM | 6010B | 1.0 | **6.9** |
| Selenium | mg/L | 2/22/2007 5:50:38 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 2/26/2007 11:15:43 AM | 6010B | 1.0 | **38** |
| Zinc | mg/L | 2/22/2007 5:50:38 PM | 6020 | 0.010 | **0.015** |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76314-02F
Field Sample ID: **Sulfur Spring**
Collected: 2/19/2007 12:00:00 PM
Received: 2/20/2007


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Laboratory Director

Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 2/26/2007 10:56:48 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 2/22/2007 6:17:36 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 2/26/2007 10:56:48 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 2/22/2007 6:17:36 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 2/26/2007 10:41:54 AM | 6010B | 10 | **94** | * |
| Copper | mg/L | 2/22/2007 6:17:36 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 2/26/2007 10:56:48 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 2/22/2007 6:17:36 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 2/26/2007 10:56:48 AM | 6010B | 1.0 | **36** | |
| Manganese | mg/L | 2/22/2007 6:17:36 PM | 6020 | 0.0050 | < 0.0050 | |
| Molybdenum | mg/L | 2/26/2007 10:56:48 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 2/26/2007 10:56:48 AM | 6010B | 1.0 | **4.9** | |
| Selenium | mg/L | 2/22/2007 6:17:36 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 2/26/2007 10:56:48 AM | 6010B | 1.0 | **8.0** | |
| Zinc | mg/L | 2/22/2007 6:17:36 PM | 6020 | 0.010 | < 0.010 | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76314-03F
Field Sample ID: **Miller Outlet**
Collected: 2/19/2007 12:30:00 PM
Received: 2/20/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 2/26/2007 11:00:44 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 2/22/2007 6:22:59 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 2/26/2007 11:00:44 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 2/22/2007 6:22:59 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 2/26/2007 10:45:48 AM | 6010B | 10 | **94** | * |
| Copper | mg/L | 2/22/2007 6:22:59 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 2/26/2007 11:00:44 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 2/22/2007 6:22:59 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 2/26/2007 11:00:44 AM | 6010B | 1.0 | **17** | |
| Manganese | mg/L | 2/22/2007 6:22:59 PM | 6020 | 0.0050 | < 0.0050 | |
| Molybdenum | mg/L | 2/26/2007 11:00:44 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 2/26/2007 11:00:44 AM | 6010B | 1.0 | **1.7** | |
| Selenium | mg/L | 2/22/2007 6:22:59 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 2/26/2007 11:00:44 AM | 6010B | 1.0 | **5.5** | |
| Zinc | mg/L | 2/22/2007 6:22:59 PM | 6020 | 0.010 | **0.021** | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76314-01
Field Sample ID: **Mud Creek**
Collected: 2/19/2007 11:30:00 AM
Received: 2/20/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 2/21/2007 6:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 2/21/2007 6:10:00 AM | 2320B | 20 | **240** |
| Ammonia (as N) | mg/L | 2/22/2007 10:55:00 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 2/21/2007 6:10:00 AM | 2320B | 20 | **240** |
| Carbonate (As CaCO3) | mg/L | 2/21/2007 6:10:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 2/21/2007 11:33:00 AM | 300.0 | 5.0 | **18** |
| Hardness (as CaCO3) | mg/L | 2/26/2007 11:15:43 AM | 2340B | 10 | **360** |
| Nitrate (as N) | mg/L | 2/21/2007 7:36:00 AM | 353.2 | 0.010 | **0.30** |
| Nitrite (as N) | mg/L | 2/21/2007 7:36:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 2/27/2007 12:50:00 PM | EPA 1664 | 3.0 | **3.7** |
| Phosphate, ortho (as P) | mg/L | 2/21/2007 9:57:00 AM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 2/21/2007 10:00:00 AM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 2/21/2007 11:33:00 AM | 300.0 | 50 | **150** |
| TDS | mg/L | 2/22/2007 2:00:00 PM | 160.1 | 10 | **440** |
| TSS | mg/L | 2/21/2007 3:15:00 PM | 160.2 | 3.0 | **14** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76314-02
Field Sample ID: **Sulfur Spring**
Collected: 2/19/2007 12:00:00 PM
Received: 2/20/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 2/21/2007 6:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 2/21/2007 6:10:00 AM | 2320B | 20 | **290** |
| Ammonia (as N) | mg/L | 2/22/2007 10:55:00 AM | 350.1 | 0.050 | **0.10** |
| Bicarbonate (As CaCO3) | mg/L | 2/21/2007 6:10:00 AM | 2320B | 20 | **290** |
| Carbonate (As CaCO3) | mg/L | 2/21/2007 6:10:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 2/21/2007 1:46:00 PM | 300.0 | 1.0 | **6.6** |
| Hardness (as CaCO3) | mg/L | 2/26/2007 10:56:48 AM | 2340B | 10 | **380** |
| Nitrate (as N) | mg/L | 2/21/2007 7:36:00 AM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 2/21/2007 7:36:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 2/27/2007 12:50:00 PM | EPA 1664 | 3.0 | **3.6** |
| Phosphate, ortho (as P) | mg/L | 2/21/2007 9:57:00 AM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 2/21/2007 10:00:00 AM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 2/21/2007 1:46:00 PM | 300.0 | 5.0 | **42** |
| TDS | mg/L | 2/22/2007 2:00:00 PM | 160.1 | 10 | **340** |
| TSS | mg/L | 2/21/2007 3:15:00 PM | 160.2 | 3.0 | < 3.0 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76314-03
Field Sample ID: **Miller Outlet**
Collected: 2/19/2007 12:30:00 PM
Received: 2/20/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 2/21/2007 6:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 2/21/2007 6:10:00 AM | 2320B | 20 | **280** |
| Ammonia (as N) | mg/L | 2/22/2007 10:55:00 AM | 350.1 | 0.050 | **0.068** |
| Bicarbonate (As CaCO3) | mg/L | 2/21/2007 6:10:00 AM | 2320B | 20 | **260** |
| Carbonate (As CaCO3) | mg/L | 2/21/2007 6:10:00 AM | 2320B | 20 | < 20 |
| Chloride | mg/L | 2/21/2007 3:59:00 PM | 300.0 | 2.0 | **10** |
| Hardness (as CaCO3) | mg/L | 2/26/2007 11:00:44 AM | 2340B | 10 | **300** |
| Nitrate (as N) | mg/L | 2/21/2007 7:36:00 AM | 353.2 | 0.010 | **0.83** |
| Nitrite (as N) | mg/L | 2/21/2007 7:36:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 2/27/2007 12:50:00 PM | EPA 1664 | 3.0 | **4.3** |
| Phosphate, ortho (as P) | mg/L | 2/21/2007 9:57:00 AM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 2/21/2007 10:00:00 AM | 160.5 | 0.10 | **0.20** |
| Sulfate | mg/L | 2/21/2007 3:59:00 PM | 300.0 | 5.0 | **23** |
| TDS | mg/L | 2/22/2007 2:00:00 PM | 160.1 | 10 | **260** |
| TSS | mg/L | 2/21/2007 3:15:00 PM | 160.2 | 3.0 | **100** |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-33102 | Arsenic | mg/L | 6020 | 0.2098 | 0.2 | 0 | 105 | 85-115 | | | | 2/22/2007 |
| LCS-33102 | Cadmium | mg/L | 6020 | 0.2121 | 0.2 | 0 | 106 | 85-115 | | | | 2/22/2007 |
| LCS-33102 | Copper | mg/L | 6020 | 0.2166 | 0.2 | 0 | 108 | 85-115 | | | | 2/22/2007 |
| LCS-33102 | Lead | mg/L | 6020 | 0.2114 | 0.2 | 0 | 106 | 85-115 | | | | 2/22/2007 |
| LCS-33102 | Manganese | mg/L | 6020 | 0.2209 | 0.2 | 0 | 110 | 85-115 | | | | 2/22/2007 |
| LCS-33102 | Selenium | mg/L | 6020 | 0.2040 | 0.2 | 0 | 102 | 85-115 | | | | 2/22/2007 |
| LCS-33102 | Zinc | mg/L | 6020 | 1.072 | 1 | 0.001447 | 107 | 85-115 | | | | 2/22/2007 |
| LCS-33103 | Iron | mg/L | 6010B | 1.133 | 1 | 0 | 113 | 75-125 | | | | 2/23/2007 |
| LCS-33103 | Manganese | mg/L | 6010B | 0.2137 | 0.2 | 0 | 107 | 75-125 | | | | 2/23/2007 |
| LCS-33102 | Aluminum | mg/L | 6010B | 1.057 | 1 | 0 | 106 | 75-125 | | | | 2/26/2007 |
| LCS-33102 | Boron | mg/L | 6010B | 1.028 | 1 | 0 | 103 | 75-125 | | | | 2/26/2007 |
| LCS-33102 | Calcium | mg/L | 6010B | 10.60 | 10 | 0 | 106 | 75-125 | | | | 2/26/2007 |
| LCS-33102 | Iron | mg/L | 6010B | 1.068 | 1 | 0 | 107 | 75-125 | | | | 2/26/2007 |
| LCS-33102 | Magnesium | mg/L | 6010B | 10.39 | 10 | 0 | 104 | 75-125 | | | | 2/26/2007 |
| LCS-33102 | Molybdenum | mg/L | 6010B | 0.2107 | 0.2 | 0 | 105 | 75-125 | | | | 2/26/2007 |
| LCS-33102 | Potassium | mg/L | 6010B | 10.31 | 10 | 0 | 103 | 75-125 | | | | 2/26/2007 |
| LCS-33102 | Sodium | mg/L | 6010B | 9.121 | 10 | 0 | 91.2 | 75-125 | | | | 2/26/2007 |



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Kyle F. Gross
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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

**Dept:** ME

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-33102 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 2/22/2007 |
| MB-33102 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 2/22/2007 |
| MB-33102 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 2/22/2007 |
| MB-33102 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 2/22/2007 |
| MB-33102 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 2/22/2007 |
| MB-33102 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 2/22/2007 |
| MB-33102 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 2/22/2007 |
| MB-33103 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 2/23/2007 |
| MB-33103 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 2/23/2007 |
| MB-33102 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 2/26/2007 |
| MB-33102 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 2/26/2007 |
| MB-33102 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 2/26/2007 |
| MB-33102 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 2/26/2007 |
| MB-33102 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 2/26/2007 |
| MB-33102 | Molybdenum | mg/L | 6010B | < 0.040 | | | | - | | | | 2/26/2007 |
| MB-33102 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 2/26/2007 |
| MB-33102 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 2/26/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76314-01FMS | Arsenic | mg/L | 6020 | 0.2173 | 0.2 | 0 | 109 | 70-130 | | | | 2/22/2007 |
| L76314-01FMS | Cadmium | mg/L | 6020 | 0.2158 | 0.2 | 0 | 108 | 70-130 | | | | 2/22/2007 |
| L76314-01FMS | Copper | mg/L | 6020 | 0.2253 | 0.2 | 0 | 113 | 70-130 | | | | 2/22/2007 |
| L76314-01FMS | Lead | mg/L | 6020 | 0.2160 | 0.2 | 0 | 108 | 70-130 | | | | 2/22/2007 |
| L76314-01FMS | Manganese | mg/L | 6020 | 0.2236 | 0.2 | 0 | 112 | 70-130 | | | | 2/22/2007 |
| L76314-01FMS | Selenium | mg/L | 6020 | 0.2064 | 0.2 | 0 | 103 | 70-130 | | | | 2/22/2007 |
| L76314-01FMS | Zinc | mg/L | 6020 | 1.053 | 1 | 0.01497 | 104 | 70-130 | | | | 2/22/2007 |
| L76314-01EMS | Iron | mg/L | 6010B | 1.397 | 1 | 0.2871 | 111 | 75-125 | | | | 2/23/2007 |
| L76314-01EMS | Manganese | mg/L | 6010B | 0.2377 | 0.2 | 0.02577 | 106 | 75-125 | | | | 2/23/2007 |
| L76314-01FMS | Calcium | mg/L | 6010B | 87.73 | 10 | 76.8 | 109 | 75-125 | | | | 2/26/2007 |
| L76314-01FMS | Aluminum | mg/L | 6010B | 1.113 | 1 | 0.04423 | 107 | 75-125 | | | | 2/26/2007 |
| L76314-01FMS | Boron | mg/L | 6010B | 1.203 | 1 | 0.0893 | 111 | 75-125 | | | | 2/26/2007 |
| L76314-01FMS | Iron | mg/L | 6010B | 1.071 | 1 | 0.01937 | 105 | 75-125 | | | | 2/26/2007 |
| L76314-01FMS | Magnesium | mg/L | 6010B | 52.21 | 10 | 40.49 | 117 | 75-125 | | | | 2/26/2007 |
| L76314-01FMS | Molybdenum | mg/L | 6010B | 0.2088 | 0.2 | 0 | 104 | 75-125 | | | | 2/26/2007 |
| L76314-01FMS | Potassium | mg/L | 6010B | 17.78 | 10 | 6.879 | 109 | 75-125 | | | | 2/26/2007 |
| L76314-01FMS | Sodium | mg/L | 6010B | 49.71 | 10 | 37.52 | 122 | 75-125 | | | | 2/26/2007 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76314-01FMSD | Arsenic | mg/L | 6020 | 0.2225 | 0.2 | 0 | 111 | 70-130 | 2.39 | 20 | | 2/22/2007 |
| L76314-01FMSD | Cadmium | mg/L | 6020 | 0.2192 | 0.2 | 0 | 110 | 70-130 | 1.55 | 20 | | 2/22/2007 |
| L76314-01FMSD | Copper | mg/L | 6020 | 0.2264 | 0.2 | 0 | 113 | 70-130 | 0.499 | 20 | | 2/22/2007 |
| L76314-01FMSD | Lead | mg/L | 6020 | 0.2247 | 0.2 | 0 | 112 | 70-130 | 3.97 | 20 | | 2/22/2007 |
| L76314-01FMSD | Manganese | mg/L | 6020 | 0.2293 | 0.2 | 0 | 115 | 70-130 | 2.54 | 20 | | 2/22/2007 |
| L76314-01FMSD | Selenium | mg/L | 6020 | 0.2061 | 0.2 | 0 | 103 | 70-130 | 0.143 | 20 | | 2/22/2007 |
| L76314-01FMSD | Zinc | mg/L | 6020 | 1.118 | 1 | 0.01497 | 110 | 70-130 | 5.94 | 20 | | 2/22/2007 |
| L76314-01EMSD | Iron | mg/L | 6010B | 1.356 | 1 | 0.2871 | 107 | 75-125 | 2.94 | 20 | | 2/23/2007 |
| L76314-01EMSD | Manganese | mg/L | 6010B | 0.2305 | 0.2 | 0.02577 | 102 | 75-125 | 3.08 | 20 | | 2/23/2007 |
| L76314-01FMSD | Calcium | mg/L | 6010B | 86.34 | 10 | 76.8 | 95.3 | 75-125 | 1.60 | 20 | | 2/26/2007 |
| L76314-01FMSD | Aluminum | mg/L | 6010B | 1.065 | 1 | 0.04423 | 102 | 75-125 | 4.41 | 20 | | 2/26/2007 |
| L76314-01FMSD | Boron | mg/L | 6010B | 1.211 | 1 | 0.0893 | 112 | 75-125 | 0.662 | 20 | | 2/26/2007 |
| L76314-01FMSD | Iron | mg/L | 6010B | 1.077 | 1 | 0.01937 | 106 | 75-125 | 0.570 | 20 | | 2/26/2007 |
| L76314-01FMSD | Magnesium | mg/L | 6010B | 50.51 | 10 | 40.49 | 100 | 75-125 | 3.31 | 20 | | 2/26/2007 |
| L76314-01FMSD | Molybdenum | mg/L | 6010B | 0.2141 | 0.2 | 0 | 107 | 75-125 | 2.54 | 20 | | 2/26/2007 |
| L76314-01FMSD | Potassium | mg/L | 6010B | 17.45 | 10 | 6.879 | 106 | 75-125 | 1.86 | 20 | | 2/26/2007 |
| L76314-01FMSD | Sodium | mg/L | 6010B | 48.16 | 10 | 37.52 | 106 | 75-125 | 3.18 | 20 | | 2/26/2007 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76309-01ADUP | TDS | mg/L | 160.1 | 8960 | 0 | 8820 | | - | 1.57 | 20 | | 2/22/2007 |
| L76314-03ADUP | TDS | mg/L | 160.1 | 264.0 | 0 | 264 | | - | 0 | 20 | | 2/22/2007 |
| L76351-01ADUP | TDS | mg/L | 160.1 | 780.0 | 0 | 740 | | - | 5.26 | 20 | | 2/22/2007 |
| L76309-01ADUP | TSS | mg/L | 160.2 | 13.00 | 0 | 13 | | - | 0 | 20 | | 2/21/2007 |
| L76314-01ADUP | TSS | mg/L | 160.2 | 14.00 | 0 | 14 | | - | 0 | 20 | | 2/21/2007 |
| L76329-02ADUP | TSS | mg/L | 160.2 | 4.000 | 0 | 4 | | - | 0 | 20 | | 2/21/2007 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R66518 | Alkalinity,(As CaCO3) | mg/L | 2320B | 51600 | 50000 | 0 | 103 | 90-110 | | | | 2/21/2007 |
| LCS-R66583 | Chloride | mg/L | 300.0 | 5.098 | 5 | 0 | 102 | 90-110 | | | | 2/21/2007 |
| LCS-R66583 | Sulfate | mg/L | 300.0 | 4.996 | 5 | 0 | 99.9 | 90-110 | | | | 2/21/2007 |
| LCS-R66519 | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 2/21/2007 |
| LCS-33093 | Ammonia (as N) | mg/L | 350.1 | 0.9430 | 1 | 0 | 94.3 | 90-110 | | | | 2/22/2007 |
| LCS-66524 | Nitrite (as N) | mg/L | 353.2 | 1.041 | 1 | 0 | 104 | 90-110 | | | | 2/21/2007 |
| LCS-66526 | Nitrate (as N) | mg/L | 353.2 | 1.042 | 1 | 0 | 104 | 90-110 | | | | 2/21/2007 |
| LCS-R66725 | Oil & Grease | mg/L | EPA 1664 | 40.70 | 40 | 0 | 102 | 79-114 | | | | 2/27/2007 |
| LCS-66531 | Phosphate, ortho (as P) | mg/L | 365.1 | 1.000 | 1 | 0 | 100 | 90-110 | | | | 2/21/2007 |
| LCS-R66622 | TDS | mg/L | 160.1 | 202.0 | 205 | 0 | 98.5 | 80-120 | | | | 2/22/2007 |
| LCS-R66565 | TSS | mg/L | 160.2 | 95.00 | 100 | 0 | 95.0 | 80-120 | | | | 2/21/2007 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R66518 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 2/21/2007 |
| MB-R66518 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 2/21/2007 |
| MB-R66518 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 2/21/2007 |
| MB-R66583 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 2/21/2007 |
| MB-R66583 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 2/21/2007 |
| MB-R66519 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 2/21/2007 |
| MB-33093 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 2/22/2007 |
| MB-66524 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 2/21/2007 |
| MB-66526 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 2/21/2007 |
| MB-R66725 | Oil & Grease | mg/L | EPA 1664 | < 3.0 | | | | - | | | | 2/27/2007 |
| MB-66531 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 2/21/2007 |
| MB-R66622 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 2/22/2007 |
| MB-R66565 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 2/21/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76314-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 344.0 | 100 | 241 | 103 | 80-120 | | | | 2/21/2007 |
| L76314-01BMS | Chloride | mg/L | 300.0 | 45.09 | 25 | 18.11 | 108 | 90-110 | | | | 2/21/2007 |
| L76314-01BMS | Sulfate | mg/L | 300.0 | 395.6 | 250 | 150.2 | 98.2 | 90-110 | | | | 2/21/2007 |
| L76314-01BMS | Acidity | mg/L | 305.1 | 48.00 | 50 | 0 | 96.0 | 80-120 | | | | 2/21/2007 |
| L76314-01CMS | Ammonia (as N) | mg/L | 350.1 | 0.9430 | 1 | 0.034 | 90.9 | 90-110 | | | | 2/22/2007 |
| L76314-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.069 | 1 | 0 | 107 | 90-110 | | | | 2/21/2007 |
| L76314-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.397 | 1 | 0.298 | 110 | 90-110 | | | | 2/21/2007 |
| L76314-02BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9600 | 1 | 0 | 96.0 | 90-110 | | | | 2/21/2007 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76314-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 346.0 | 100 | 241 | 105 | 80-120 | 0.580 | 10 | | 2/21/2007 |
| L76314-01BMSD | Chloride | mg/L | 300.0 | 44.70 | 25 | 18.11 | 106 | 90-110 | 0.864 | 20 | | 2/21/2007 |
| L76314-01BMSD | Sulfate | mg/L | 300.0 | 392.2 | 250 | 150.2 | 96.8 | 90-110 | 0.857 | 20 | | 2/21/2007 |
| L76314-01BMSD | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | 4.08 | 20 | | 2/21/2007 |
| L76314-01CMSD | Ammonia (as N) | mg/L | 350.1 | 0.9540 | 1 | 0.034 | 92.0 | 90-110 | 1.16 | 10 | | 2/22/2007 |
| L76314-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.012 | 1 | 0 | 101 | 90-110 | 5.48 | 10 | | 2/21/2007 |
| L76314-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.377 | 1 | 0.298 | 108 | 90-110 | 1.44 | 10 | | 2/21/2007 |
| L76314-02BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9800 | 1 | 0 | 98.0 | 90-110 | 2.06 | 10 | | 2/21/2007 |



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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R66725 | Oil & Grease | mg/L | EPA 1664 | 39.70 | 40 | 0 | 99.2 | 79-114 | | | | 2/27/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76314
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R66725 | Oil & Grease | mg/L | EPA 1664 | 40.00 | 40 | 0 | 100 | 79-114 | 0.753 | 18 | | 2/27/2007 |



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# American West Analytical Labs

## WORK ORDER Summary

*20-Feb-07*

**Work Order** L76314

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+ HOK - DB

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L76314-01A | Mud Creek | 2/19/2007 11:30:00 AM | 2/20/2007 | 3/6/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 3/6/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 3/6/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L76314-01B | | | | 3/6/2007 | | 2320B-ALK-W | feb 20 - wc | 1 |
| | | | | 3/6/2007 | | 300.0-W | feb 20 - wc | 1 |
| | | | | 3/6/2007 | | ACIDITY-W | feb 20 - wc | 1 |
| | | | | 3/6/2007 | | NO2-W | feb 20 - wc | 1 |
| | | | | 3/6/2007 | | NO3-W | feb 20 - wc | 1 |
| | | | | 3/6/2007 | | PO4-O | feb 20 - wc | 1 |
| L76314-01C | | | | 3/6/2007 | | NH3-W | feb 20 - nh3 | 1 |
| | | | | 3/6/2007 | | NH3-W-PREP | feb 20 - nh3 | 1 |
| L76314-01D | | | | 3/6/2007 | | OGB-W | ogb | 1 |
| L76314-01E | | | | 3/6/2007 | | 3005A-ICPMS | feb 20 - met | 1 |
| | | | | 3/6/2007 | | ICP-W | feb 20 - met | 1 |
| L76314-01F | | | | 3/6/2007 | Aqueous-Dissolved | 3005A-Diss | feb 20 - met | 1 |
| | | | | 3/6/2007 | | 6020-W-DISS | feb 20 - met | 1 |
| | | | | 3/6/2007 | | HARD | feb 20 - met | 1 |
| | | | | 3/6/2007 | | ICP-W-DIS | feb 20 - met | 1 |
| L76314-02A | Sulfur Spring | 2/19/2007 12:00:00 PM | | 3/6/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 3/6/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 3/6/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L76314-02B | | | | 3/6/2007 | | 2320B-ALK-W | feb 20 - wc | 1 |
| | | | | 3/6/2007 | | 300.0-W | feb 20 - wc | 1 |
| | | | | 3/6/2007 | | ACIDITY-W | feb 20 - wc | 1 |
| | | | | 3/6/2007 | | NO2-W | feb 20 - wc | 1 |
| | | | | 3/6/2007 | | NO3-W | feb 20 - wc | 1 |
| | | | | 3/6/2007 | | PO4-O | feb 20 - wc | 1 |

# WORK ORDER Summary

*20-Feb-07*

**Work Order** L76314

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L76314-02C | Sulfur Spring | 2/19/2007 12:00:00 PM | 2/20/2007 | 3/6/2007 | Aqueous | NH3-W | feb 20 - nh3 | 1 |
| | | | | 3/6/2007 | | NH3-W-PREP | feb 20 - nh3 | 1 |
| L76314-02D | | | | 3/6/2007 | | OGB-W | ogb | 1 |
| L76314-02E | | | | 3/6/2007 | | 3005A-ICPMS | feb 20 - met | 1 |
| | | | | 3/6/2007 | | ICP-W | feb 20 - met | 1 |
| L76314-02F | | | | 3/6/2007 | Aqueous-Dissolved | 3005A-Diss | feb 20 - met | 1 |
| | | | | 3/6/2007 | | 6020-W-DISS | feb 20 - met | 1 |
| | | | | 3/6/2007 | | HARD | feb 20 - met | 1 |
| | | | | 3/6/2007 | | ICP-W-DIS | feb 20 - met | 1 |
| L76314-03A | Miller Outlet | 2/19/2007 12:30:00 PM | | 3/6/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 3/6/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 3/6/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L76314-03B | | | | 3/6/2007 | | 2320B-ALK-W | feb 20 - wc | 1 |
| | | | | 3/6/2007 | | 300.0-W | feb 20 - wc | 1 |
| | | | | 3/6/2007 | | ACIDITY-W | feb 20 - wc | 1 |
| | | | | 3/6/2007 | | NO2-W | feb 20 - wc | 1 |
| | | | | 3/6/2007 | | NO3-W | feb 20 - wc | 1 |
| | | | | 3/6/2007 | | PO4-O | feb 20 - wc | 1 |
| L76314-03C | | | | 3/6/2007 | | NH3-W | feb 20 - nh3 | 1 |
| | | | | 3/6/2007 | | NH3-W-PREP | feb 20 - nh3 | 1 |
| L76314-03D | | | | 3/6/2007 | | OGB-W | ogb | 1 |
| L76314-03E | | | | 3/6/2007 | | 3005A-ICPMS | feb 20 - met | 1 |
| | | | | 3/6/2007 | | ICP-W | feb 20 - met | 1 |
| L76314-03F | | | | 3/6/2007 | Aqueous-Dissolved | 3005A-Diss | feb 20 - met | 1 |
| | | | | 3/6/2007 | | 6020-W-DISS | feb 20 - met | 1 |
| | | | | 3/6/2007 | | HARD | feb 20 - met | 1 |
| | | | | 3/6/2007 | | ICP-W-DIS | feb 20 - met | 1 |

Client Carbon Resources / Rock Logic Consulting

Address PO Box 944

Cedaredge (City) CO (State) 81413 (Zip)

Phone 970·856·3400 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield baseline

Project Number/P.O.#

Sampler Name Brad Lindsay


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# CHAIN OF CUSTODY

Lab Sample Set # 716314

Page 1 of 1

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day (Standard)

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | Table |
|---|---|---|---|---|
| Mud Creek | 2-19-07 / 11:30 | W | 6 | 3 |
| Sulfur Spring | 2-19-07 / 12:00 | W | 6 | 3 |
| Miller outlet | 2-19-07 / 12:30 | W | 6 | 3 |

**QC LEVEL**

1 2 2+ 3 3+ 4

COMMENTS

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes:

3 Temperature

4 Received Broken/Leaking (Improperly Sealed) Y N
Notes:

5 Properly Preserved Y N
Notes:

6 Received Within Holding Times Y N
Notes:

COC Tape Was:

1 Present on Outer Package Y N NA

2 Unbroken on Outer Package Y N NA

3 Present on Sample Y N NA

4 Unbroken on Sample Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record? Y N
Notes:

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME: BRAD LINDSAY | Time: 20:15 | PRINT NAME: JEFFREY D. LINDSAY |
| Relinquished By: Signature | Date: 2/25/07 | Received By: Signature |
| PRINT NAME: JEFFREY D. LINDSAY | Time: 17:19 | PRINT NAME: REBEKAH WALKER |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

Please filter for dissolved metals

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 76314

## Preservation Check Sheet

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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April 12, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L76981

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 3/30/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-01E
Field Sample ID: **Mud Creek**
Collected: 3/29/2007 2:00:00 PM
Received: 3/30/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 4/9/2007 4:16:22 PM | 6010B | 0.050 | **0.80** |
| Manganese | mg/L | 4/9/2007 4:16:22 PM | 6010B | 0.0050 | **0.068** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-02E
Field Sample ID: **Sulfur Spring**
Collected: 3/29/2007 2:30:00 PM
Received: 3/30/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 4/9/2007 4:24:40 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 4/9/2007 4:24:40 PM | 6010B | 0.0050 | **0.032** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-03E
Field Sample ID: **Res-1**
Collected: 3/29/2007 2:45:00 PM
Received: 3/30/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 4/9/2007 4:40:22 PM | 6010B | 0.050 | **0.50** |
| Manganese | mg/L | 4/9/2007 4:40:22 PM | 6010B | 0.0050 | **0.17** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-04E
Field Sample ID: **Miller Outlet**
Collected: 3/29/2007 3:00:00 PM
Received: 3/30/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 4/9/2007 4:44:19 PM | 6010B | 0.050 | **5.8** |
| Manganese | mg/L | 4/9/2007 4:44:19 PM | 6010B | 0.0050 | **0.28** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-01F
Field Sample ID: **Mud Creek**
Collected: 3/29/2007 2:00:00 PM
Received: 3/30/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 4/11/2007 3:45:43 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 4/6/2007 9:13:06 AM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 4/11/2007 3:45:43 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 4/6/2007 9:13:06 AM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 4/11/2007 3:06:53 PM | 6010B | 10 | **69** | [2] * |
| Copper | mg/L | 4/6/2007 9:13:06 AM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 4/11/2007 3:45:43 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 4/6/2007 9:13:06 AM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 4/11/2007 3:45:43 PM | 6010B | 1.0 | **35** | |
| Manganese | mg/L | 4/6/2007 9:13:06 AM | 6020 | 0.0050 | **0.039** | |
| Molybdenum | mg/L | 4/11/2007 3:45:43 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 4/11/2007 3:45:43 PM | 6010B | 1.0 | **6.3** | |
| Selenium | mg/L | 4/6/2007 9:13:06 AM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 4/11/2007 3:45:43 PM | 6010B | 1.0 | **32** | |
| Zinc | mg/L | 4/6/2007 9:13:06 AM | 6020 | 0.010 | < 0.010 | |

[2] *Analyte concentration is too high for accurate spike recovery.*

* *The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L76981-02F
Field Sample ID: **Sulfur Spring**
Collected: 3/29/2007 2:30:00 PM
Received: 3/30/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 4/11/2007 4:01:34 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 4/6/2007 9:40:03 AM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 4/11/2007 4:01:34 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 4/6/2007 9:40:03 AM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 4/11/2007 3:18:37 PM | 6010B | 10 | **90** | * |
| Copper | mg/L | 4/6/2007 9:40:03 AM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 4/11/2007 4:01:34 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 4/6/2007 9:40:03 AM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 4/11/2007 4:01:34 PM | 6010B | 1.0 | **37** | |
| Manganese | mg/L | 4/6/2007 9:40:03 AM | 6020 | 0.0050 | **0.031** | |
| Molybdenum | mg/L | 4/11/2007 4:01:34 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 4/11/2007 4:01:34 PM | 6010B | 1.0 | **5.9** | |
| Selenium | mg/L | 4/6/2007 9:40:03 AM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 4/11/2007 4:01:34 PM | 6010B | 1.0 | **8.8** | |
| Zinc | mg/L | 4/6/2007 9:40:03 AM | 6020 | 0.010 | < 0.010 | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-03F
Field Sample ID: **Res-1**
Collected: 3/29/2007 2:45:00 PM
Received: 3/30/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 4/11/2007 4:05:28 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 4/6/2007 9:57:15 AM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 4/11/2007 4:05:28 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 4/6/2007 9:57:15 AM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 4/11/2007 3:22:33 PM | 6010B | 10 | **70** | * |
| Copper | mg/L | 4/6/2007 9:57:15 AM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 4/11/2007 4:05:28 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 4/6/2007 9:57:15 AM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 4/11/2007 4:05:28 PM | 6010B | 1.0 | **20** | |
| Manganese | mg/L | 4/6/2007 9:57:15 AM | 6020 | 0.0050 | **0.033** | |
| Molybdenum | mg/L | 4/11/2007 4:05:28 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 4/11/2007 4:05:28 PM | 6010B | 1.0 | **4.2** | |
| Selenium | mg/L | 4/6/2007 9:57:15 AM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 4/11/2007 4:05:28 PM | 6010B | 1.0 | **13** | |
| Zinc | mg/L | 4/6/2007 9:57:15 AM | 6020 | 0.010 | < 0.010 | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-04F
Field Sample ID: **Miller Outlet**
Collected: 3/29/2007 3:00:00 PM
Received: 3/30/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 4/11/2007 4:09:27 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 4/6/2007 10:02:39 AM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 4/11/2007 4:09:27 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 4/6/2007 10:02:39 AM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 4/11/2007 3:26:28 PM | 6010B | 10 | **93** | * |
| Copper | mg/L | 4/6/2007 10:02:39 AM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 4/11/2007 4:09:27 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 4/6/2007 10:02:39 AM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 4/11/2007 4:09:27 PM | 6010B | 1.0 | **17** | |
| Manganese | mg/L | 4/6/2007 10:02:39 AM | 6020 | 0.0050 | **0.040** | |
| Molybdenum | mg/L | 4/11/2007 4:09:27 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 4/11/2007 4:09:27 PM | 6010B | 1.0 | **2.8** | |
| Selenium | mg/L | 4/6/2007 10:02:39 AM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 4/11/2007 4:09:27 PM | 6010B | 1.0 | **14** | |
| Zinc | mg/L | 4/6/2007 10:02:39 AM | 6020 | 0.010 | **0.012** | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-01
Field Sample ID: **Mud Creek**
Collected: 3/29/2007 2:00:00 PM
Received: 3/30/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 4/2/2007 7:00:00 AM | 305.1 | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 4/2/2007 7:30:00 AM | 2320B | 20 | **240** | |
| Ammonia (as N) | mg/L | 4/2/2007 8:06:00 AM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 4/2/2007 7:30:00 AM | 2320B | 20 | **240** | |
| Carbonate (As CaCO3) | mg/L | 4/2/2007 7:30:00 AM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 3/31/2007 7:19:00 AM | 300.0 | 20 | **24** | |
| Hardness (as CaCO3) | mg/L | 4/11/2007 3:45:43 PM | SM2340 B | 10 | **320** | |
| Nitrate (as N) | mg/L | 3/30/2007 1:40:00 PM | 353.2 | 0.010 | **0.34** | |
| Nitrite (as N) | mg/L | 3/30/2007 1:40:00 PM | 353.2 | 0.010 | < 0.010 | [1]@ |
| Oil & Grease | mg/L | 3/30/2007 2:00:00 PM | EPA 1664A | 3.0 | < 3.0 | |
| Phosphate, ortho (as P) | mg/L | 3/30/2007 12:24:00 PM | 365.1 | 0.050 | **0.069** | |
| Settable Solids | ml/L | 3/30/2007 11:00:00 AM | 160.5 | 0.10 | **0.10** | |
| Sulfate | mg/L | 3/31/2007 7:19:00 AM | 300.0 | 20 | **120** | |
| TDS | mg/L | 3/30/2007 2:30:00 PM | 160.1 | 20 | **380** | |
| TSS | mg/L | 3/30/2007 4:45:00 PM | 160.2 | 3.0 | **36** | |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*
*@ High RPD due to suspected matrix interference.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-02
Field Sample ID: **Sulfur Spring**
Collected: 3/29/2007 2:30:00 PM
Received: 3/30/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 4/2/2007 7:00:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 4/2/2007 7:30:00 AM | 2320B | 20 | **350** |
| Ammonia (as N) | mg/L | 4/2/2007 8:06:00 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 4/2/2007 7:30:00 AM | 2320B | 20 | **350** |
| Carbonate (As CaCO3) | mg/L | 4/2/2007 7:30:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 3/31/2007 7:52:00 AM | 300.0 | 1.0 | **6.5** |
| Hardness (as CaCO3) | mg/L | 4/11/2007 4:01:34 PM | SM2340 B | 10 | **380** |
| Nitrate (as N) | mg/L | 3/30/2007 1:40:00 PM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 3/30/2007 1:40:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 3/30/2007 2:00:00 PM | EPA 1664A | 3.0 | **3.1** |
| Phosphate, ortho (as P) | mg/L | 3/30/2007 12:24:00 PM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 3/30/2007 11:00:00 AM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 3/31/2007 8:25:00 AM | 300.0 | 5.0 | **44** |
| TDS | mg/L | 3/30/2007 2:30:00 PM | 160.1 | 20 | **340** |
| TSS | mg/L | 3/30/2007 4:45:00 PM | 160.2 | 3.0 | **4.0** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-03
Field Sample ID: **Res-1**
Collected: 3/29/2007 2:45:00 PM
Received: 3/30/2007


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Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 4/2/2007 7:00:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 4/2/2007 7:30:00 AM | 2320B | 20 | **250** |
| Ammonia (as N) | mg/L | 4/2/2007 8:06:00 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 4/2/2007 7:30:00 AM | 2320B | 20 | **250** |
| Carbonate (As CaCO3) | mg/L | 4/2/2007 7:30:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 3/31/2007 8:59:00 AM | 300.0 | 10 | **20** |
| Hardness (as CaCO3) | mg/L | 4/11/2007 4:05:28 PM | SM2340 B | 10 | **260** |
| Nitrate (as N) | mg/L | 3/30/2007 1:40:00 PM | 353.2 | 0.010 | **0.017** |
| Nitrite (as N) | mg/L | 3/30/2007 1:40:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 3/30/2007 2:00:00 PM | EPA 1664A | 3.0 | < 3.0 |
| Phosphate, ortho (as P) | mg/L | 3/30/2007 12:24:00 PM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 3/30/2007 11:00:00 AM | 160.5 | 0.10 | **0.50** |
| Sulfate | mg/L | 3/31/2007 10:39:00 AM | 300.0 | 50 | **97** |
| TDS | mg/L | 3/30/2007 2:30:00 PM | 160.1 | 20 | **290** |
| TSS | mg/L | 3/30/2007 4:45:00 PM | 160.2 | 3.0 | **27** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L76981-04
Field Sample ID: **Miller Outlet**
Collected: 3/29/2007 3:00:00 PM
Received: 3/30/2007


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Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 4/2/2007 7:00:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 4/2/2007 7:30:00 AM | 2320B | 20 | **270** |
| Ammonia (as N) | mg/L | 4/2/2007 8:06:00 AM | 350.1 | 0.050 | **0.056** |
| Bicarbonate (As CaCO3) | mg/L | 4/2/2007 7:30:00 AM | 2320B | 20 | **270** |
| Carbonate (As CaCO3) | mg/L | 4/2/2007 7:30:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 3/31/2007 1:26:00 PM | 300.0 | 2.0 | **11** |
| Hardness (as CaCO3) | mg/L | 4/11/2007 4:09:27 PM | SM2340 B | 10 | **300** |
| Nitrate (as N) | mg/L | 3/30/2007 1:40:00 PM | 353.2 | 0.010 | **0.43** |
| Nitrite (as N) | mg/L | 3/30/2007 1:40:00 PM | 353.2 | 0.010 | **0.025** |
| Oil & Grease | mg/L | 3/30/2007 2:00:00 PM | EPA 1664A | 3.0 | **3.7** |
| Phosphate, ortho (as P) | mg/L | 3/30/2007 12:24:00 PM | 365.1 | 0.050 | < 0.050 |
| Settable Solids | ml/L | 3/30/2007 11:00:00 AM | 160.5 | 0.10 | **0.35** |
| Sulfate | mg/L | 3/31/2007 1:59:00 PM | 300.0 | 5.0 | **34** |
| TDS | mg/L | 3/30/2007 2:30:00 PM | 160.1 | 20 | **300** |
| TSS | mg/L | 3/30/2007 4:45:00 PM | 160.2 | 3.0 | **340** |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-33816 | Arsenic | mg/L | 6020 | 0.2117 | 0.2 | 0 | 106 | 85-115 | | | | 4/6/2007 |
| LCS-33816 | Cadmium | mg/L | 6020 | 0.2055 | 0.2 | 0 | 103 | 85-115 | | | | 4/6/2007 |
| LCS-33816 | Copper | mg/L | 6020 | 0.2078 | 0.2 | 0 | 104 | 85-115 | | | | 4/6/2007 |
| LCS-33816 | Lead | mg/L | 6020 | 0.2074 | 0.2 | 0 | 104 | 85-115 | | | | 4/6/2007 |
| LCS-33816 | Manganese | mg/L | 6020 | 0.1980 | 0.2 | 0 | 99.0 | 85-115 | | | | 4/6/2007 |
| LCS-33816 | Selenium | mg/L | 6020 | 0.1999 | 0.2 | 0 | 99.9 | 85-115 | | | | 4/6/2007 |
| LCS-33816 | Zinc | mg/L | 6020 | 0.9828 | 1 | 0.004002 | 97.9 | 85-115 | | | | 4/6/2007 |
| LCS-33817 | Iron | mg/L | 6010B | 1.117 | 1 | 0 | 112 | 75-125 | | | | 4/9/2007 |
| LCS-33817 | Manganese | mg/L | 6010B | 0.2056 | 0.2 | 0 | 103 | 75-125 | | | | 4/9/2007 |
| LCS-33816 | Aluminum | mg/L | 6010B | 0.9535 | 1 | 0 | 95.4 | 75-125 | | | | 4/11/2007 |
| LCS-33816 | Boron | mg/L | 6010B | 0.9616 | 1 | 0 | 96.2 | 75-125 | | | | 4/11/2007 |
| LCS-33816 | Calcium | mg/L | 6010B | 10.79 | 10 | 0 | 108 | 75-125 | | | | 4/11/2007 |
| LCS-33816 | Iron | mg/L | 6010B | 1.047 | 1 | 0 | 105 | 75-125 | | | | 4/11/2007 |
| LCS-33816 | Magnesium | mg/L | 6010B | 10.56 | 10 | 0 | 106 | 75-125 | | | | 4/11/2007 |
| LCS-33816 | Molybdenum | mg/L | 6010B | 0.2023 | 0.2 | 0 | 101 | 75-125 | | | | 4/11/2007 |
| LCS-33816 | Potassium | mg/L | 6010B | 10.01 | 10 | 0 | 100 | 75-125 | | | | 4/11/2007 |
| LCS-33816 | Sodium | mg/L | 6010B | 9.244 | 10 | 0 | 92.4 | 75-125 | | | | 4/11/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

**Dept:** ME

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-33816 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 4/6/2007 |
| MB-33816 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 4/6/2007 |
| MB-33816 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 4/6/2007 |
| MB-33816 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 4/6/2007 |
| MB-33816 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 4/6/2007 |
| MB-33816 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 4/6/2007 |
| MB-33816 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 4/6/2007 |
| MB-33817 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 4/9/2007 |
| MB-33817 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 4/9/2007 |
| MB-33816 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 4/11/2007 |
| MB-33816 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 4/11/2007 |
| MB-33816 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 4/11/2007 |
| MB-33816 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 4/11/2007 |
| MB-33816 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 4/11/2007 |
| MB-33816 | Molybdenum | mg/L | 6010B | < 0.040 | | | | - | | | | 4/11/2007 |
| MB-33816 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 4/11/2007 |
| MB-33816 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 4/11/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

**Dept:** ME
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76981-01FMS | Arsenic | mg/L | 6020 | 0.2188 | 0.2 | 0 | 109 | 70-130 | | | | 4/6/2007 |
| L76981-01FMS | Cadmium | mg/L | 6020 | 0.2095 | 0.2 | 0 | 105 | 70-130 | | | | 4/6/2007 |
| L76981-01FMS | Copper | mg/L | 6020 | 0.2039 | 0.2 | 0.00112 | 101 | 70-130 | | | | 4/6/2007 |
| L76981-01FMS | Lead | mg/L | 6020 | 0.2124 | 0.2 | 0 | 106 | 70-130 | | | | 4/6/2007 |
| L76981-01FMS | Manganese | mg/L | 6020 | 0.2396 | 0.2 | 0.0392 | 100 | 70-130 | | | | 4/6/2007 |
| L76981-01FMS | Selenium | mg/L | 6020 | 0.2042 | 0.2 | 0 | 102 | 70-130 | | | | 4/6/2007 |
| L76981-01FMS | Zinc | mg/L | 6020 | 1.021 | 1 | 0.009724 | 101 | 70-130 | | | | 4/6/2007 |
| L76985-23CMS | Arsenic | mg/L | 6020 | 0.3456 | 0.2 | 0.1314 | 107 | 70-130 | | | | 4/6/2007 |
| L76985-23CMS | Cadmium | mg/L | 6020 | 0.2068 | 0.2 | 0 | 103 | 70-130 | | | | 4/6/2007 |
| L76985-23CMS | Lead | mg/L | 6020 | 0.2109 | 0.2 | 0 | 105 | 70-130 | | | | 4/6/2007 |
| L76985-23CMS | Selenium | mg/L | 6020 | 0.2005 | 0.2 | 0 | 100 | 70-130 | | | | 4/6/2007 |
| L76981-02EMS | Iron | mg/L | 6010B | 1.147 | 1 | 0 | 115 | 75-125 | | | | 4/9/2007 |
| L76981-02EMS | Manganese | mg/L | 6010B | 0.2401 | 0.2 | 0.03217 | 104 | 75-125 | | | | 4/9/2007 |
| L76981-01FMS | Calcium | mg/L | 6010B | 82.03 | 10 | 69.18 | 129 | 75-125 | | | 2 | 4/11/2007 |
| L76981-01FMS | Aluminum | mg/L | 6010B | 1.083 | 1 | 0 | 108 | 75-125 | | | | 4/11/2007 |
| L76981-01FMS | Boron | mg/L | 6010B | 1.184 | 1 | 0 | 118 | 75-125 | | | | 4/11/2007 |
| L76981-01FMS | Iron | mg/L | 6010B | 1.058 | 1 | 0 | 106 | 75-125 | | | | 4/11/2007 |
| L76981-01FMS | Magnesium | mg/L | 6010B | 44.06 | 10 | 35.47 | 85.9 | 75-125 | | | | 4/11/2007 |
| L76981-01FMS | Molybdenum | mg/L | 6010B | 0.2184 | 0.2 | 0.00451 | 107 | 75-125 | | | | 4/11/2007 |
| L76981-01FMS | Potassium | mg/L | 6010B | 17.19 | 10 | 6.336 | 109 | 75-125 | | | | 4/11/2007 |
| L76981-01FMS | Sodium | mg/L | 6010B | 41.48 | 10 | 32.42 | 90.6 | 75-125 | | | | 4/11/2007 |

[2] Analyte concentration is too high for accurate spike recovery.



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76981-01FMSD | Arsenic | mg/L | 6020 | 0.2145 | 0.2 | 0 | 107 | 70-130 | 1.97 | 20 | | 4/6/2007 |
| L76981-01FMSD | Cadmium | mg/L | 6020 | 0.2044 | 0.2 | 0 | 102 | 70-130 | 2.48 | 20 | | 4/6/2007 |
| L76981-01FMSD | Copper | mg/L | 6020 | 0.2049 | 0.2 | 0.00112 | 102 | 70-130 | 0.473 | 20 | | 4/6/2007 |
| L76981-01FMSD | Lead | mg/L | 6020 | 0.2083 | 0.2 | 0 | 104 | 70-130 | 1.92 | 20 | | 4/6/2007 |
| L76981-01FMSD | Manganese | mg/L | 6020 | 0.2365 | 0.2 | 0.0392 | 98.7 | 70-130 | 1.29 | 20 | | 4/6/2007 |
| L76981-01FMSD | Selenium | mg/L | 6020 | 0.1995 | 0.2 | 0 | 99.7 | 70-130 | 2.33 | 20 | | 4/6/2007 |
| L76981-01FMSD | Zinc | mg/L | 6020 | 0.9979 | 1 | 0.009724 | 98.8 | 70-130 | 2.26 | 20 | | 4/6/2007 |
| L76985-23CMSD | Arsenic | mg/L | 6020 | 0.3314 | 0.2 | 0.1314 | 100 | 70-130 | 4.18 | 20 | | 4/6/2007 |
| L76985-23CMSD | Cadmium | mg/L | 6020 | 0.1970 | 0.2 | 0 | 98.5 | 70-130 | 4.85 | 20 | | 4/6/2007 |
| L76985-23CMSD | Lead | mg/L | 6020 | 0.2020 | 0.2 | 0 | 101 | 70-130 | 4.30 | 20 | | 4/6/2007 |
| L76985-23CMSD | Selenium | mg/L | 6020 | 0.1906 | 0.2 | 0 | 95.3 | 70-130 | 5.06 | 20 | | 4/6/2007 |
| L76981-02EMSD | Iron | mg/L | 6010B | 1.166 | 1 | 0 | 117 | 75-125 | 1.60 | 20 | | 4/9/2007 |
| L76981-02EMSD | Manganese | mg/L | 6010B | 0.2390 | 0.2 | 0.03217 | 103 | 75-125 | 0.493 | 20 | | 4/9/2007 |
| L76981-01FMSD | Calcium | mg/L | 6010B | 83.98 | 10 | 69.18 | 148 | 75-125 | 2.35 | 20 | 2 | 4/11/2007 |
| L76981-01FMSD | Aluminum | mg/L | 6010B | 0.9270 | 1 | 0 | 92.7 | 75-125 | 15.6 | 20 | | 4/11/2007 |
| L76981-01FMSD | Boron | mg/L | 6010B | 1.023 | 1 | 0 | 102 | 75-125 | 14.6 | 20 | | 4/11/2007 |
| L76981-01FMSD | Iron | mg/L | 6010B | 1.053 | 1 | 0 | 105 | 75-125 | 0.459 | 20 | | 4/11/2007 |
| L76981-01FMSD | Magnesium | mg/L | 6010B | 45.40 | 10 | 35.47 | 99.3 | 75-125 | 3.00 | 20 | | 4/11/2007 |
| L76981-01FMSD | Molybdenum | mg/L | 6010B | 0.1934 | 0.2 | 0.00451 | 94.5 | 75-125 | 12.1 | 20 | | 4/11/2007 |
| L76981-01FMSD | Potassium | mg/L | 6010B | 17.79 | 10 | 6.336 | 115 | 75-125 | 3.43 | 20 | | 4/11/2007 |
| L76981-01FMSD | Sodium | mg/L | 6010B | 43.03 | 10 | 32.42 | 106 | 75-125 | 3.66 | 20 | | 4/11/2007 |

[2] Analyte concentration is too high for accurate spike recovery.



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76855-03BDUP | TDS | mg/L | 160.1 | < 10 | 0 | 0 | | - | 0 | 20 | # | 3/30/2007 |
| L76979-06ADUP | TDS | mg/L | 160.1 | 78000 | 0 | 78300 | | - | 0.384 | 20 | | 3/30/2007 |
| L76980-05ADUP | TDS | mg/L | 160.1 | 3060 | 0 | 3070 | | - | 0.326 | 20 | | 3/30/2007 |
| L76981-04ADUP | TDS | mg/L | 160.1 | 328.0 | 0 | 296 | | - | 10.3 | 20 | | 3/30/2007 |
| L76981-01ADUP | TSS | mg/L | 160.2 | 37.00 | 0 | 36 | | - | 2.74 | 20 | | 3/30/2007 |

# - Due to laboratory error reanalysis was performed out of hold time. Original analysis within HT result is <20 mg/L



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R67944 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50820 | 50000 | 0 | 102 | 90-110 | | | | 4/2/2007 |
| LCS-R67953 | Chloride | mg/L | 300.0 | 5.086 | 5 | 0 | 102 | 90-110 | | | | 3/31/2007 |
| LCS-R67953 | Sulfate | mg/L | 300.0 | 5.087 | 5 | 0 | 102 | 90-110 | | | | 3/31/2007 |
| LCS-R67943 | Acidity | mg/L | 305.1 | 55.00 | 50 | 0 | 110 | 80-120 | | | | 4/2/2007 |
| LCS-33787 | Ammonia (as N) | mg/L | 350.1 | 0.9270 | 1 | 0 | 92.7 | 90-110 | | | | 4/2/2007 |
| LCS-67915 | Nitrite (as N) | mg/L | 353.2 | 1.095 | 1 | 0 | 110 | 90-110 | | | | 3/30/2007 |
| LCS-67917 | Nitrate (as N) | mg/L | 353.2 | 1.073 | 1 | 0 | 107 | 90-110 | | | | 3/30/2007 |
| LCS-R67929 | Oil & Grease | mg/L | EPA 1664A | 41.80 | 40 | 0 | 104 | 79-114 | | | | 3/30/2007 |
| LCS-67908 | Phosphate, ortho (as P) | mg/L | 365.1 | 1.057 | 1 | 0 | 106 | 90-110 | | | | 3/30/2007 |
| LCS-R67978 | TDS | mg/L | 160.1 | 194.0 | 205 | 0 | 94.6 | 80-120 | | | | 3/30/2007 |
| LCS-R67947 | TSS | mg/L | 160.2 | 96.00 | 100 | 0 | 96.0 | 80-120 | | | | 3/30/2007 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCSD-R67978 | TDS | mg/L | 160.1 | 192.0 | 205 | 0 | 93.7 | 80-120 | 1.04 | 20 | | 3/30/2007 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R67944 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 4/2/2007 |
| MB-R67944 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 4/2/2007 |
| MB-R67944 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 4/2/2007 |
| MB-R67953 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 3/31/2007 |
| MB-R67953 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 3/31/2007 |
| MB-R67943 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 4/2/2007 |
| MB-33787 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 4/2/2007 |
| MB-67915 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 3/30/2007 |
| MB-67917 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 3/30/2007 |
| MB-R67929 | Oil & Grease | mg/L | EPA 1664A | < 3.0 | | | | - | | | | 3/30/2007 |
| MB-67908 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 3/30/2007 |
| MB-R67978 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 3/30/2007 |
| MB-R67947 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 3/30/2007 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76981-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 347.0 | 100 | 244 | 103 | 80-120 | | | | 4/2/2007 |
| L76981-03BMS | Sulfate | mg/L | 300.0 | 353.5 | 250 | 96.86 | 103 | 90-110 | | | | 3/31/2007 |
| L76981-03BMS | Chloride | mg/L | 300.0 | 71.24 | 50 | 19.71 | 103 | 90-110 | | | | 3/31/2007 |
| L76981-01BMS | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 4/2/2007 |
| L76981-02CMS | Ammonia (as N) | mg/L | 350.1 | 1.003 | 1 | 0.015 | 98.8 | 90-110 | | | | 4/2/2007 |
| L76981-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.180 | 1 | 0 | 118 | 90-110 | | | [1] | 3/30/2007 |
| L76981-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.403 | 1 | 0.335 | 107 | 90-110 | | | | 3/30/2007 |
| L76981-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.106 | 1 | 0.069 | 104 | 90-110 | | | | 3/30/2007 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L76981
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L76981-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 347.0 | 100 | 244 | 103 | 80-120 | 0 | 10 | | 4/2/2007 |
| L76981-03BMSD | Chloride | mg/L | 300.0 | 71.18 | 50 | 19.71 | 103 | 90-110 | 0.0843 | 20 | | 3/31/2007 |
| L76981-03BMSD | Sulfate | mg/L | 300.0 | 353.7 | 250 | 96.86 | 103 | 90-110 | 0.0467 | 20 | | 3/31/2007 |
| L76981-01BMSD | Acidity | mg/L | 305.1 | 48.00 | 50 | 0 | 96.0 | 80-120 | 4.08 | 20 | | 4/2/2007 |
| L76981-02CMSD | Ammonia (as N) | mg/L | 350.1 | 1.039 | 1 | 0.015 | 102 | 90-110 | 3.53 | 10 | | 4/2/2007 |
| L76981-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.063 | 1 | 0 | 106 | 90-110 | 10.4 | 10 | @ | 3/30/2007 |
| L76981-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.374 | 1 | 0.335 | 104 | 90-110 | 2.09 | 10 | | 3/30/2007 |
| L76981-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.127 | 1 | 0.069 | 106 | 90-110 | 1.88 | 10 | | 3/30/2007 |

@ High RPD due to suspected matrix interference.



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# American West Analytical Labs

## WORK ORDER Summary

*30-Mar-07*

**Work Order** L76981

**Client ID:** CAR300
**Project:** Scofield Baseline
**Comments:** QCLevel: 2+

**QC Level:** 2+
**Location:** Hand

**Contact:** Brad Lindsay

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L76981-01A | Mud Creek | 3/29/2007 2:00:00 PM | 3/30/2007 | 4/13/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 4/13/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 4/13/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L76981-01B | | | | 4/13/2007 | | 2320B-ALK-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | 300.0-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | ACIDITY-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | NO2-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | NO3-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | PO4-O | Mar. 30 - wc | 1 |
| L76981-01C | | | | 4/13/2007 | | NH3-W | Mar. 30 - nh3 | 1 |
| | | | | 4/13/2007 | | NH3-W-PREP | Mar. 30 - nh3 | 1 |
| L76981-01D | | | | 4/13/2007 | | OGB-W | ogb | 1 |
| L76981-01E | | | | 4/13/2007 | | 3005A-ICPMS | Mar. 30 - met | 1 |
| | | | | 4/13/2007 | | ICP-W | Mar. 30 - met | 1 |
| L76981-01F | | | | 4/13/2007 | Aqueous-Dissolved | 3005A-Diss | Mar. 30 - dis met | 1 |
| | | | | 4/13/2007 | | 6020-W-DISS | Mar. 30 - dis met | 1 |
| | | | | 4/13/2007 | | HARD | Mar. 30 - dis met | 1 |
| | | | | 4/13/2007 | | ICP-W-DIS | Mar. 30 - dis met | 1 |
| L76981-02A | Sulfur Spring | 3/29/2007 2:30:00 PM | | 4/13/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 4/13/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 4/13/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L76981-02B | | | | 4/13/2007 | | 2320B-ALK-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | 300.0-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | ACIDITY-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | NO2-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | NO3-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | PO4-O | Mar. 30 - wc | 1 |

# WORK ORDER Summary

*30-Mar-07*

**Work Order** L76981

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L76981-02C | Sulfur Spring | 3/29/2007 2:30:00 PM | 3/30/2007 | 4/13/2007 | Aqueous | NH3-W | Mar. 30 - nh3 | 1 |
| | | | | 4/13/2007 | | NH3-W-PREP | Mar. 30 - nh3 | 1 |
| | | | | 4/13/2007 | | OGB-W | ogb | 1 |
| L76981-02D | | | | 4/13/2007 | | 3005A-ICPMS | Mar. 30 - met | 1 |
| L76981-02E | | | | 4/13/2007 | | ICP-W | Mar. 30 - met | 1 |
| | | | | 4/13/2007 | Aqueous-Dissolved | 3005A-Diss | Mar. 30 - dis met | 1 |
| L76981-02F | | | | 4/13/2007 | | 6020-W-DISS | Mar. 30 - dis met | 1 |
| | | | | 4/13/2007 | | HARD | Mar. 30 - dis met | 1 |
| | | | | 4/13/2007 | | ICP-W-DIS | Mar. 30 - dis met | 1 |
| L76981-03A | Res-1 | 3/29/2007 2:45:00 PM | | 4/13/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 4/13/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 4/13/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L76981-03B | | | | 4/13/2007 | | 2320B-ALK-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | 300.0-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | ACIDITY-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | NO2-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | NO3-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | PO4-O | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | NH3-W | Mar. 30 - nh3 | 1 |
| L76981-03C | | | | 4/13/2007 | | NH3-W-PREP | Mar. 30 - nh3 | 1 |
| | | | | 4/13/2007 | | OGB-W | ogb | 1 |
| L76981-03D | | | | 4/13/2007 | | 3005A-ICPMS | Mar. 30 - met | 1 |
| L76981-03E | | | | 4/13/2007 | | ICP-W | Mar. 30 - met | 1 |
| | | | | 4/13/2007 | Aqueous-Dissolved | 3005A-Diss | Mar. 30 - dis met | 1 |
| L76981-03F | | | | 4/13/2007 | | 6020-W-DISS | Mar. 30 - dis met | 1 |
| | | | | 4/13/2007 | | HARD | Mar. 30 - dis met | 1 |
| | | | | 4/13/2007 | | ICP-W-DIS | Mar. 30 - dis met | 1 |
| L76981-04A | Miller Outlet | 3/29/2007 3:00:00 PM | | 4/13/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |

# WORK ORDER Summary

*30-Mar-07*

**Work Order** L76981

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L76981-04A | Miller Outlet | 3/29/2007 3:00:00 PM | 3/30/2007 | 4/13/2007 | Aqueous | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 4/13/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L76981-04B | | | | 4/13/2007 | | 2320B-ALK-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | 300.0-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | ACIDITY-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | NO2-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | NO3-W | Mar. 30 - wc | 1 |
| | | | | 4/13/2007 | | PO4-O | Mar. 30 - wc | 1 |
| L76981-04C | | | | 4/13/2007 | | NH3-W | Mar. 30 - nh3 | 1 |
| | | | | 4/13/2007 | | NH3-W-PREP | Mar. 30 - nh3 | 1 |
| L76981-04D | | | | 4/13/2007 | | OGB-W | ogb | 1 |
| L76981-04E | | | | 4/13/2007 | | 3005A-ICPMS | Mar. 30 - met | 1 |
| | | | | 4/13/2007 | | ICP-W | Mar. 30 - met | 1 |
| L76981-04F | | | | 4/13/2007 | Aqueous-Dissolved | 3005A-Diss | Mar. 30 - dis met | 1 |
| | | | | 4/13/2007 | | 6020-W-DISS | Mar. 30 - dis met | 1 |
| | | | | 4/13/2007 | | HARD | Mar. 30 - dis met | 1 |
| | | | | 4/13/2007 | | ICP-W-DIS | Mar. 30 - dis met | 1 |

Client CARBON RESOURCES c/o ROCK LOGIC

Address P.O. BOX 544

CEDAREDGE CO 81413

City State Zip

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail rocklogicconsulting@gmail.com

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY

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# CHAIN OF CUSTODY

Lab Sample Set # 76981

Page of

*Turn Around Time (Circle One)*

1 day 2 day 3 day 4 day 5 day (Standard)

QC 1 2 2+ 3 3+ 4

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TABLE 2 | COMMENTS |
|---|---|---|---|---|---|
| MUD CREEK | 3-29-07 / 14:00 | W | 6 | ✓ | |
| SULFUR SPRING | 3-29-07 / 14:30 | W | 6 | ✓ | |
| RES-1 | 3-29-07 / 14:45 | W | 6 | ✓ | |
| MILLER OUTLET | 3-29-07 / 15:00 | W | 6 | ✓ | |

Please indicate tests needed below

| Relinquished By: *Signature* | Date | Received By: *Signature* |
|---|---|---|
| BRAD LINDSAY | 3-29-07 | UPS |
| PRINT NAME BRAD LINDSAY | Time 17:00 | PRINT NAME |
| Relinquished By: *Signature* | Date | Received By: *Signature* |
| PRINT NAME | Time | PRINT NAME |

| Relinquished By: *Signature* | Date | Received By: *Signature* |
|---|---|---|
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: *Signature* | Date | Received By: *Signature* |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

PLEASE FILTER FOR DISOLVED SOLIDS

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
*Notes:* UPS

2 Ambient or Chilled
*Notes:*

3 Temperature -1.5°

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
*Notes:*

5 Properly Preserved
(Y) N
*Notes:*

6 Received Within Holding Times
(Y) N
*Notes:*

COC Tape Was:

1 Present on Outer Package (Y) N NA

2 Unbroken on Outer Package (Y) N NA

3 Present on Sample Y (N) NA

4 Unbroken on Sample Y N (NA)
*Notes:*

Discrepancies Between Sample Labels and COC Record?
Y (N)
*Notes:*

435-542-3255 Deanna Mecham Mar 30 07 09:50a p.1

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 76981

## Preservation Check Sheet

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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May 11, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L77519

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 4/27/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-01E
Field Sample ID: **Mud Creek**
Collected: 4/25/2007 4:45:00 PM
Received: 4/27/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 5/9/2007 2:36:39 PM | 6010B | 0.050 | **0.53** |
| Manganese | mg/L | 5/9/2007 2:36:39 PM | 6010B | 0.0050 | **0.043** |




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-02E
Field Sample ID: **Sulfur Spring**
Collected: 4/25/2007 5:00:00 PM
Received: 4/27/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 5/9/2007 2:48:29 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 5/9/2007 2:48:29 PM | 6010B | 0.0050 | **0.029** |



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-03E
Field Sample ID: **Res-1**
Collected: 4/25/2007 5:25:00 PM
Received: 4/27/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 5/9/2007 2:52:23 PM | 6010B | 0.050 | **4.6** |
| Manganese | mg/L | 5/9/2007 2:52:23 PM | 6010B | 0.0050 | **0.18** |




All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-04E
Field Sample ID: **Miller Outlet**
Collected: 4/25/2007 5:45:00 PM
Received: 4/27/2007


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e-mail: awal@awal-Labs.com

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 5/9/2007 3:04:19 PM | 6010B | 0.050 | **2.1** |
| Manganese | mg/L | 5/9/2007 3:04:19 PM | 6010B | 0.0050 | **0.092** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-01F
Field Sample ID: **Mud Creek**
Collected: 4/25/2007 4:45:00 PM
Received: 4/27/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 5/9/2007 11:00:47 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 5/2/2007 3:31:37 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 5/9/2007 11:00:47 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 5/2/2007 3:31:37 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 5/9/2007 10:26:40 AM | 6010B | 10 | **63** * |
| Copper | mg/L | 5/2/2007 3:31:37 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 5/9/2007 11:00:47 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 5/2/2007 3:31:37 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 5/9/2007 11:00:47 AM | 6010B | 1.0 | **33** |
| Manganese | mg/L | 5/2/2007 3:31:37 PM | 6020 | 0.0050 | **0.016** |
| Molybdenum | mg/L | 5/9/2007 11:00:47 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 5/9/2007 11:00:47 AM | 6010B | 1.0 | **5.3** |
| Selenium | mg/L | 5/2/2007 3:31:37 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 5/9/2007 11:00:47 AM | 6010B | 1.0 | **40** |
| Zinc | mg/L | 5/2/2007 3:31:37 PM | 6020 | 0.010 | < 0.010 |

** The reporting limits were raised due to high analyte concentration.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-02F
Field Sample ID: **Sulfur Spring**
Collected: 4/25/2007 5:00:00 PM
Received: 4/27/2007


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Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 5/9/2007 11:16:20 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 5/2/2007 3:47:49 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 5/9/2007 11:16:20 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 5/2/2007 3:47:49 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 5/9/2007 10:38:21 AM | 6010B | 10 | **90** * |
| Copper | mg/L | 5/2/2007 3:47:49 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 5/9/2007 11:16:20 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 5/2/2007 3:47:49 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 5/9/2007 11:16:20 AM | 6010B | 1.0 | **36** |
| Manganese | mg/L | 5/2/2007 3:47:49 PM | 6020 | 0.0050 | **0.031** |
| Molybdenum | mg/L | 5/9/2007 11:16:20 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 5/9/2007 11:16:20 AM | 6010B | 1.0 | **4.9** |
| Selenium | mg/L | 5/2/2007 3:47:49 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 5/9/2007 11:16:20 AM | 6010B | 1.0 | **8.5** |
| Zinc | mg/L | 5/2/2007 3:47:49 PM | 6020 | 0.010 | < 0.010 |

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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-03F
Field Sample ID: **Res-1**
Collected: 4/25/2007 5:25:00 PM
Received: 4/27/2007


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Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 5/9/2007 11:20:13 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 5/2/2007 4:22:59 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 5/9/2007 11:20:13 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 5/2/2007 4:22:59 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 5/9/2007 10:42:14 AM | 6010B | 10 | **54** * |
| Copper | mg/L | 5/2/2007 4:22:59 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 5/9/2007 11:20:13 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 5/2/2007 4:22:59 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 5/9/2007 11:20:13 AM | 6010B | 1.0 | **21** |
| Manganese | mg/L | 5/2/2007 4:22:59 PM | 6020 | 0.0050 | **0.013** |
| Molybdenum | mg/L | 5/9/2007 11:20:13 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 5/9/2007 11:20:13 AM | 6010B | 1.0 | **2.8** |
| Selenium | mg/L | 5/2/2007 4:22:59 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 5/9/2007 11:20:13 AM | 6010B | 1.0 | **22** |
| Zinc | mg/L | 5/2/2007 4:22:59 PM | 6020 | 0.010 | < 0.010 |

** The reporting limits were raised due to high analyte concentration.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-04F
Field Sample ID: **Miller Outlet**
Collected: 4/25/2007 5:45:00 PM
Received: 4/27/2007


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Laboratory Director

Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 5/9/2007 11:24:06 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 5/2/2007 4:28:15 PM | 6020 | 0.0050 | < 0.0050 |
| Boron | mg/L | 5/9/2007 11:24:06 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 5/2/2007 4:28:15 PM | 6020 | 0.0040 | < 0.0040 |
| Calcium | mg/L | 5/9/2007 10:46:07 AM | 6010B | 10 | **83** * |
| Copper | mg/L | 5/2/2007 4:28:15 PM | 6020 | 0.0040 | < 0.0040 |
| Iron | mg/L | 5/9/2007 11:24:06 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 5/2/2007 4:28:15 PM | 6020 | 0.0050 | < 0.0050 |
| Magnesium | mg/L | 5/9/2007 11:24:06 AM | 6010B | 1.0 | **16** |
| Manganese | mg/L | 5/2/2007 4:28:15 PM | 6020 | 0.0050 | **0.0090** |
| Molybdenum | mg/L | 5/9/2007 11:24:06 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 5/9/2007 11:24:06 AM | 6010B | 1.0 | **2.0** |
| Selenium | mg/L | 5/2/2007 4:28:15 PM | 6020 | 0.0050 | < 0.0050 |
| Sodium | mg/L | 5/9/2007 11:24:06 AM | 6010B | 1.0 | **15** |
| Zinc | mg/L | 5/2/2007 4:28:15 PM | 6020 | 0.010 | < 0.010 |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-01
Field Sample ID: **Mud Creek**
Collected: 4/25/2007 4:45:00 PM
Received: 4/27/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 4/30/2007 7:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 4/30/2007 7:00:00 AM | 2320B | 20 | **220** |
| Ammonia (as N) | mg/L | 5/2/2007 11:16:00 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 4/30/2007 7:00:00 AM | 2320B | 20 | **210** |
| Carbonate (As CaCO3) | mg/L | 4/30/2007 7:00:00 AM | 2320B | 20 | < 20 |
| Chloride | mg/L | 4/29/2007 12:42:00 PM | 300.0 | 5.0 | **24** |
| Hardness (as CaCO3) | mg/L | 5/9/2007 10:26:40 AM | SM2340 B | 10 | **300** |
| Nitrate (as N) | mg/L | 4/27/2007 2:36:00 PM | 353.2 | 0.010 | **0.19** |
| Nitrite (as N) | mg/L | 4/27/2007 2:36:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 5/3/2007 1:20:00 PM | EPA 1664A | 3.0 | **3.4** |
| Phosphate, ortho (as P) | mg/L | 4/27/2007 1:28:00 PM | 365.1 | 0.050 | < 0.050 |
| Settleable Solids | ml/L | 4/27/2007 1:30:00 PM | 160.5 | 0.10 | **0.20** |
| Sulfate | mg/L | 4/29/2007 1:15:00 PM | 300.0 | 50 | **120** |
| TDS | mg/L | 4/30/2007 1:20:00 PM | 160.1 | 20 | **360** |
| TSS | mg/L | 4/27/2007 3:00:00 PM | 160.2 | 3.0 | **30** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-02
Field Sample ID: **Sulfur Spring**
Collected: 4/25/2007 5:00:00 PM
Received: 4/27/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 4/30/2007 7:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 4/30/2007 7:00:00 AM | 2320B | 20 | **340** |
| Ammonia (as N) | mg/L | 5/2/2007 11:16:00 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 4/30/2007 7:00:00 AM | 2320B | 20 | **340** |
| Carbonate (As CaCO3) | mg/L | 4/30/2007 7:00:00 AM | 2320B | 20 | < 20 |
| Chloride | mg/L | 4/29/2007 1:48:00 PM | 300.0 | 1.0 | **6.6** |
| Hardness (as CaCO3) | mg/L | 5/9/2007 10:38:21 AM | SM2340 B | 10 | **370** |
| Nitrate (as N) | mg/L | 4/27/2007 2:36:00 PM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 4/27/2007 2:36:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 5/3/2007 1:20:00 PM | EPA 1664A | 3.0 | < 3.0 |
| Phosphate, ortho (as P) | mg/L | 4/27/2007 1:28:00 PM | 365.1 | 0.050 | < 0.050 |
| Settleable Solids | ml/L | 4/27/2007 1:30:00 PM | 160.5 | 0.10 | < 0.10 |
| Sulfate | mg/L | 4/29/2007 2:22:00 PM | 300.0 | 10 | **45** |
| TDS | mg/L | 4/30/2007 1:20:00 PM | 160.1 | 20 | **380** |
| TSS | mg/L | 4/27/2007 3:00:00 PM | 160.2 | 3.0 | < 3.0 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-03
Field Sample ID: **Res-1**
Collected: 4/25/2007 5:25:00 PM
Received: 4/27/2007


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Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 4/30/2007 7:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 4/30/2007 7:00:00 AM | 2320B | 20 | **180** |
| Ammonia (as N) | mg/L | 5/2/2007 11:16:00 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 4/30/2007 7:00:00 AM | 2320B | 20 | **180** |
| Carbonate (As CaCO3) | mg/L | 4/30/2007 7:00:00 AM | 2320B | 20 | < 20 |
| Chloride | mg/L | 4/29/2007 2:55:00 PM | 300.0 | 5.0 | **12** |
| Hardness (as CaCO3) | mg/L | 5/9/2007 10:42:14 AM | SM2340 B | 10 | **220** |
| Nitrate (as N) | mg/L | 4/27/2007 2:36:00 PM | 353.2 | 0.010 | **0.032** |
| Nitrite (as N) | mg/L | 4/27/2007 2:36:00 PM | 353.2 | 0.010 | **0.039** |
| Oil & Grease | mg/L | 5/3/2007 1:20:00 PM | EPA 1664A | 3.0 | **3.4** |
| Phosphate, ortho (as P) | mg/L | 4/27/2007 1:28:00 PM | 365.1 | 0.050 | **0.092** |
| Settleable Solids | ml/L | 4/27/2007 1:30:00 PM | 160.5 | 0.10 | **0.50** |
| Sulfate | mg/L | 4/29/2007 3:28:00 PM | 300.0 | 50 | **60** |
| TDS | mg/L | 4/30/2007 1:20:00 PM | 160.1 | 20 | **210** |
| TSS | mg/L | 4/27/2007 3:00:00 PM | 160.2 | 8.0 | **200** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L77519-04
Field Sample ID: **Miller Outlet**
Collected: 4/25/2007 5:45:00 PM
Received: 4/27/2007


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Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 4/30/2007 7:30:00 AM | 305.1 | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 4/30/2007 7:00:00 AM | 2320B | 20 | **240** |
| Ammonia (as N) | mg/L | 5/2/2007 11:16:00 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 4/30/2007 7:00:00 AM | 2320B | 20 | **220** |
| Carbonate (As CaCO3) | mg/L | 4/30/2007 7:00:00 AM | 2320B | 20 | < 20 |
| Chloride | mg/L | 4/29/2007 6:48:00 PM | 300.0 | 10 | **11** |
| Hardness (as CaCO3) | mg/L | 5/9/2007 10:46:07 AM | SM2340 B | 10 | **280** |
| Nitrate (as N) | mg/L | 4/27/2007 2:36:00 PM | 353.2 | 0.010 | **0.22** |
| Nitrite (as N) | mg/L | 4/27/2007 2:36:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 5/3/2007 1:20:00 PM | EPA 1664A | 3.0 | **3.0** |
| Phosphate, ortho (as P) | mg/L | 4/27/2007 1:28:00 PM | 365.1 | 0.050 | < 0.050 |
| Settleable Solids | ml/L | 4/27/2007 1:30:00 PM | 160.5 | 0.10 | **0.10** |
| Sulfate | mg/L | 4/29/2007 6:48:00 PM | 300.0 | 10 | **30** |
| TDS | mg/L | 4/30/2007 1:20:00 PM | 160.1 | 20 | **290** |
| TSS | mg/L | 4/27/2007 3:00:00 PM | 160.2 | 3.0 | **72** |



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Kyle F. Gross
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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-34351 | Arsenic | mg/L | 6020 | 0.2097 | 0.2 | 0 | 105 | 85-115 | | | | 5/2/2007 |
| LCS-34351 | Cadmium | mg/L | 6020 | 0.2154 | 0.2 | 0 | 108 | 85-115 | | | | 5/2/2007 |
| LCS-34351 | Copper | mg/L | 6020 | 0.2138 | 0.2 | .0 | 107 | 85-115 | | | | 5/2/2007 |
| LCS-34351 | Lead | mg/L | 6020 | 0.2000 | 0.2 | 0 | 100 | 85-115 | | | | 5/2/2007 |
| LCS-34351 | Manganese | mg/L | 6020 | 0.2152 | 0.2 | 0 | 108 | 85-115 | | | | 5/2/2007 |
| LCS-34351 | Selenium | mg/L | 6020 | 0.2073 | 0.2 | 0 | 104 | 85-115 | | | | 5/2/2007 |
| LCS-34351 | Zinc | mg/L | 6020 | 1.064 | 1 | 0 | 106 | 85-115 | | | | 5/2/2007 |
| LCS-34452 | Iron | mg/L | 6010B | 1.144 | 1 | 0 | 114 | 75-125 | | | | 5/9/2007 |
| LCS-34452 | Manganese | mg/L | 6010B | 0.2081 | 0.2 | 0 | 104 | 75-125 | | | | 5/9/2007 |
| LCS-34351 | Aluminum | mg/L | 6010B | 1.079 | 1 | 0 | 108 | 75-125 | | | | 5/9/2007 |
| LCS-34351 | Boron | mg/L | 6010B | 1.077 | 1 | 0 | 108 | 75-125 | | | | 5/9/2007 |
| LCS-34351 | Calcium | mg/L | 6010B | 10.96 | 10 | 0 | 110 | 75-125 | | | | 5/9/2007 |
| LCS-34351 | Iron | mg/L | 6010B | 1.169 | 1 | 0 | 117 | 75-125 | | | | 5/9/2007 |
| LCS-34351 | Magnesium | mg/L | 6010B | 10.93 | 10 | 0 | 109 | 75-125 | | | | 5/9/2007 |
| LCS-34351 | Molybdenum | mg/L | 6010B | 0.2140 | 0.2 | 0 | 107 | 75-125 | | | | 5/9/2007 |
| LCS-34351 | Potassium | mg/L | 6010B | 10.41 | 10 | 0 | 104 | 75-125 | | | | 5/9/2007 |
| LCS-34351 | Sodium | mg/L | 6010B | 9.821 | 10 | 0 | 98.2 | 75-125 | | | | 5/9/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

**Dept:** ME

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-34351 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 5/2/2007 |
| MB-34351 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 5/2/2007 |
| MB-34351 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 5/2/2007 |
| MB-34351 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 5/2/2007 |
| MB-34351 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 5/2/2007 |
| MB-34351 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 5/2/2007 |
| MB-34351 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 5/3/2007 |
| MB-34452 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 5/9/2007 |
| MB-34452 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 5/9/2007 |
| MB-34351 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 5/9/2007 |
| MB-34351 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 5/9/2007 |
| MB-34351 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 5/9/2007 |
| MB-34351 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 5/9/2007 |
| MB-34351 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 5/9/2007 |
| MB-34351 | Molybdenum | mg/L | 6010B | < 0.040 | | | | - | | | | 5/9/2007 |
| MB-34351 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 5/9/2007 |
| MB-34351 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 5/9/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L77498-01IMS | Arsenic | mg/L | 6020 | 0.2488 | 0.2 | 0.02794 | 110 | 70-130 | | | | 5/2/2007 |
| L77498-01IMS | Cadmium | mg/L | 6020 | 0.2019 | 0.2 | 0 | 101 | 70-130 | | | | 5/2/2007 |
| L77498-01IMS | Copper | mg/L | 6020 | 0.1623 | 0.2 | 0 | 81.1 | 70-130 | | | | 5/2/2007 |
| L77498-01IMS | Lead | mg/L | 6020 | 0.1795 | 0.2 | 0 | 89.8 | 70-130 | | | | 5/2/2007 |
| L77498-01IMS | Manganese | mg/L | 6020 | 0.5184 | 0.2 | 0.331 | 93.7 | 70-130 | | | | 5/2/2007 |
| L77498-01IMS | Selenium | mg/L | 6020 | 0.2038 | 0.2 | 0.008529 | 97.6 | 70-130 | | | | 5/2/2007 |
| L77498-01IMS | Zinc | mg/L | 6020 | 1.031 | 1 | 0.004515 | 103 | 70-130 | | | | 5/2/2007 |
| L77519-01FMS | Arsenic | mg/L | 6020 | 0.2271 | 0.2 | 0 | 114 | 70-130 | | | | 5/2/2007 |
| L77519-01FMS | Cadmium | mg/L | 6020 | 0.2169 | 0.2 | 0 | 108 | 70-130 | | | | 5/2/2007 |
| L77519-01FMS | Copper | mg/L | 6020 | 0.2124 | 0.2 | 0 | 106 | 70-130 | | | | 5/2/2007 |
| L77519-01FMS | Lead | mg/L | 6020 | 0.1980 | 0.2 | 0 | 99.0 | 70-130 | | | | 5/2/2007 |
| L77519-01FMS | Manganese | mg/L | 6020 | 0.2341 | 0.2 | 0.01635 | 109 | 70-130 | | | | 5/2/2007 |
| L77519-01FMS | Selenium | mg/L | 6020 | 0.2116 | 0.2 | 0 | 106 | 70-130 | | | | 5/2/2007 |
| L77519-01FMS | Zinc | mg/L | 6020 | 1.063 | 1 | 0.006118 | 106 | 70-130 | | | | 5/2/2007 |
| L77498-01HMS | Iron | mg/L | 6010B | 1.698 | 1 | 0.669 | 103 | 75-125 | | | | 5/9/2007 |
| L77498-01HMS | Manganese | mg/L | 6010B | 0.5000 | 0.2 | 0.343 | 78.5 | 75-125 | | | | 5/9/2007 |
| L77519-01EMS | Iron | mg/L | 6010B | 1.641 | 1 | 0.529 | 111 | 75-125 | | | | 5/9/2007 |
| L77519-01EMS | Manganese | mg/L | 6010B | 0.2414 | 0.2 | 0.04303 | 99.2 | 75-125 | | | | 5/9/2007 |
| L77519-01FMS | Aluminum | mg/L | 6010B | 1.158 | 1 | 0.0461 | 111 | 75-125 | | | | 5/9/2007 |
| L77519-01FMS | Boron | mg/L | 6010B | 1.347 | 1 | 0.0958 | 125 | 75-125 | | | | 5/9/2007 |
| L77519-01FMS | Iron | mg/L | 6010B | 1.206 | 1 | 0.01265 | 119 | 75-125 | | | | 5/9/2007 |
| L77519-01FMS | Magnesium | mg/L | 6010B | 44.14 | 10 | 33.13 | 110 | 75-125 | | | | 5/9/2007 |
| L77519-01FMS | Molybdenum | mg/L | 6010B | 0.2239 | 0.2 | 0 | 112 | 75-125 | | | | 5/9/2007 |
| L77519-01FMS | Potassium | mg/L | 6010B | 16.04 | 10 | 5.279 | 108 | 75-125 | | | | 5/9/2007 |
| L77519-01FMS | Sodium | mg/L | 6010B | 50.27 | 10 | 39.56 | 107 | 75-125 | | | | 5/9/2007 |
| L77519-01FMS | Calcium | mg/L | 6010B | 75.21 | 10 | 63.39 | 118 | 75-125 | | | | 5/9/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L77498-01IMSD | Arsenic | mg/L | 6020 | 0.2590 | 0.2 | 0.02794 | 116 | 70-130 | 4.02 | 20 | | 5/2/2007 |
| L77498-01IMSD | Cadmium | mg/L | 6020 | 0.2104 | 0.2 | 0 | 105 | 70-130 | 4.16 | 20 | | 5/2/2007 |
| L77498-01IMSD | Copper | mg/L | 6020 | 0.1747 | 0.2 | .0 | 87.3 | 70-130 | 7.35 | 20 | | 5/2/2007 |
| L77498-01IMSD | Lead | mg/L | 6020 | 0.1896 | 0.2 | 0 | 94.8 | 70-130 | 5.46 | 20 | | 5/2/2007 |
| L77498-01IMSD | Manganese | mg/L | 6020 | 0.5460 | 0.2 | 0.331 | 107 | 70-130 | 5.19 | 20 | | 5/2/2007 |
| L77498-01IMSD | Selenium | mg/L | 6020 | 0.2240 | 0.2 | 0.008529 | 108 | 70-130 | 9.44 | 20 | | 5/2/2007 |
| L77498-01IMSD | Zinc | mg/L | 6020 | 1.083 | 1 | 0.004515 | 108 | 70-130 | 4.90 | 20 | | 5/2/2007 |
| L77519-01FMSD | Arsenic | mg/L | 6020 | 0.2163 | 0.2 | 0 | 108 | 70-130 | 4.85 | 20 | | 5/2/2007 |
| L77519-01FMSD | Cadmium | mg/L | 6020 | 0.2088 | 0.2 | 0 | 104 | 70-130 | 3.77 | 20 | | 5/2/2007 |
| L77519-01FMSD | Copper | mg/L | 6020 | 0.2091 | 0.2 | 0 | 105 | 70-130 | 1.57 | 20 | | 5/2/2007 |
| L77519-01FMSD | Lead | mg/L | 6020 | 0.1941 | 0.2 | 0 | 97.1 | 70-130 | 1.95 | 20 | | 5/2/2007 |
| L77519-01FMSD | Manganese | mg/L | 6020 | 0.2318 | 0.2 | 0.01635 | 108 | 70-130 | 0.951 | 20 | | 5/2/2007 |
| L77519-01FMSD | Selenium | mg/L | 6020 | 0.2048 | 0.2 | 0 | 102 | 70-130 | 3.26 | 20 | | 5/2/2007 |
| L77519-01FMSD | Zinc | mg/L | 6020 | 1.024 | 1 | 0.006118 | 102 | 70-130 | 3.75 | 20 | | 5/2/2007 |
| L77498-01HMSD | Iron | mg/L | 6010B | 1.685 | 1 | 0.669 | 102 | 75-125 | 0.813 | 20 | | 5/9/2007 |
| L77498-01HMSD | Manganese | mg/L | 6010B | 0.5232 | 0.2 | 0.343 | 90.1 | 75-125 | 4.52 | 20 | | 5/9/2007 |
| L77519-01EMSD | Iron | mg/L | 6010B | 1.608 | 1 | 0.529 | 108 | 75-125 | 2.02 | 20 | | 5/9/2007 |
| L77519-01EMSD | Manganese | mg/L | 6010B | 0.2428 | 0.2 | 0.04303 | 99.9 | 75-125 | 0.588 | 20 | | 5/9/2007 |
| L77519-01FMSD | Aluminum | mg/L | 6010B | 1.081 | 1 | 0.0461 | 103 | 75-125 | 6.95 | 20 | | 5/9/2007 |
| L77519-01FMSD | Boron | mg/L | 6010B | 1.247 | 1 | 0.0958 | 115 | 75-125 | 7.71 | 20 | | 5/9/2007 |
| L77519-01FMSD | Iron | mg/L | 6010B | 1.159 | 1 | 0.01265 | 115 | 75-125 | 4.00 | 20 | | 5/9/2007 |
| L77519-01FMSD | Magnesium | mg/L | 6010B | 43.33 | 10 | 33.13 | 102 | 75-125 | 1.84 | 20 | | 5/9/2007 |
| L77519-01FMSD | Molybdenum | mg/L | 6010B | 0.2084 | 0.2 | 0 | 104 | 75-125 | 7.16 | 20 | | 5/9/2007 |
| L77519-01FMSD | Potassium | mg/L | 6010B | 15.55 | 10 | 5.279 | 103 | 75-125 | 3.06 | 20 | | 5/9/2007 |
| L77519-01FMSD | Sodium | mg/L | 6010B | 49.43 | 10 | 39.56 | 98.7 | 75-125 | 1.67 | 20 | | 5/9/2007 |
| L77519-01FMSD | Calcium | mg/L | 6010B | 72.55 | 10 | 63.39 | 91.6 | 75-125 | 3.59 | 20 | | 5/9/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L77498-01CDUP | TDS | mg/L | 160.1 | 11800 | 0 | 11960 | | - | 1.35 | 20 | | 4/30/2007 |
| L77519-01ADUP | TDS | mg/L | 160.1 | 368.0 | 0 | 360 | | - | 2.20 | 20 | | 4/30/2007 |
| L77519-04ADUP | TSS | mg/L | 160.2 | 75.00 | 0 | 72 | | - | 4.08 | 20 | | 4/27/2007 |
| L77522-01ADUP | TSS | mg/L | 160.2 | 98.00 | 0 | 92 | | - | 6.32 | 20 | | 4/27/2007 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R69169 | Alkalinity,(As CaCO3) | mg/L | 2320B | 52140 | 50000 | 0 | 104 | 90-110 | | | | 4/30/2007 |
| LCS-R69182 | Chloride | mg/L | 300.0 | 5.071 | 5 | 0 | 101 | 90-110 | | | | 4/29/2007 |
| LCS-R69182 | Sulfate | mg/L | 300.0 | 5.425 | 5 | 0 | 108 | 90-110 | | | | 4/29/2007 |
| LCS-R69170 | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | | | | 4/30/2007 |
| LCS-34369 | Ammonia (as N) | mg/L | 350.1 | 1.009 | 1 | 0 | 101 | 90-110 | | | | 5/2/2007 |
| LCS-69134 | Nitrite (as N) | mg/L | 353.2 | 0.9960 | 1 | 0 | 99.6 | 90-110 | | | | 4/27/2007 |
| LCS-69135 | Nitrate (as N) | mg/L | 353.2 | 1.007 | 1 | 0 | 101 | 90-110 | | | | 4/27/2007 |
| LCS-R69380 | Oil & Grease | mg/L | EPA 1664A | 41.20 | 40 | 0 | 103 | 79-114 | | | | 5/3/2007 |
| LCS-69129 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9850 | 1 | 0 | 98.5 | 90-110 | | | | 4/27/2007 |
| LCS-R69264 | TDS | mg/L | 160.1 | 184.0 | 205 | 0 | 89.8 | 80-120 | | | | 4/30/2007 |
| LCS-R69176 | TSS | mg/L | 160.2 | 97.00 | 100 | 0 | 97.0 | 80-120 | | | | 4/27/2007 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R69169 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 4/30/2007 |
| MB-R69169 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 4/30/2007 |
| MB-R69169 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 4/30/2007 |
| MB-R69182 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 4/29/2007 |
| MB-R69182 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 4/29/2007 |
| MB-R69170 | Acidity | mg/L | 305.1 | < 15 | | | | - | | | | 4/30/2007 |
| MB-34369 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 5/2/2007 |
| MB-69134 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 4/27/2007 |
| MB-69135 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 4/27/2007 |
| MB-R69380 | Oil & Grease | mg/L | EPA 1664A | < 3.0 | | | | - | | | | 5/3/2007 |
| MB-69129 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 4/27/2007 |
| MB-R69264 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 4/30/2007 |
| MB-R69176 | TSS | mg/L | 160.2 | < 3.0 | | | | - | | | | 4/27/2007 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

**Dept:** WC
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L77519-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 327.0 | 100 | 224 | 103 | 80-120 | | | | 4/30/2007 |
| L77477-03BMS | Chloride | mg/L | 300.0 | 8787 | 5000 | 3426 | 107 | 90-110 | | | | 4/29/2007 |
| L77477-03BMS | Sulfate | mg/L | 300.0 | 1477 | 1000 | 349.1 | 113 | 90-110 | | | [1] | 4/29/2007 |
| L77519-04BMS | Chloride | mg/L | 300.0 | 62.90 | 50 | 10.64 | 105 | 90-110 | | | | 4/29/2007 |
| L77519-04BMS | Sulfate | mg/L | 300.0 | 84.59 | 50 | 30.39 | 108 | 90-110 | | | | 4/29/2007 |
| L77519-01BMS | Acidity | mg/L | 305.1 | 48.00 | 50 | 0 | 96.0 | 80-120 | | | | 4/30/2007 |
| L77519-02CMS | Ammonia (as N) | mg/L | 350.1 | 0.9460 | 1 | 0.023 | 92.3 | 90-110 | | | | 5/2/2007 |
| L77519-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.090 | 1 | 0 | 109 | 90-110 | | | | 4/27/2007 |
| L77498-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.395 | 1 | 0.373 | 102 | 90-110 | | | | 4/27/2007 |
| L77519-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.249 | 1 | 0.187 | 106 | 90-110 | | | | 4/27/2007 |
| L77519-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.043 | 1 | 0.016 | 103 | 90-110 | | | | 4/27/2007 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L77519-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 330.0 | 100 | 224 | 106 | 80-120 | 0.913 | 10 | | 4/30/2007 |
| L77477-03BMSD | Chloride | mg/L | 300.0 | 8737 | 5000 | 3426 | 106 | 90-110 | 0.569 | 20 | | 4/29/2007 |
| L77477-03BMSD | Sulfate | mg/L | 300.0 | 1428 | 1000 | 349.1 | 108 | 90-110 | 3.35 | 20 | | 4/29/2007 |
| L77519-04BMSD | Chloride | mg/L | 300.0 | 62.85 | 50 | 10.64 | 104 | 90-110 | 0.0716 | 20 | | 4/29/2007 |
| L77519-04BMSD | Sulfate | mg/L | 300.0 | 83.99 | 50 | 30.39 | 107 | 90-110 | 0.715 | 20 | | 4/29/2007 |
| L77519-01BMSD | Acidity | mg/L | 305.1 | 50.00 | 50 | 0 | 100 | 80-120 | 4.08 | 20 | | 4/30/2007 |
| L77519-02CMSD | Ammonia (as N) | mg/L | 350.1 | 0.9710 | 1 | 0.023 | 94.8 | 90-110 | 2.61 | 10 | | 5/2/2007 |
| L77519-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.061 | 1 | 0 | 106 | 90-110 | 2.70 | 10 | | 4/27/2007 |
| L77498-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.367 | 1 | 0.373 | 99.4 | 90-110 | 2.03 | 10 | | 4/27/2007 |
| L77519-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.256 | 1 | 0.187 | 107 | 90-110 | 0.559 | 10 | | 4/27/2007 |
| L77519-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.005 | 1 | 0.016 | 98.9 | 90-110 | 3.71 | 10 | | 4/27/2007 |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R69380 | Oil & Grease | mg/L | EPA 1664A | 37.80 | 40 | 0 | 94.5 | 79-114 | | | | 5/3/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L77519
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R69380 | Oil & Grease | mg/L | EPA 1664A | 39.00 | 40 | 0 | 97.5 | 79-114 | 3.12 | 18 | | 5/3/2007 |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# American West Analytical Labs

## WORK ORDER Summary

*27-Apr-07*

**Work Order** L77519

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L77519-01A | Mud Creek | 4/25/2007 4:45:00 PM | 4/27/2007 | 5/11/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 5/11/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 5/11/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L77519-01B | | | | 5/11/2007 | | 2320B-ALK-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | 300.0-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | ACIDITY-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | NO2-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | NO3-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | PO4-O | apr 27 - wc | 1 |
| L77519-01C | | | | 5/11/2007 | | NH3-W | apr 27 - nh3 | 1 |
| | | | | 5/11/2007 | | NH3-W-PREP | apr 27 - nh3 | 1 |
| L77519-01D | | | | 5/11/2007 | | OGB-W | ogb | 1 |
| L77519-01E | | | | 5/11/2007 | | 3005A-ICPMS | apr 27 - met-total | 1 |
| | | | | 5/11/2007 | | ICP-W | apr 27 - met-total | 1 |
| L77519-01F | | | | 5/11/2007 | Aqueous-Dissolved | 3005A-Diss | apr 27 - dis met | 1 |
| | | | | 5/11/2007 | | 6020-W-DISS | apr 27 - dis met | 1 |
| | | | | 5/11/2007 | | HARD | apr 27 - dis met | 1 |
| | | | | 5/11/2007 | | ICP-W-DIS | apr 27 - dis met | 1 |
| L77519-02A | Sulfur Spring | 4/25/2007 5:00:00 PM | | 5/11/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 5/11/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 5/11/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L77519-02B | | | | 5/11/2007 | | 2320B-ALK-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | 300.0-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | ACIDITY-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | NO2-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | NO3-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | PO4-O | apr 27 - wc | 1 |

# WORK ORDER Summary

*27-Apr-07*

**Work Order** L77519

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L77519-02C | Sulfur Spring | 4/25/2007 5:00:00 PM | 4/27/2007 | 5/11/2007 | Aqueous | NH3-W | apr 27 - nh3 | 1 |
| | | | | 5/11/2007 | | NH3-W-PREP | apr 27 - nh3 | 1 |
| L77519-02D | | | | 5/11/2007 | | OGB-W | ogb | 1 |
| L77519-02E | | | | 5/11/2007 | | 3005A-ICPMS | apr 27 - met-total | 1 |
| | | | | 5/11/2007 | | ICP-W | apr 27 - met-total | 1 |
| L77519-02F | | | | 5/11/2007 | Aqueous-Dissolved | 3005A-Diss | apr 27 - dis met | 1 |
| | | | | 5/11/2007 | | 6020-W-DISS | apr 27 - dis met | 1 |
| | | | | 5/11/2007 | | HARD | apr 27 - dis met | 1 |
| | | | | 5/11/2007 | | ICP-W-DIS | apr 27 - dis met | 1 |
| L77519-03A | Res-1 | 4/25/2007 5:25:00 PM | | 5/11/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |
| | | | | 5/11/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 5/11/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L77519-03B | | | | 5/11/2007 | | 2320B-ALK-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | 300.0-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | ACIDITY-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | NO2-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | NO3-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | PO4-O | apr 27 - wc | 1 |
| L77519-03C | | | | 5/11/2007 | | NH3-W | apr 27 - nh3 | 1 |
| | | | | 5/11/2007 | | NH3-W-PREP | apr 27 - nh3 | 1 |
| L77519-03D | | | | 5/11/2007 | | OGB-W | ogb | 1 |
| L77519-03E | | | | 5/11/2007 | | 3005A-ICPMS | apr 27 - met-total | 1 |
| | | | | 5/11/2007 | | ICP-W | apr 27 - met-total | 1 |
| L77519-03F | | | | 5/11/2007 | Aqueous-Dissolved | 3005A-Diss | apr 27 - dis met | 1 |
| | | | | 5/11/2007 | | 6020-W-DISS | apr 27 - dis met | 1 |
| | | | | 5/11/2007 | | HARD | apr 27 - dis met | 1 |
| | | | | 5/11/2007 | | ICP-W-DIS | apr 27 - dis met | 1 |
| L77519-04A | Miller Outlet | 4/25/2007 5:45:00 PM | | 5/11/2007 | Aqueous | SS | ww - tss/tds/ss | 1 |

# WORK ORDER Summary

*27-Apr-07*

**Work Order** L77519

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L77519-04A | Miller Outlet | 4/25/2007 5:45:00 PM | 4/27/2007 | 5/11/2007 | Aqueous | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 5/11/2007 | | TSS-W | ww - tss/tds/ss | 1 |
| L77519-04B | | | | 5/11/2007 | | 2320B-ALK-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | 300.0-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | ACIDITY-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | NO2-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | NO3-W | apr 27 - wc | 1 |
| | | | | 5/11/2007 | | PO4-O | apr 27 - wc | 1 |
| L77519-04C | | | | 5/11/2007 | | NH3-W | apr 27 - nh3 | 1 |
| | | | | 5/11/2007 | | NH3-W-PREP | apr 27 - nh3 | 1 |
| L77519-04D | | | | 5/11/2007 | | OGB-W | ogb | 1 |
| L77519-04E | | | | 5/11/2007 | | 3005A-ICPMS | apr 27 - met-total | 1 |
| | | | | 5/11/2007 | | ICP-W | apr 27 - met-total | 1 |
| L77519-04F | | | | 5/11/2007 | Aqueous-Dissolved | 3005A-Diss | apr 27 - dis met | 1 |
| | | | | 5/11/2007 | | 6020-W-DISS | apr 27 - dis met | 1 |
| | | | | 5/11/2007 | | HARD | apr 27 - dis met | 1 |
| | | | | 5/11/2007 | | ICP-W-DIS | apr 27 - dis met | 1 |

Client CARBON RESOURCES c/o ROCK LOGIC

Address P.O. BOX 544

CEDAREDGE CO 81413

City State Zip

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGICCONSULTING@gmail.com

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY


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# CHAIN OF CUSTODY

Lab Sample Set # 77519

Page _____ of _____

*Turn Around Time (Circle One)*

1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TABLE M | | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Please indicate tests needed below | | | | | | | | | | |
| MUD CREEK | 4-25-07 / 16:45 | W | 6 | ↓ | | | | | | | | | | |
| SULFUR SPRING | / 17:00 | | | ↓ | | | | | | | | | | |
| RES-1 | / 17:25 | | | ↓ | | | | | | | | | | |
| MILLER OUTLET | / 17:45 | | | ↓ | | | | | | | | | | |

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or Hand delivered
Notes: UPS
2 Ambient or Chilled
Notes: w/ ice
3 Temperature 4.0
4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:
5 Properly Preserved
(Y) N
Notes:
6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:
1 Present on Outer Package (Y) N NA
2 Unbroken on Outer Package (Y) N NA
3 Present on Sample Y (N) NA
4 Unbroken on Sample Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 10:50 | PRINT NAME UPS |
| Relinquished By: Signature | Date | Received By: Signature Denise Bruun 4/27/07 |
| PRINT NAME | Time | PRINT NAME Denise Bruun 10:05 |

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

PLEASE FILTER FOR DISSOLVED SOLIDS

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | ✓ | Total Dissolved Solids | mg/l |
| * | ✓ | Total Settleable Solids | (UPDES) |
| * | ✓ | Total Suspended Solids | mg/l |
| * | ✓ | Total Hardness ($CaCO_3$) | mg/l |
| * | ✓ | Total Alkalinity | mg/l |
| | ✓ | Acidity | mg/l |
| | ✓ | Aluminum (Dissolved) | mg/l |
| | ✓ | Arsenic (Dissolved) | mg/l |
| | ✓ | Boron (Dissolved)[1] | mg/l |
| * | ✓ | Carbonate | mg/l |
| * | ✓ | Bicarbonate | mg/l |
| | ✓ | Cadmium (Dissolved) | mg/l |
| * | ✓ | Calcium (Dissolved) | mg/l |
| * | ✓ | Chloride | mg/l |
| | ✓ | Copper (Dissolved) | mg/l |
| * | ✓ | Iron (Dissolved) | mg/l |
| * | ✓ | Iron (Total) | mg/l |
| | ✓ | Lead (Dissolved) | mg/l |
| * | ✓ | Magnesium (Dissolved) | mg/l |
| * | ✓ | Manganese (Dissolved) | mg/l |
| * | ✓ | Manganese (Total) | mg/l |
| | ✓ | Molybdenum (Dissolved) | mg/l |
| | ✓ | Ammonia | mg/l |
| | ✓ | Nitrates | mg/l |
| | ✓ | Nitrites | mg/l |
| * | ✓ | Potassium (Dissolved) | mg/l |
| | ✓ | Phosphates(Ortho) | mg/l |
| | ✓ | Selenium[1] (Dissolved) | mg/l |
| * | ✓ | Sodium (Dissolved) | mg/l |
| * | ✓ | Sulfate | mg/l |
| | ✓ | Zinc (Dissolved) | mg/l |
| * | ✓ | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 77519

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

June 14, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L78061

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 5/30/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L78061-01E
Field Sample ID: **Miller Outlet**
Collected: 5/29/2007 12:40:00 PM
Received: 5/30/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 6/12/2007 6:45:28 PM | 6010B | 0.050 | **2.8** [1] |
| Manganese | mg/L | 6/12/2007 6:45:28 PM | 6010B | 0.0050 | **0.12** |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L78061-02E
Field Sample ID: **Sulfur Spring**
Collected: 5/29/2007 1:00:00 PM
Received: 5/30/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 6/12/2007 9:05:44 PM | 6010B | 0.050 | **0.054** |
| Manganese | mg/L | 6/12/2007 9:05:44 PM | 6010B | 0.0050 | **0.027** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Fax (801) 263-8687
e-mail: awal@awal-Labs.com

Lab Sample ID: L78061-03E
Field Sample ID: **Mud Creek**
Collected: 5/29/2007 1:10:00 PM
Received: 5/30/2007

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 6/12/2007 9:09:39 PM | 6010B | 0.050 | **0.47** |
| Manganese | mg/L | 6/12/2007 9:09:39 PM | 6010B | 0.0050 | **0.032** |

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

**AMERICAN WEST ANALYTICAL LABORATORIES**

Lab Sample ID: L78061-04E
Field Sample ID: **Res-1**
Collected: 5/29/2007 1:30:00 PM
Received: 5/30/2007

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 6/12/2007 9:20:37 PM | 6010B | 0.050 | **7.1** |
| Manganese | mg/L | 6/12/2007 9:20:37 PM | 6010B | 0.0050 | **0.46** |

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L78061-01F
Field Sample ID: **Miller Outlet**
Collected: 5/29/2007 12:40:00 PM
Received: 5/30/2007


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Laboratory Director

Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 6/12/2007 11:35:11 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 6/1/2007 10:44:47 AM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 6/12/2007 8:01:08 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 6/1/2007 10:44:47 AM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 6/12/2007 10:54:36 AM | 6010B | 10 | **75** | * |
| Copper | mg/L | 6/8/2007 9:38:11 AM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 6/12/2007 8:01:08 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 6/1/2007 10:44:47 AM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 6/12/2007 8:01:08 PM | 6010B | 1.0 | **17** | |
| Manganese | mg/L | 6/1/2007 10:44:47 AM | 6020 | 0.0050 | < 0.0050 | |
| Molybdenum | mg/L | 6/12/2007 8:01:08 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 6/12/2007 8:01:08 PM | 6010B | 1.0 | **1.1** | |
| Selenium | mg/L | 6/1/2007 10:44:47 AM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 6/12/2007 11:35:11 AM | 6010B | 1.0 | **14** | [1] @ |
| Zinc | mg/L | 6/1/2007 10:44:47 AM | 6020 | 0.010 | **0.016** | |

** The reporting limits were raised due to high analyte concentration.*

*[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

*@ High RPD due to suspected matrix interference.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L78061-02F
Field Sample ID: **Sulfur Spring**
Collected: 5/29/2007 1:00:00 PM
Received: 5/30/2007

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 6/12/2007 11:58:57 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 6/1/2007 11:11:44 AM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 6/12/2007 8:13:12 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 6/1/2007 11:11:44 AM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 6/12/2007 11:06:19 AM | 6010B | 10 | **94** | * |
| Copper | mg/L | 6/1/2007 11:11:44 AM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 6/12/2007 8:13:12 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 6/1/2007 11:11:44 AM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 6/12/2007 8:13:12 PM | 6010B | 1.0 | **37** | |
| Manganese | mg/L | 6/1/2007 11:11:44 AM | 6020 | 0.0050 | **0.029** | |
| Molybdenum | mg/L | 6/12/2007 8:13:12 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 6/12/2007 8:13:12 PM | 6010B | 1.0 | **4.3** | |
| Selenium | mg/L | 6/1/2007 11:11:44 AM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 6/12/2007 11:58:57 AM | 6010B | 1.0 | **7.4** | |
| Zinc | mg/L | 6/1/2007 11:11:44 AM | 6020 | 0.010 | < 0.010 | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L78061-03F
Field Sample ID: **Mud Creek**
Collected: 5/29/2007 1:10:00 PM
Received: 5/30/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 6/12/2007 12:04:26 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 6/1/2007 11:17:07 AM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 6/12/2007 8:17:05 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 6/1/2007 11:17:07 AM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 6/12/2007 11:10:15 AM | 6010B | 10 | **69** | * |
| Copper | mg/L | 6/1/2007 11:17:07 AM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 6/12/2007 8:17:05 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 6/1/2007 11:17:07 AM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 6/12/2007 8:17:05 PM | 6010B | 1.0 | **29** | |
| Manganese | mg/L | 6/1/2007 11:17:07 AM | 6020 | 0.0050 | **0.012** | |
| Molybdenum | mg/L | 6/12/2007 8:17:05 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 6/12/2007 8:17:05 PM | 6010B | 1.0 | **3.8** | |
| Selenium | mg/L | 6/1/2007 11:17:07 AM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 6/12/2007 12:04:26 PM | 6010B | 1.0 | **27** | |
| Zinc | mg/L | 6/1/2007 11:17:07 AM | 6020 | 0.010 | **0.012** | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L78061-04F
Field Sample ID: **Res-1**
Collected: 5/29/2007 1:30:00 PM
Received: 5/30/2007

**DISSOLVED METALS**

| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 6/12/2007 12:08:58 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 6/1/2007 11:22:30 AM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 6/12/2007 8:20:59 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 6/1/2007 11:22:30 AM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 6/12/2007 11:14:15 AM | 6010B | 10 | **47** | * |
| Copper | mg/L | 6/1/2007 11:22:30 AM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 6/12/2007 8:20:59 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 6/1/2007 11:22:30 AM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 6/12/2007 8:20:59 PM | 6010B | 1.0 | **22** | |
| Manganese | mg/L | 6/1/2007 11:22:30 AM | 6020 | 0.0050 | **0.042** | |
| Molybdenum | mg/L | 6/12/2007 8:20:59 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 6/12/2007 8:20:59 PM | 6010B | 1.0 | **2.0** | |
| Selenium | mg/L | 6/1/2007 11:22:30 AM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 6/12/2007 12:08:58 PM | 6010B | 1.0 | **18** | |
| Zinc | mg/L | 6/1/2007 11:22:30 AM | 6020 | 0.010 | **0.010** | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L78061-01
Field Sample ID: **Miller Outlet**
Collected: 5/29/2007 12:40:00 PM
Received: 5/30/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 6/4/2007 9:45:00 AM | SM2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 6/4/2007 10:00:00 AM | 2320B | 20 | **220** |
| Ammonia (as N) | mg/L | 6/6/2007 7:50:00 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 6/4/2007 10:00:00 AM | 2320B | 20 | **220** |
| Carbonate (As CaCO3) | mg/L | 6/4/2007 10:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 5/30/2007 7:01:00 PM | 300.0 | 5.0 | **9.7** |
| Hardness (as CaCO3) | mg/L | 6/12/2007 | SM2340 B | 10 | **260** |
| Nitrate (as N) | mg/L | 5/30/2007 12:08:00 PM | 353.2 | 0.010 | **0.025** [1] |
| Nitrite (as N) | mg/L | 5/30/2007 12:08:00 PM | 353.2 | 0.010 | **0.015** |
| Oil & Grease | mg/L | 6/1/2007 1:00:00 PM | EPA 1664A | 3.0 | **3.4** |
| Phosphate, ortho (as P) | mg/L | 5/31/2007 7:51:00 AM | 365.1 | 0.050 | < 0.050 |
| Settleable Solids | ml/L | 5/30/2007 11:45:00 AM | SM2540F | 0.10 | **0.20** |
| Sulfate | mg/L | 5/30/2007 7:01:00 PM | 300.0 | 5.0 | **23** |
| TDS | mg/L | 6/1/2007 2:30:00 PM | 160.1 | 20 | **270** |
| TSS | mg/L | 5/30/2007 3:30:00 PM | SM2540D | 3.0 | **120** |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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QA Officer

Lab Sample ID: L78061-02
Field Sample ID: **Sulfur Spring**
Collected: 5/29/2007 1:00:00 PM
Received: 5/30/2007

| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 6/4/2007 9:45:00 AM | SM2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 6/4/2007 10:00:00 AM | 2320B | 20 | **330** |
| Ammonia (as N) | mg/L | 6/6/2007 7:50:00 AM | 350.1 | 0.050 | **0.093** [1] |
| Bicarbonate (As CaCO3) | mg/L | 6/4/2007 10:00:00 AM | 2320B | 20 | **330** |
| Carbonate (As CaCO3) | mg/L | 6/4/2007 10:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 5/30/2007 10:21:00 PM | 300.0 | 1.0 | **6.4** |
| Hardness (as CaCO3) | mg/L | 6/12/2007 | SM2340 B | 10 | **390** |
| Nitrate (as N) | mg/L | 5/30/2007 12:08:00 PM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 5/30/2007 12:08:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 6/1/2007 1:00:00 PM | EPA 1664A | 3.0 | **5.3** |
| Phosphate, ortho (as P) | mg/L | 5/31/2007 7:51:00 AM | 365.1 | 0.050 | < 0.050 |
| Settleable Solids | ml/L | 5/30/2007 11:45:00 AM | SM2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 5/31/2007 12:01:00 AM | 300.0 | 10 | **46** |
| TDS | mg/L | 6/1/2007 2:30:00 PM | 160.1 | 20 | **380** |
| TSS | mg/L | 5/30/2007 3:30:00 PM | SM2540D | 3.0 | < 3.0 |

[1] *Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L78061-03
Field Sample ID: **Mud Creek**
Collected: 5/29/2007 1:10:00 PM
Received: 5/30/2007


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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 6/4/2007 9:45:00 AM | SM2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 6/4/2007 10:00:00 AM | 2320B | 20 | **220** |
| Ammonia (as N) | mg/L | 6/6/2007 7:50:00 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 6/4/2007 10:00:00 AM | 2320B | 20 | **210** |
| Carbonate (As CaCO3) | mg/L | 6/4/2007 10:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 5/31/2007 12:34:00 AM | 300.0 | 5.0 | **13** |
| Hardness (as CaCO3) | mg/L | 6/12/2007 | SM2340 B | 10 | **290** |
| Nitrate (as N) | mg/L | 5/30/2007 12:08:00 PM | 353.2 | 0.010 | **0.57** |
| Nitrite (as N) | mg/L | 5/30/2007 12:08:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 6/1/2007 1:00:00 PM | EPA 1664A | 3.0 | **3.4** |
| Phosphate, ortho (as P) | mg/L | 5/31/2007 7:51:00 AM | 365.1 | 0.050 | < 0.050 |
| Settleable Solids | ml/L | 5/30/2007 11:45:00 AM | SM2540F | 0.10 | **0.10** |
| Sulfate | mg/L | 5/31/2007 1:07:00 AM | 300.0 | 50 | **87** |
| TDS | mg/L | 6/1/2007 2:30:00 PM | 160.1 | 20 | **360** |
| TSS | mg/L | 5/30/2007 3:30:00 PM | SM2540D | 3.0 | **48** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

AMERICAN WEST ANALYTICAL LABORATORIES

Lab Sample ID: L78061-04
Field Sample ID: **Res-1**
Collected: 5/29/2007 1:30:00 PM
Received: 5/30/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 6/4/2007 9:45:00 AM | SM2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 6/4/2007 10:00:00 AM | 2320B | 20 | **190** |
| Ammonia (as N) | mg/L | 6/6/2007 7:50:00 AM | 350.1 | 0.050 | **0.077** |
| Bicarbonate (As CaCO3) | mg/L | 6/4/2007 10:00:00 AM | 2320B | 20 | **190** |
| Carbonate (As CaCO3) | mg/L | 6/4/2007 10:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 5/31/2007 1:41:00 AM | 300.0 | 5.0 | **10** |
| Hardness (as CaCO3) | mg/L | 6/12/2007 | SM2340 B | 10 | **210** |
| Nitrate (as N) | mg/L | 5/30/2007 12:08:00 PM | 353.2 | 0.010 | **0.37** |
| Nitrite (as N) | mg/L | 5/30/2007 12:08:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 6/1/2007 1:00:00 PM | EPA 1664A | 3.0 | **3.8** |
| Phosphate, ortho (as P) | mg/L | 5/31/2007 7:51:00 AM | 365.1 | 0.050 | < 0.050 |
| Settleable Solids | ml/L | 5/30/2007 11:45:00 AM | SM2540F | 0.10 | **5.5** |
| Sulfate | mg/L | 5/31/2007 2:14:00 AM | 300.0 | 10 | **56** |
| TDS | mg/L | 6/1/2007 2:30:00 PM | 160.1 | 20 | **250** |
| TSS | mg/L | 5/30/2007 3:30:00 PM | SM2540D | 8.0 | **1600** |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-34917 | Arsenic | mg/L | 6020 | 0.2227 | 0.2 | 0 | 111 | 85-115 | | | | 6/1/2007 |
| LCS-34917 | Cadmium | mg/L | 6020 | 0.2092 | 0.2 | 0 | 105 | 85-115 | | | | 6/1/2007 |
| LCS-34917 | Copper | mg/L | 6020 | 0.2102 | 0.2 | 0 | 105 | 85-115 | | | | 6/1/2007 |
| LCS-34917 | Lead | mg/L | 6020 | 0.2154 | 0.2 | 0 | 108 | 85-115 | | | | 6/1/2007 |
| LCS-34917 | Manganese | mg/L | 6020 | 0.2121 | 0.2 | 0 | 106 | 85-115 | | | | 6/1/2007 |
| LCS-34917 | Selenium | mg/L | 6020 | 0.2061 | 0.2 | 0 | 103 | 85-115 | | | | 6/1/2007 |
| LCS-34917 | Zinc | mg/L | 6020 | 1.064 | 1 | 0.003017 | 106 | 85-115 | | | | 6/1/2007 |
| LCS-34985 | Iron | mg/L | 6010B | 0.9908 | 1 | 0 | 99.1 | 75-125 | | | | 6/12/2007 |
| LCS-34985 | Manganese | mg/L | 6010B | 0.1982 | 0.2 | 0 | 99.1 | 75-125 | | | | 6/12/2007 |
| LCS-34917 | Aluminum | mg/L | 6010B | 1.135 | 1 | 0 | 113 | 75-125 | | | | 6/12/2007 |
| LCS-34917 | Boron | mg/L | 6010B | 1.055 | 1 | 0 | 105 | 75-125 | | | | 6/12/2007 |
| LCS-34917 | Calcium | mg/L | 6010B | 11.34 | 10 | 0 | 113 | 75-125 | | | | 6/12/2007 |
| LCS-34917 | Iron | mg/L | 6010B | 1.149 | 1 | 0 | 115 | 75-125 | | | | 6/12/2007 |
| LCS-34917 | Magnesium | mg/L | 6010B | 11.46 | 10 | 0 | 115 | 75-125 | | | | 6/12/2007 |
| LCS-34917 | Molybdenum | mg/L | 6010B | 0.2102 | 0.2 | 0 | 105 | 75-125 | | | | 6/12/2007 |
| LCS-34917 | Potassium | mg/L | 6010B | 11.08 | 10 | 0 | 111 | 75-125 | | | | 6/12/2007 |
| LCS-34917 | Sodium | mg/L | 6010B | 9.034 | 10 | 0 | 90.3 | 75-125 | | | | 6/12/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

**Dept:** ME

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-34917 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 6/1/2007 |
| MB-34917 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 6/1/2007 |
| MB-34917 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 6/1/2007 |
| MB-34917 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 6/1/2007 |
| MB-34917 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 6/1/2007 |
| MB-34917 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 6/1/2007 |
| MB-34917 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 6/1/2007 |
| MB-34985 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 6/12/2007 |
| MB-34985 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 6/12/2007 |
| MB-34917 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 6/12/2007 |
| MB-34917 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 6/12/2007 |
| MB-34917 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 6/12/2007 |
| MB-34917 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 6/12/2007 |
| MB-34917 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 6/12/2007 |
| MB-34917 | Molybdenum | mg/L | 6010B | < 0.040 | | | | - | | | | 6/12/2007 |
| MB-34917 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 6/12/2007 |
| MB-34917 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 6/12/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L78061-01FMS | Arsenic | mg/L | 6020 | 0.2242 | 0.2 | 0 | 112 | 70-130 | | | | 6/1/2007 |
| L78061-01FMS | Cadmium | mg/L | 6020 | 0.2057 | 0.2 | 0 | 103 | 70-130 | | | | 6/1/2007 |
| L78061-01FMS | Lead | mg/L | 6020 | 0.2158 | 0.2 | 0 | 108 | 70-130 | | | | 6/1/2007 |
| L78061-01FMS | Manganese | mg/L | 6020 | 0.2198 | 0.2 | 0.004022 | 108 | 70-130 | | | | 6/1/2007 |
| L78061-01FMS | Selenium | mg/L | 6020 | 0.2124 | 0.2 | 0.001197 | 106 | 70-130 | | | | 6/1/2007 |
| L78061-01FMS | Zinc | mg/L | 6020 | 1.079 | 1 | 0.01631 | 106 | 70-130 | | | | 6/1/2007 |
| L78061-01FMS | Copper | mg/L | 6020 | 0.2252 | 0.2 | 0.002609 | 111 | 70-130 | | | | 6/8/2007 |
| L78061-01EMS | Iron | mg/L | 6010B | 3.617 | 1 | 2.839 | 77.8 | 75-125 | | | | 6/12/2007 |
| L78061-01EMS | Manganese | mg/L | 6010B | 0.3045 | 0.2 | 0.123 | 90.7 | 75-125 | | | | 6/12/2007 |
| L78061-01FMS | Calcium | mg/L | 6010B | 86.97 | 10 | 75.28 | 117 | 75-125 | | | | 6/12/2007 |
| L78061-01FMS | Aluminum | mg/L | 6010B | 1.155 | 1 | 0.04221 | 111 | 75-125 | | | | 6/12/2007 |
| L78061-01FMS | Sodium | mg/L | 6010B | 26.06 | 10 | 14.38 | 117 | 75-125 | | | | 6/12/2007 |
| L78061-01FMS | Boron | mg/L | 6010B | 1.081 | 1 | 0.01853 | 106 | 75-125 | | | | 6/12/2007 |
| L78061-01FMS | Iron | mg/L | 6010B | 1.132 | 1 | 0 | 113 | 75-125 | | | | 6/12/2007 |
| L78061-01FMS | Magnesium | mg/L | 6010B | 27.85 | 10 | 16.88 | 110 | 75-125 | | | | 6/12/2007 |
| L78061-01FMS | Molybdenum | mg/L | 6010B | 0.2098 | 0.2 | 0.006293 | 102 | 75-125 | | | | 6/12/2007 |
| L78061-01FMS | Potassium | mg/L | 6010B | 11.94 | 10 | 1.138 | 108 | 75-125 | | | | 6/12/2007 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L78061-01FMSD | Arsenic | mg/L | 6020 | 0.2159 | 0.2 | 0 | 108 | 70-130 | 3.73 | 20 | | 6/1/2007 |
| L78061-01FMSD | Cadmium | mg/L | 6020 | 0.1992 | 0.2 | 0 | 99.6 | 70-130 | 3.22 | 20 | | 6/1/2007 |
| L78061-01FMSD | Lead | mg/L | 6020 | 0.2111 | 0.2 | 0 | 106 | 70-130 | 2.18 | 20 | | 6/1/2007 |
| L78061-01FMSD | Manganese | mg/L | 6020 | 0.2116 | 0.2 | 0.004022 | 104 | 70-130 | 3.79 | 20 | | 6/1/2007 |
| L78061-01FMSD | Selenium | mg/L | 6020 | 0.1988 | 0.2 | 0.001197 | 98.8 | 70-130 | 6.60 | 20 | | 6/1/2007 |
| L78061-01FMSD | Zinc | mg/L | 6020 | 1.057 | 1 | 0.01631 | 104 | 70-130 | 2.02 | 20 | | 6/1/2007 |
| L78061-01FMSD | Copper | mg/L | 6020 | 0.2154 | 0.2 | 0.002609 | 106 | 70-130 | 4.48 | 20 | | 6/8/2007 |
| L78061-01EMSD | Iron | mg/L | 6010B | 3.565 | 1 | 2.839 | 72.6 | 75-125 | 1.44 | 20 | ¹ | 6/12/2007 |
| L78061-01EMSD | Manganese | mg/L | 6010B | 0.3036 | 0.2 | 0.123 | 90.3 | 75-125 | 0.269 | 20 | | 6/12/2007 |
| L78061-01FMSD | Calcium | mg/L | 6010B | 84.70 | 10 | 75.28 | 94.3 | 75-125 | 2.64 | 20 | | 6/12/2007 |
| L78061-01FMSD | Aluminum | mg/L | 6010B | 1.028 | 1 | 0.04221 | 98.6 | 75-125 | 11.6 | 20 | | 6/12/2007 |
| L78061-01FMSD | Sodium | mg/L | 6010B | 19.81 | 10 | 14.38 | 54.3 | 75-125 | 27.2 | 20 | ¹ @ | 6/12/2007 |
| L78061-01FMSD | Boron | mg/L | 6010B | 1.039 | 1 | 0.01853 | 102 | 75-125 | 3.96 | 20 | | 6/12/2007 |
| L78061-01FMSD | Iron | mg/L | 6010B | 1.051 | 1 | 0 | 105 | 75-125 | 7.40 | 20 | | 6/12/2007 |
| L78061-01FMSD | Magnesium | mg/L | 6010B | 25.94 | 10 | 16.88 | 90.5 | 75-125 | 7.11 | 20 | | 6/12/2007 |
| L78061-01FMSD | Molybdenum | mg/L | 6010B | 0.2050 | 0.2 | 0.006293 | 99.4 | 75-125 | 2.31 | 20 | | 6/12/2007 |
| L78061-01FMSD | Potassium | mg/L | 6010B | 11.00 | 10 | 1.138 | 98.6 | 75-125 | 8.24 | 20 | | 6/12/2007 |

@ High RPD due to suspected matrix interference.

¹ Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L78049-13EDUP | TDS | mg/L | 160.1 | 72.00 | 0 | 66 | | - | 8.70 | 20 | | 6/1/2007 |
| L78061-04ADUP | TDS | mg/L | 160.1 | 260.0 | 0 | 252 | | - | 3.12 | 20 | | 6/1/2007 |
| L78037-02ADUP | TSS | mg/L | SM2540D | 6.000 | 0 | 5 | | - | 18.2 | 20 | | 5/30/2007 |
| L78065-02ADUP | TSS | mg/L | SM2540D | 510.0 | 0 | 485 | | - | 5.03 | 20 | | 5/30/2007 |
| L78061-03ADUP | TSS | mg/L | SM2540D | 49.00 | 0 | 48 | | - | 2.06 | 20 | | 5/30/2007 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R70482 | Alkalinity,(As CaCO3) | mg/L | 2320B | 49860 | 50000 | 0 | 99.7 | 90-110 | | | | 6/4/2007 |
| LCS-R70367 | Chloride | mg/L | 300.0 | 5.045 | 5 | 0 | 101 | 90-110 | | | | 5/30/2007 |
| LCS-R70367 | Fluoride | mg/L | 300.0 | 5.088 | 5 | 0 | 102 | 90-110 | | | | 5/30/2007 |
| LCS-R70367 | Sulfate | mg/L | 300.0 | 5.073 | 5 | 0 | 101 | 90-110 | | | | 5/30/2007 |
| LCS-R70481 | Acidity | mg/L | SM2310B | 55.00 | 50 | 0 | 110 | 80-120 | | | | 6/4/2007 |
| LCS-34931 | Ammonia (as N) | mg/L | 350.1 | 0.9550 | 1 | 0.022 | 93.3 | 90-110 | | | | 6/6/2007 |
| LCS-70350 | Nitrite (as N) | mg/L | 353.2 | 0.9570 | 1 | 0 | 95.7 | 90-110 | | | | 5/30/2007 |
| LCS-70351 | Nitrate (as N) | mg/L | 353.2 | 1.049 | 1 | 0 | 105 | 90-110 | | | | 5/30/2007 |
| LCS-R70452 | Oil & Grease | mg/L | EPA 1664A | 32.20 | 40 | 0 | 80.5 | 79-114 | | | | 6/1/2007 |
| LCS-70365 | Phosphate, ortho (as P) | mg/L | 365.1 | 1.013 | 1 | 0 | 101 | 90-110 | | | | 5/31/2007 |
| LCS-R70515 | TDS | mg/L | 160.1 | 200.0 | 205 | 0 | 97.6 | 80-120 | | | | 6/1/2007 |
| LCS-R70368 | TSS | mg/L | SM2540D | 99.00 | 100 | 0 | 99.0 | 80-120 | | | | 5/30/2007 |



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Kyle F. Gross
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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R70482 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 6/4/2007 |
| MB-R70482 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 6/4/2007 |
| MB-R70482 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 6/4/2007 |
| MB-R70367 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 5/30/2007 |
| MB-R70367 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 5/30/2007 |
| MB-R70481 | Acidity | mg/L | SM2310B | < 15 | | | | - | | | | 6/4/2007 |
| MB-34931 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 6/6/2007 |
| MB-70350 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 5/30/2007 |
| MB-70351 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 5/30/2007 |
| MB-R70452 | Oil & Grease | mg/L | EPA 1664A | < 3.0 | | | | - | | | | 6/1/2007 |
| MB-70365 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 5/31/2007 |
| MB-R70515 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 6/1/2007 |
| MB-R70368 | TSS | mg/L | SM2540D | < 3.0 | | | | - | | | | 5/30/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L78061-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 323.0 | 100 | 220 | 103 | 80-120 | | | | 6/4/2007 |
| L78041-01DMS | Fluoride | mg/L | 300.0 | 5.329 | 5 | 0.233 | 102 | 90-110 | | | | 5/30/2007 |
| L78061-01BMS | Chloride | mg/L | 300.0 | 35.22 | 25 | 9.699 | 102 | 90-110 | | | | 5/30/2007 |
| L78061-01BMS | Sulfate | mg/L | 300.0 | 49.46 | 25 | 23.34 | 104 | 90-110 | | | | 5/30/2007 |
| L78061-01BMS | Acidity | mg/L | SM2310B | 48.00 | 50 | 0 | 96.0 | 80-120 | | | | 6/4/2007 |
| L78049-02DMS | Ammonia (as N) | mg/L | 350.1 | 0.9490 | 1 | 0.021 | 92.8 | 90-110 | | | | 6/6/2007 |
| L78061-02CMS | Ammonia (as N) | mg/L | 350.1 | 0.9910 | 1 | 0.093 | 89.8 | 90-110 | | | [1] | 6/6/2007 |
| L78061-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.083 | 1 | 0.015 | 107 | 90-110 | | | | 5/30/2007 |
| L78061-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.151 | 1 | 0.025 | 113 | 90-110 | | | [1] | 5/30/2007 |
| L78061-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.122 | 1 | 0.04 | 108 | 90-110 | | | | 5/31/2007 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78061
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L78061-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 319.0 | 100 | 220 | 99.0 | 80-120 | 1.25 | 10 | | 6/4/2007 |
| L78041-01DMSD | Fluoride | mg/L | 300.0 | 5.488 | 5 | 0.233 | 105 | 90-110 | 2.94 | 20 | | 5/30/2007 |
| L78061-01BMSD | Chloride | mg/L | 300.0 | 35.14 | 25 | 9.699 | 102 | 90-110 | 0.233 | 20 | | 5/30/2007 |
| L78061-01BMSD | Sulfate | mg/L | 300.0 | 48.74 | 25 | 23.34 | 102 | 90-110 | 1.47 | 20 | | 5/30/2007 |
| L78061-01BMSD | Acidity | mg/L | SM2310B | 50.00 | 50 | 0 | 100 | 80-120 | 4.08 | 20 | | 6/4/2007 |
| L78049-02DMSD | Ammonia (as N) | mg/L | 350.1 | 0.9900 | 1 | 0.021 | 96.9 | 90-110 | 4.23 | 10 | | 6/6/2007 |
| L78061-02CMSD | Ammonia (as N) | mg/L | 350.1 | 0.9890 | 1 | 0.093 | 89.6 | 90-110 | 0.202 | 10 | 1 | 6/6/2007 |
| L78061-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.025 | 1 | 0.015 | 101 | 90-110 | 5.50 | 10 | | 5/30/2007 |
| L78061-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.142 | 1 | 0.025 | 112 | 90-110 | 0.785 | 10 | 1 | 5/30/2007 |
| L78061-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.042 | 1 | 0.04 | 100 | 90-110 | 7.39 | 10 | | 5/31/2007 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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# American West Analytical Labs

## WORK ORDER Summary

*30-May-07*

**Work Order** L78061

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+ HOK-JB

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L78061-01A | Miller Outlet | 5/29/2007 12:40:00 PM | 5/30/2007 | 6/13/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 6/13/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 6/13/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L78061-01B | | | | 6/13/2007 | | 2320B-ALK-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | 300.0-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | ACIDITY-W-2310B | may 30 - wc | 1 |
| | | | | 6/13/2007 | | NO2-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | NO3-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | PO4-O | may 30 - wc | 1 |
| L78061-01C | | | | 6/13/2007 | | NH3-W | may 30 - nh3 | 1 |
| | | | | 6/13/2007 | | NH3-W-PREP | may 30 - nh3 | 1 |
| L78061-01D | | | | 6/13/2007 | | OGB-W | ogb | 1 |
| L78061-01E | | | | 6/13/2007 | | 3005A-ICPMS | may 30 - met-total | 1 |
| | | | | 6/13/2007 | | ICP-W | may 30 - met-total | 1 |
| L78061-01F | | | | 6/13/2007 | Aqueous-Dissolved | 3005A-Diss | may 30 - dis met | 1 |
| | | | | 6/13/2007 | | 6020-W-DISS | may 30 - dis met | 1 |
| | | | | 6/13/2007 | | HARD | may 30 - dis met | 1 |
| | | | | 6/13/2007 | | ICP-W-DIS | may 30 - dis met | 1 |
| L78061-02A | Sulfur Spring | 5/29/2007 1:00:00 PM | | 6/13/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 6/13/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 6/13/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L78061-02B | | | | 6/13/2007 | | 2320B-ALK-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | 300.0-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | ACIDITY-W-2310B | may 30 - wc | 1 |
| | | | | 6/13/2007 | | NO2-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | NO3-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | PO4-O | may 30 - wc | 1 |

# WORK ORDER Summary

*30-May-07*

**Work Order** L78061

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L78061-02C | Sulfur Spring | 5/29/2007 1:00:00 PM | 5/30/2007 | 6/13/2007 | Aqueous | NH3-W | may 30 - nh3 | 1 |
| | | | | 6/13/2007 | | NH3-W-PREP | may 30 - nh3 | 1 |
| L78061-02D | | | | 6/13/2007 | | OGB-W | ogb | 1 |
| L78061-02E | | | | 6/13/2007 | | 3005A-ICPMS | may 30 - met-total | 1 |
| | | | | 6/13/2007 | | ICP-W | may 30 - met-total | 1 |
| L78061-02F | | | | 6/13/2007 | Aqueous-Dissolved | 3005A-Diss | may 30 - dis met | 1 |
| | | | | 6/13/2007 | | 6020-W-DISS | may 30 - dis met | 1 |
| | | | | 6/13/2007 | | HARD | may 30 - dis met | 1 |
| | | | | 6/13/2007 | | ICP-W-DIS | may 30 - dis met | 1 |
| L78061-03A | Mud Creek | 5/29/2007 1:10:00 PM | | 6/13/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 6/13/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 6/13/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L78061-03B | | | | 6/13/2007 | | 2320B-ALK-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | 300.0-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | ACIDITY-W-2310B | may 30 - wc | 1 |
| | | | | 6/13/2007 | | NO2-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | NO3-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | PO4-O | may 30 - wc | 1 |
| L78061-03C | | | | 6/13/2007 | | NH3-W | may 30 - nh3 | 1 |
| | | | | 6/13/2007 | | NH3-W-PREP | may 30 - nh3 | 1 |
| L78061-03D | | | | 6/13/2007 | | OGB-W | ogb | 1 |
| L78061-03E | | | | 6/13/2007 | | 3005A-ICPMS | may 30 - met-total | 1 |
| | | | | 6/13/2007 | | ICP-W | may 30 - met-total | 1 |
| L78061-03F | | | | 6/13/2007 | Aqueous-Dissolved | 3005A-Diss | may 30 - dis met | 1 |
| | | | | 6/13/2007 | | 6020-W-DISS | may 30 - dis met | 1 |
| | | | | 6/13/2007 | | HARD | may 30 - dis met | 1 |
| | | | | 6/13/2007 | | ICP-W-DIS | may 30 - dis met | 1 |
| L78061-04A | Res-1 | 5/29/2007 1:30:00 PM | | 6/13/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |

# WORK ORDER Summary

*30-May-07*

**Work Order** L78061

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L78061-04A | Res-1 | 5/29/2007 1:30:00 PM | 5/30/2007 | 6/13/2007 | Aqueous | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 6/13/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L78061-04B | | | | 6/13/2007 | | 2320B-ALK-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | 300.0-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | ACIDITY-W-2310B | may 30 - wc | 1 |
| | | | | 6/13/2007 | | NO2-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | NO3-W | may 30 - wc | 1 |
| | | | | 6/13/2007 | | PO4-O | may 30 - wc | 1 |
| L78061-04C | | | | 6/13/2007 | | NH3-W | may 30 - nh3 | 1 |
| | | | | 6/13/2007 | | NH3-W-PREP | may 30 - nh3 | 1 |
| L78061-04D | | | | 6/13/2007 | | OGB-W | ogb | 1 |
| L78061-04E | | | | 6/13/2007 | | 3005A-ICPMS | may 30 - met-total | 1 |
| | | | | 6/13/2007 | | ICP-W | may 30 - met-total | 1 |
| L78061-04F | | | | 6/13/2007 | Aqueous-Dissolved | 3005A-Diss | may 30 - dis met | 1 |
| | | | | 6/13/2007 | | 6020-W-DISS | may 30 - dis met | 1 |
| | | | | 6/13/2007 | | HARD | may 30 - dis met | 1 |
| | | | | 6/13/2007 | | ICP-W-DIS | may 30 - dis met | 1 |

Client Carbon Resources | Rock Logic

Address PO Box 544

Cedaredge CO 81413
City State Zip

Phone 970-856-3400 Fax

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Scofield baseline

Project Number/P.O.#

Sampler Name Brad Lindsay


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# CHAIN OF CUSTODY

Lab Sample Set # 780161

Page 1 of 1

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day Standard

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | Table 3 | | | | | | | | | QC LEVEL / COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Miller Outlet | 5.29.07 / 12:45 | W | 6 | ✓ | | | | | | | | | |
| Sulfur Spring | 5.29.07 / 13:00 | W | 6 | ✓ | | | | | | | | | |
| Mud Creek | 5.29.07 / 13:10 | W | 6 | ✓ | | | | | | | | | |
| Rec-1 | 5.29.07 / 13:30 | W | 6 | ✓ | | | | | | | | | |

QC LEVEL: 1 2 2+ 3 3+ 4

COMMENTS

**LABORATORY USE ONLY**

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes:
3 Temperature 3°C
4 Received Broken/Leaking (Improperly Sealed) Y N
Notes:
5 Properly Preserved Y N
Notes:
6 Received Within Holding Times Y N
Notes:

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record? Y N
Notes:

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME Brad Lindsay | Time 14:12 | PRINT NAME UPS |
| Relinquished By: Signature UPS | Date 5/30/07 | Received By: Signature |
| PRINT NAME | Time 10:40 | PRINT NAME KERSTAN WINKLER |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

Please filter for dissolved metals

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

[1] Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
[2] O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 78061

## Preservation Check Sheet

| | | | Sample Set Extension and pH | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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July 12, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L78574

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 6/27/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

AMERICAN WEST ANALYTICAL LABORATORIES

Lab Sample ID: L78574-01E
Field Sample ID: **Mud Creek**
Collected: 6/25/2007 1:45:00 PM
Received: 6/27/2007

463 West 3600 South
Salt Lake City, Utah
84115

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 7/2/2007 5:41:00 PM | 6010B | 0.050 | **0.19** |
| Manganese | mg/L | 7/2/2007 5:41:00 PM | 6010B | 0.0050 | **0.020** |

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L78574-02E
Field Sample ID: **Sulfur Spring**
Collected: 6/25/2007 2:50:00 PM
Received: 6/27/2007

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 7/2/2007 5:57:00 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 7/2/2007 5:57:00 PM | 6010B | 0.0050 | **0.029** |

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

AMERICAN
WEST
ANALYTICAL
LABORATORIES

Lab Sample ID: L78574-03E
Field Sample ID: **RES-1**
Collected: 6/25/2007 3:15:00 PM
Received: 6/27/2007

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 7/2/2007 6:09:00 PM | 6010B | 0.050 | **0.63** |
| Manganese | mg/L | 7/2/2007 6:09:00 PM | 6010B | 0.0050 | **0.12** |

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Laboratory Director

Peggy McNicol
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L78574-04E
Field Sample ID: **Miller Outlet**
Collected: 6/25/2007 2:30:00 PM
Received: 6/27/2007

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 7/2/2007 6:13:00 PM | 6010B | 0.050 | **3.5** |
| Manganese | mg/L | 7/2/2007 6:13:00 PM | 6010B | 0.0050 | **0.17** |

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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L78574-01F
Field Sample ID: **Mud Creek**
Collected: 6/25/2007 1:45:00 PM
Received: 6/27/2007


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Peggy McNicol
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 7/2/2007 10:50:00 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 7/9/2007 7:27:28 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 7/2/2007 10:50:00 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 7/9/2007 7:27:28 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 7/2/2007 10:12:00 AM | 6010B | 10 | **62** | * |
| Copper | mg/L | 7/9/2007 7:27:28 PM | 6020 | 0.0040 | **0.0061** | |
| Iron | mg/L | 7/2/2007 10:50:00 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 7/9/2007 7:27:28 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 7/2/2007 10:12:00 AM | 6010B | 10 | **33** | * |
| Manganese | mg/L | 7/9/2007 7:27:28 PM | 6020 | 0.0050 | **0.022** | |
| Molybdenum | mg/L | 7/2/2007 10:50:00 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 7/2/2007 10:50:00 AM | 6010B | 1.0 | **5.8** | |
| Selenium | mg/L | 7/9/2007 7:27:28 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 7/2/2007 10:12:00 AM | 6010B | 10 | **55** | [2] * |
| Zinc | mg/L | 7/9/2007 7:27:28 PM | 6020 | 0.010 | **0.027** | |

[2] *Analyte concentration is too high for accurate spike and/or RPD recovery.*

* *The reporting limits were raised due to high analyte concentration.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

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Peggy McNicol
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Lab Sample ID: L78574-02F
Field Sample ID: **Sulfur Spring**
Collected: 6/25/2007 2:50:00 PM
Received: 6/27/2007

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 7/2/2007 11:06:00 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 7/9/2007 7:54:29 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 7/2/2007 11:06:00 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 7/9/2007 7:54:29 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 7/2/2007 10:24:00 AM | 6010B | 10 | **83** | * |
| Copper | mg/L | 7/9/2007 7:54:29 PM | 6020 | 0.0040 | **0.0046** | |
| Iron | mg/L | 7/2/2007 11:06:00 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 7/9/2007 7:54:29 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 7/2/2007 10:24:00 AM | 6010B | 10 | **33** | * |
| Manganese | mg/L | 7/9/2007 7:54:29 PM | 6020 | 0.0050 | **0.039** | |
| Molybdenum | mg/L | 7/2/2007 11:06:00 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 7/2/2007 11:06:00 AM | 6010B | 1.0 | **4.3** | |
| Selenium | mg/L | 7/9/2007 7:54:29 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 7/2/2007 11:06:00 AM | 6010B | 1.0 | **16** | |
| Zinc | mg/L | 7/9/2007 7:54:29 PM | 6020 | 0.010 | **0.020** | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

AMERICAN WEST ANALYTICAL LABORATORIES

Lab Sample ID: L78574-03F
Field Sample ID: **RES-1**
Collected: 6/25/2007 3:15:00 PM
Received: 6/27/2007

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Peggy McNicol
QA Officer

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 7/2/2007 11:10:00 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 7/9/2007 7:59:53 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 7/2/2007 11:10:00 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 7/9/2007 7:59:53 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 7/2/2007 11:10:00 AM | 6010B | 1.0 | **21** | |
| Copper | mg/L | 7/9/2007 7:59:53 PM | 6020 | 0.0040 | **0.0082** | |
| Iron | mg/L | 7/2/2007 11:10:00 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 7/9/2007 7:59:53 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 7/2/2007 11:10:00 AM | 6010B | 1.0 | **19** | |
| Manganese | mg/L | 7/9/2007 7:59:53 PM | 6020 | 0.0050 | **0.019** | |
| Molybdenum | mg/L | 7/2/2007 11:10:00 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 7/2/2007 11:10:00 AM | 6010B | 1.0 | **2.2** | |
| Selenium | mg/L | 7/9/2007 7:59:53 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 7/2/2007 10:27:00 AM | 6010B | 10 | **30** | * |
| Zinc | mg/L | 7/9/2007 7:59:53 PM | 6020 | 0.010 | **0.037** | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L78574-04F
Field Sample ID: **Miller Outlet**
Collected: 6/25/2007 2:30:00 PM
Received: 6/27/2007

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 7/2/2007 11:14:00 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 7/9/2007 8:05:17 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 7/2/2007 11:14:00 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 7/9/2007 8:05:17 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 7/2/2007 10:31:00 AM | 6010B | 10 | **66** | * |
| Copper | mg/L | 7/9/2007 8:05:17 PM | 6020 | 0.0040 | **0.0068** | |
| Iron | mg/L | 7/2/2007 11:14:00 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 7/9/2007 8:05:17 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 7/2/2007 11:14:00 AM | 6010B | 1.0 | **16** | |
| Manganese | mg/L | 7/9/2007 8:05:17 PM | 6020 | 0.0050 | **0.011** | |
| Molybdenum | mg/L | 7/2/2007 11:14:00 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 7/2/2007 11:14:00 AM | 6010B | 1.0 | **2.3** | |
| Selenium | mg/L | 7/9/2007 8:05:17 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 7/2/2007 11:14:00 AM | 6010B | 1.0 | **15** | |
| Zinc | mg/L | 7/9/2007 8:05:17 PM | 6020 | 0.010 | **0.020** | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L78574-01
Field Sample ID: **Mud Creek**
Collected: 6/25/2007 1:45:00 PM
Received: 6/27/2007


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Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 6/28/2007 6:11:00 AM | SM2310B | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 6/28/2007 6:00:00 AM | 2320B | 20 | **250** | |
| Ammonia (as N) | mg/L | 6/29/2007 10:32:00 AM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 6/28/2007 6:00:00 AM | 2320B | 20 | **250** | |
| Carbonate (As CaCO3) | mg/L | 6/28/2007 6:00:00 AM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 7/9/2007 2:51:00 PM | 300.0 | 5.0 | **14** | |
| Hardness (as CaCO3) | mg/L | 7/2/2007 10:50:00 AM | SM2340 B | 10 | **290** | |
| Nitrate (as N) | mg/L | 6/28/2007 8:55:00 AM | 353.2 | 0.010 | **0.10** | **H** |
| Nitrite (as N) | mg/L | 6/28/2007 8:55:00 AM | 353.2 | 0.010 | < 0.010 | **H** |
| Oil & Grease | mg/L | 7/5/2007 2:10:00 PM | EPA 1664A | 3.0 | **4.5** | |
| Phosphate, ortho (as P) | mg/L | 6/27/2007 2:30:00 PM | 365.1 | 0.050 | < 0.050 | **H** |
| Settleable Solids | mL/L | 6/27/2007 12:45:00 PM | SM2540F | 0.10 | < 0.10 | |
| Sulfate | mg/L | 7/7/2007 2:25:00 AM | 300.0 | 50 | **140** | |
| TDS | mg/L | 6/27/2007 2:30:00 PM | 160.1 | 20 | **440** | |
| TSS | mg/L | 6/27/2007 3:45:00 PM | SM2540D | 3.0 | **10** | |

*H - Inadequate time given to run inside hold time.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L78574-02
Field Sample ID: **Sulfur Spring**
Collected: 6/25/2007 2:50:00 PM
Received: 6/27/2007


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Peggy McNicol
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 6/28/2007 6:11:00 AM | SM2310B | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 6/28/2007 6:00:00 AM | 2320B | 20 | **340** | |
| Ammonia (as N) | mg/L | 6/29/2007 10:32:00 AM | 350.1 | 0.050 | **0.060** | |
| Bicarbonate (As CaCO3) | mg/L | 6/28/2007 6:00:00 AM | 2320B | 20 | **340** | |
| Carbonate (As CaCO3) | mg/L | 6/28/2007 6:00:00 AM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 7/9/2007 3:25:00 PM | 300.0 | 2.0 | **7.2** | |
| Hardness (as CaCO3) | mg/L | 7/2/2007 11:06:00 AM | SM2340 B | 10 | **340** | |
| Nitrate (as N) | mg/L | 6/28/2007 8:55:00 AM | 353.2 | 0.010 | < 0.010 | **H** |
| Nitrite (as N) | mg/L | 6/28/2007 8:55:00 AM | 353.2 | 0.010 | < 0.010 | **H** |
| Oil & Grease | mg/L | 7/5/2007 2:10:00 PM | EPA 1664A | 3.0 | **4.8** | |
| Phosphate, ortho (as P) | mg/L | 6/27/2007 2:32:00 PM | 365.1 | 0.050 | < 0.050 | |
| Settleable Solids | mL/L | 6/27/2007 12:45:00 PM | SM2540F | 0.10 | < 0.10 | |
| Sulfate | mg/L | 7/7/2007 3:31:00 AM | 300.0 | 10 | **46** | |
| TDS | mg/L | 6/27/2007 2:30:00 PM | 160.1 | 20 | **360** | |
| TSS | mg/L | 6/27/2007 3:45:00 PM | SM2540D | 3.0 | < 3.0 | |

*H- Inadequate time given to run inside hold time.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Lab Sample ID: L78574-03
Field Sample ID: **RES-1**
Collected: 6/25/2007 3:15:00 PM
Received: 6/27/2007

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 6/28/2007 6:11:00 AM | SM2310B | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 6/28/2007 6:00:00 AM | 2320B | 20 | **120** | |
| Ammonia (as N) | mg/L | 6/29/2007 10:32:00 AM | 350.1 | 0.050 | **0.050** | |
| Bicarbonate (As CaCO3) | mg/L | 6/28/2007 6:00:00 AM | 2320B | 20 | < 20 | |
| Carbonate (As CaCO3) | mg/L | 6/28/2007 6:00:00 AM | 2320B | 20 | **110** | |
| Chloride | mg/L | 7/9/2007 3:58:00 PM | 300.0 | 10 | **41** | |
| Hardness (as CaCO3) | mg/L | 7/2/2007 11:10:00 AM | SM2340 B | 10 | **130** | |
| Nitrate (as N) | mg/L | 6/28/2007 8:55:00 AM | 353.2 | 0.010 | < 0.010 | **H** |
| Nitrite (as N) | mg/L | 6/28/2007 8:55:00 AM | 353.2 | 0.010 | < 0.010 | **H** |
| Oil & Grease | mg/L | 7/5/2007 2:10:00 PM | EPA 1664A | 3.0 | **4.7** | |
| Phosphate, ortho (as P) | mg/L | 6/27/2007 2:32:00 PM | 365.1 | 0.050 | < 0.050 | |
| Settleable Solids | mL/L | 6/27/2007 12:45:00 PM | SM2540F | 0.10 | **0.50** | |
| Sulfate | mg/L | 7/7/2007 4:04:00 AM | 300.0 | 5.0 | **25** | |
| TDS | mg/L | 6/27/2007 2:30:00 PM | 160.1 | 20 | **190** | |
| TSS | mg/L | 6/27/2007 3:45:00 PM | SM2540D | 3.0 | **40** | |

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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Peggy McNicol
QA Officer

Lab Sample ID: L78574-04
Field Sample ID: **Miller Outlet**
Collected: 6/25/2007 2:30:00 PM
Received: 6/27/2007

| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 6/28/2007 6:11:00 AM | SM2310B | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 6/28/2007 6:00:00 AM | 2320B | 20 | **240** | |
| Ammonia (as N) | mg/L | 6/29/2007 10:32:00 AM | 350.1 | 0.050 | **0.084** | |
| Bicarbonate (As CaCO3) | mg/L | 6/28/2007 6:00:00 AM | 2320B | 20 | **230** | |
| Carbonate (As CaCO3) | mg/L | 6/28/2007 6:00:00 AM | 2320B | 20 | < 20 | |
| Chloride | mg/L | 7/9/2007 5:38:00 PM | 300.0 | 5.0 | **12** | |
| Hardness (as CaCO3) | mg/L | 7/2/2007 11:14:00 AM | SM2340 B | 10 | **230** | |
| Nitrate (as N) | mg/L | 6/28/2007 8:55:00 AM | 353.2 | 0.010 | **0.090** | **H** |
| Nitrite (as N) | mg/L | 6/28/2007 8:55:00 AM | 353.2 | 0.010 | **0.028** | **H** |
| Oil & Grease | mg/L | 7/5/2007 2:10:00 PM | EPA 1664A | 3.0 | **6.2** | |
| Phosphate, ortho (as P) | mg/L | 6/27/2007 2:33:00 PM | 365.1 | 0.050 | **0.052** | **H** |
| Settleable Solids | mL/L | 6/27/2007 12:45:00 PM | SM2540F | 0.10 | **0.10** | |
| Sulfate | mg/L | 7/7/2007 7:57:00 AM | 300.0 | 10 | **27** | |
| TDS | mg/L | 6/27/2007 2:30:00 PM | 160.1 | 20 | **280** | |
| TSS | mg/L | 6/27/2007 3:45:00 PM | SM2540D | 3.0 | **150** | |

*H - Inadequate time given to run inside hold time.*



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

**Dept:** ME
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-35383 | Arsenic | mg/L | 6020 | 0.2153 | 0.2 | 0 | 108 | 85-115 | | | | 7/9/2007 |
| LCS-35383 | Cadmium | mg/L | 6020 | 0.2050 | 0.2 | 0 | 102 | 85-115 | | | | 7/9/2007 |
| LCS-35383 | Copper | mg/L | 6020 | 0.2117 | 0.2 | 0 | 106 | 85-115 | | | | 7/9/2007 |
| LCS-35383 | Lead | mg/L | 6020 | 0.2059 | 0.2 | 0 | 103 | 85-115 | | | | 7/9/2007 |
| LCS-35383 | Manganese | mg/L | 6020 | 0.2180 | 0.2 | 0.002294 | 108 | 85-115 | | | | 7/9/2007 |
| LCS-35383 | Selenium | mg/L | 6020 | 0.2067 | 0.2 | 0 | 103 | 85-115 | | | | 7/9/2007 |
| LCS-35383 | Zinc | mg/L | 6020 | 1.030 | 1 | 0.007819 | 102 | 85-115 | | | | 7/9/2007 |
| LCS-35367 | Iron | mg/L | 6010B | 1.002 | 1 | 0 | 100 | 75-125 | | | | 7/2/2007 |
| LCS-35367 | Manganese | mg/L | 6010B | 0.1927 | 0.2 | 0 | 96.3 | 75-125 | | | | 7/2/2007 |
| LCS-35383 | Aluminum | mg/L | 6010B | 0.9886 | 1 | 0 | 98.9 | 75-125 | | | | 7/2/2007 |
| LCS-35383 | Boron | mg/L | 6010B | 1.037 | 1 | 0 | 104 | 75-125 | | | | 7/2/2007 |
| LCS-35383 | Calcium | mg/L | 6010B | 9.784 | 10 | 0 | 97.8 | 75-125 | | | | 7/2/2007 |
| LCS-35383 | Iron | mg/L | 6010B | 1.014 | 1 | 0 | 101 | 75-125 | | | | 7/2/2007 |
| LCS-35383 | Magnesium | mg/L | 6010B | 9.993 | 10 | 0 | 99.9 | 75-125 | | | | 7/2/2007 |
| LCS-35383 | Molybdenum | mg/L | 6010B | 0.1978 | 0.2 | 0 | 98.9 | 75-125 | | | | 7/2/2007 |
| LCS-35383 | Potassium | mg/L | 6010B | 10.01 | 10 | 0 | 100 | 75-125 | | | | 7/2/2007 |
| LCS-35383 | Sodium | mg/L | 6010B | 10.11 | 10 | 0 | 101 | 75-125 | | | | 7/2/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

**Dept:** ME
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-35383 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 7/9/2007 |
| MB-35383 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 7/9/2007 |
| MB-35383 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 7/9/2007 |
| MB-35383 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 7/9/2007 |
| MB-35383 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 7/9/2007 |
| MB-35383 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 7/9/2007 |
| MB-35383 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 7/2/2007 |
| MB-35367 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 7/2/2007 |
| MB-35367 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 7/2/2007 |
| MB-35383 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 7/2/2007 |
| MB-35383 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 7/2/2007 |
| MB-35383 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 7/2/2007 |
| MB-35383 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 7/2/2007 |
| MB-35383 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 7/2/2007 |
| MB-35383 | Molybdenum | mg/L | 6010B | < 0.040 | | | | - | | | | 7/2/2007 |
| MB-35383 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 7/2/2007 |
| MB-35383 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 7/2/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L78574-01FMS | Arsenic | mg/L | 6020 | 0.2177 | 0.2 | 0.001225 | 108 | 70-130 | | | | 7/9/2007 |
| L78574-01FMS | Cadmium | mg/L | 6020 | 0.1996 | 0.2 | 0 | 99.8 | 70-130 | | | | 7/9/2007 |
| L78574-01FMS | Copper | mg/L | 6020 | 0.2146 | 0.2 | 0.006055 | 104 | 70-130 | | | | 7/9/2007 |
| L78574-01FMS | Lead | mg/L | 6020 | 0.2056 | 0.2 | 0.001032 | 102 | 70-130 | | | | 7/9/2007 |
| L78574-01FMS | Manganese | mg/L | 6020 | 0.2365 | 0.2 | 0.02218 | 107 | 70-130 | | | | 7/9/2007 |
| L78574-01FMS | Selenium | mg/L | 6020 | 0.2048 | 0.2 | 0.002152 | 101 | 70-130 | | | | 7/9/2007 |
| L78574-01FMS | Zinc | mg/L | 6020 | 1.027 | 1 | 0.02738 | 100 | 70-130 | | | | 7/9/2007 |
| L78574-01EMS | Iron | mg/L | 6010B | 1.198 | 1 | 0.1871 | 101 | 75-125 | | | | 7/2/2007 |
| L78574-01EMS | Manganese | mg/L | 6010B | 0.2153 | 0.2 | 0.01979 | 97.8 | 75-125 | | | | 7/2/2007 |
| L78574-01FMS | Calcium | mg/L | 6010B | 72.77 | 10 | 61.96 | 108 | 75-125 | | | | 7/2/2007 |
| L78574-01FMS | Magnesium | mg/L | 6010B | 43.86 | 10 | 33.3 | 106 | 75-125 | | | | 7/2/2007 |
| L78574-01FMS | Sodium | mg/L | 6010B | 51.35 | 10 | 54.85 | -34.9 | 75-125 | | | 2 | 7/2/2007 |
| L78574-01FMS | Aluminum | mg/L | 6010B | 0.9750 | 1 | 0 | 97.5 | 75-125 | | | | 7/2/2007 |
| L78574-01FMS | Boron | mg/L | 6010B | 1.200 | 1 | 0.138 | 106 | 75-125 | | | | 7/2/2007 |
| L78574-01FMS | Iron | mg/L | 6010B | 1.010 | 1 | 0.0194 | 99.1 | 75-125 | | | | 7/2/2007 |
| L78574-01FMS | Molybdenum | mg/L | 6010B | 0.1950 | 0.2 | 0 | 97.5 | 75-125 | | | | 7/2/2007 |
| L78574-01FMS | Potassium | mg/L | 6010B | 15.60 | 10 | 5.77 | 98.3 | 75-125 | | | | 7/2/2007 |

[2] Analyte concentration is too high for accurate spike and/or RPD recovery.



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Kyle F. Gross
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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L78574-01FMSD | Arsenic | mg/L | 6020 | 0.2194 | 0.2 | 0.001225 | 109 | 70-130 | 0.755 | 20 | | 7/9/2007 |
| L78574-01FMSD | Cadmium | mg/L | 6020 | 0.2031 | 0.2 | 0 | 102 | 70-130 | 1.75 | 20 | | 7/9/2007 |
| L78574-01FMSD | Copper | mg/L | 6020 | 0.2195 | 0.2 | 0.006055 | 107 | 70-130 | 2.25 | 20 | | 7/9/2007 |
| L78574-01FMSD | Lead | mg/L | 6020 | 0.2078 | 0.2 | 0.001032 | 103 | 70-130 | 1.09 | 20 | | 7/9/2007 |
| L78574-01FMSD | Manganese | mg/L | 6020 | 0.2371 | 0.2 | 0.02218 | 107 | 70-130 | 0.285 | 20 | | 7/9/2007 |
| L78574-01FMSD | Selenium | mg/L | 6020 | 0.2093 | 0.2 | 0.002152 | 104 | 70-130 | 2.19 | 20 | | 7/9/2007 |
| L78574-01FMSD | Zinc | mg/L | 6020 | 1.030 | 1 | 0.02738 | 100 | 70-130 | 0.301 | 20 | | 7/9/2007 |
| L78574-01EMSD | Iron | mg/L | 6010B | 1.220 | 1 | 0.1871 | 103 | 75-125 | 1.85 | 20 | | 7/2/2007 |
| L78574-01EMSD | Manganese | mg/L | 6010B | 0.2164 | 0.2 | 0.01979 | 98.3 | 75-125 | 0.482 | 20 | | 7/2/2007 |
| L78574-01FMSD | Calcium | mg/L | 6010B | 73.25 | 10 | 61.96 | 113 | 75-125 | 0.651 | 20 | | 7/2/2007 |
| L78574-01FMSD | Magnesium | mg/L | 6010B | 43.19 | 10 | 33.3 | 98.9 | 75-125 | 1.53 | 20 | | 7/2/2007 |
| L78574-01FMSD | Sodium | mg/L | 6010B | 51.51 | 10 | 54.85 | -33.4 | 75-125 | 0.295 | 20 | 2 | 7/2/2007 |
| L78574-01FMSD | Aluminum | mg/L | 6010B | 0.9700 | 1 | 0 | 97.0 | 75-125 | 0.514 | 20 | | 7/2/2007 |
| L78574-01FMSD | Boron | mg/L | 6010B | 1.200 | 1 | 0.138 | 106 | 75-125 | 0 | 20 | | 7/2/2007 |
| L78574-01FMSD | Iron | mg/L | 6010B | 1.010 | 1 | 0.0194 | 99.1 | 75-125 | 0 | 20 | | 7/2/2007 |
| L78574-01FMSD | Molybdenum | mg/L | 6010B | 0.1930 | 0.2 | 0 | 96.5 | 75-125 | 1.03 | 20 | | 7/2/2007 |
| L78574-01FMSD | Potassium | mg/L | 6010B | 15.50 | 10 | 5.77 | 97.3 | 75-125 | 0.643 | 20 | | 7/2/2007 |

[2] Analyte concentration is too high for accurate spike and/or RPD recovery.



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Kyle F. Gross
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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

**Dept:** WC
**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L78564-04DDUP | TDS | mg/L | 160.1 | 1076 | 0 | 1048 | | - | 2.64 | 20 | | 6/27/2007 |
| L78574-04ADUP | TDS | mg/L | 160.1 | 300.0 | 0 | 284 | | - | 5.48 | 20 | | 6/27/2007 |
| L78574-01ADUP | TSS | mg/L | SM2540D | 11.00 | 0 | 10 | | - | 9.52 | 20 | | 6/27/2007 |



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Kyle F. Gross
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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R71415 | Alkalinity,(As CaCO3) | mg/L | 2320B | 49860 | 50000 | 0 | 99.7 | 90-110 | | | | 6/28/2007 |
| LCS | Fluoride | mg/L | 300.0 | 4.908 | 5 | 0 | 98.2 | 90-110 | | | | 7/7/2007 |
| LCS | Sulfate | mg/L | 300.0 | 5.207 | 5 | 0.021 | 104 | 90-110 | | | | 7/7/2007 |
| LCS | Chloride | mg/L | 300.0 | 4.857 | 5 | 0.005 | 97.0 | 90-110 | | | | 7/9/2007 |
| LCS | Sulfate | mg/L | 300.0 | 5.353 | 5 | 0.025 | 107 | 90-110 | | | | 7/9/2007 |
| LCS-R71414 | Acidity | mg/L | SM2310B | 50.00 | 50 | 0 | 100 | 80-120 | | | | 6/28/2007 |
| LCS-35376 | Ammonia (as N) | mg/L | 350.1 | 0.9120 | 1 | 0 | 91.2 | 90-110 | | | | 6/29/2007 |
| LCS-71424 | Nitrite (as N) | mg/L | 353.2 | 1.016 | 1 | 0 | 102 | 90-110 | | | | 6/28/2007 |
| LCS-71427 | Nitrate (as N) | mg/L | 353.2 | 0.9870 | 1 | 0 | 98.7 | 90-110 | | | | 6/28/2007 |
| LCS-R71681 | Oil & Grease | mg/L | EPA 1664A | 40.00 | 40 | 0 | 100 | 79-114 | | | | 7/5/2007 |
| LCS-71398 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9770 | 1 | 0 | 97.7 | 90-110 | | | | 6/27/2007 |
| LCS-R71448 | TDS | mg/L | 160.1 | 198.0 | 205 | 0 | 96.6 | 80-120 | | | | 6/27/2007 |
| LCS-R71425 | TSS | mg/L | SM2540D | 99.00 | 100 | 0 | 99.0 | 80-120 | | | | 6/27/2007 |



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Kyle F. Gross
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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R71415 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 6/28/2007 |
| MB-R71415 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 6/28/2007 |
| MB-R71415 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 6/28/2007 |
| MB | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 7/7/2007 |
| MB | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 7/9/2007 |
| MB | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 7/9/2007 |
| MB-R71414 | Acidity | mg/L | SM2310B | < 15 | | | | - | | | | 6/28/2007 |
| MB-35376 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 6/29/2007 |
| MB-71424 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 6/28/2007 |
| MB-71427 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 6/28/2007 |
| MB-R71681 | Oil & Grease | mg/L | EPA 1664A | < 3.0 | | | | - | | | | 7/5/2007 |
| MB-71398 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 6/27/2007 |
| MB-R71448 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 6/27/2007 |
| MB-R71425 | TSS | mg/L | SM2540D | < 3.0 | | | | - | | | | 6/27/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L78574-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 350.0 | 100 | 248 | 102 | 80-120 | | | | 6/28/2007 |
| L78574-04BMS | Sulfate | mg/L | 300.0 | 74.91 | 50 | 27.44 | 94.9 | 90-110 | | | | 7/7/2007 |
| L78612-01AMS | Fluoride | mg/L | 300.0 | 5.309 | 5 | 0.135 | 103 | 90-110 | | | | 7/7/2007 |
| L78612-01AMS | Chloride | mg/L | 300.0 | 40.08 | 25 | 12.38 | 111 | 90-110 | | | [1] | 7/9/2007 |
| L78574-04BMS | Chloride | mg/L | 300.0 | 36.92 | 25 | 12.18 | 99.0 | 90-110 | | | | 7/9/2007 |
| L78726-01AMS | Chloride | mg/L | 300.0 | 536.0 | 500 | 25.72 | 102 | 90-110 | | | | 7/9/2007 |
| L78726-01AMS | Sulfate | mg/L | 300.0 | 524.1 | 500 | 15.81 | 102 | 90-110 | | | | 7/9/2007 |
| L78574-01BMS | Acidity | mg/L | SM2310B | 52.00 | 50 | 0 | 104 | 80-120 | | | | 6/28/2007 |
| L78574-01CMS | Ammonia (as N) | mg/L | 350.1 | 0.9010 | 1 | 0 | 90.1 | 90-110 | | | | 6/29/2007 |
| L78583-04FMS | Ammonia (as N) | mg/L | 350.1 | 0.9240 | 1 | 0 | 92.4 | 90-110 | | | | 6/29/2007 |
| L78574-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.029 | 1 | 0.005 | 102 | 90-110 | | | H | 6/28/2007 |
| L78574-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.135 | 1 | 0.105 | 103 | 90-110 | | | H | 6/28/2007 |
| L78574-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.029 | 1 | 0.01 | 102 | 90-110 | | | H | 6/27/2007 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

H - Inadequate time given to run inside hold time.



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L78574-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 345.0 | 100 | 248 | 97.0 | 80-120 | 1.44 | 10 | | 6/28/2007 |
| L78574-04BMSD | Sulfate | mg/L | 300.0 | 76.11 | 50 | 27.44 | 97.3 | 90-110 | 1.58 | 20 | | 7/7/2007 |
| L78612-01AMSD | Fluoride | mg/L | 300.0 | 5.495 | 5 | 0.135 | 107 | 90-110 | 3.44 | 20 | | 7/7/2007 |
| L78612-01AMSD | Chloride | mg/L | 300.0 | 37.12 | 25 | 12.38 | 99.0 | 90-110 | 7.66 | 20 | | 7/9/2007 |
| L78574-04BMSD | Chloride | mg/L | 300.0 | 37.40 | 25 | 12.18 | 101 | 90-110 | 1.27 | 20 | | 7/9/2007 |
| L78726-01AMSD | Chloride | mg/L | 300.0 | 535.2 | 500 | 25.72 | 102 | 90-110 | 0.153 | 20 | | 7/9/2007 |
| L78726-01AMSD | Sulfate | mg/L | 300.0 | 520.7 | 500 | 15.81 | 101 | 90-110 | 0.649 | 20 | | 7/9/2007 |
| L78574-01BMSD | Acidity | mg/L | SM2310B | 54.00 | 50 | 0 | 108 | 80-120 | 3.77 | 20 | | 6/28/2007 |
| L78574-01CMSD | Ammonia (as N) | mg/L | 350.1 | 0.9130 | 1 | 0 | 91.3 | 90-110 | 1.32 | 10 | | 6/29/2007 |
| L78583-04FMSD | Ammonia (as N) | mg/L | 350.1 | 0.9530 | 1 | 0 | 95.3 | 90-110 | 3.09 | 10 | | 6/29/2007 |
| L78574-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.017 | 1 | 0.005 | 101 | 90-110 | 1.17 | 10 | H | 6/28/2007 |
| L78574-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.115 | 1 | 0.105 | 101 | 90-110 | 1.78 | 10 | H | 6/28/2007 |
| L78574-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.021 | 1 | 0.01 | 101 | 90-110 | 0.780 | 10 | H | 6/27/2007 |

H - Inadequate time given to run inside hold time.



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R71681 | Oil & Grease | mg/L | EPA 1664A | 39.00 | 40 | 0 | 97.5 | 79-114 | | | | 7/5/2007 |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L78574
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R71681 | Oil & Grease | mg/L | EPA 1664A | 38.40 | 40 | 0 | 96.0 | 79-114 | 1.55 | 18 | | 7/5/2007 |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# American West Analytical Labs

## WORK ORDER Summary

*27-Jun-07*

**Work Order** L78574

**Client ID:** CAR300
**Project:** Scofield Baseline
**Comments:** QCLevel: 2+

**QC Level:** 2+
**Location:** HLJB

**Contact:** Brad Lindsay

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L78574-01A | Mud Creek | 6/25/2007 1:45:00 PM | 6/27/2007 | 7/12/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 7/12/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 7/12/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L78574-01B | | | | 7/12/2007 | | 2320B-ALK-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | 300.0-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | ACIDITY-W-2310B | june 27 - wc | 1 |
| | | | | 7/12/2007 | | NO2-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | NO3-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | PO4-O | june 27 - wc | 1 |
| L78574-01C | | | | 7/12/2007 | | NH3-W | june 27 - nh3 | 1 |
| | | | | 7/12/2007 | | NH3-W-PREP | june 27 - nh3 | 1 |
| L78574-01D | | | | 7/12/2007 | | OGB-W | ogb | 1 |
| L78574-01E | | | | 7/12/2007 | | 3005A-ICPMS | june 27 - met | 1 |
| | | | | 7/12/2007 | | ICP-W | june 27 - met | 1 |
| L78574-01F | | | | 7/12/2007 | Aqueous-Dissolved | 3005A-Diss | june 27 - dis met | 1 |
| | | | | 7/12/2007 | | 6020-W-DISS | june 27 - dis met | 1 |
| | | | | 7/12/2007 | | HARD | june 27 - dis met | 1 |
| | | | | 7/12/2007 | | ICP-W-DIS | june 27 - dis met | 1 |
| L78574-02A | Sulfur Spring | 6/25/2007 2:50:00 PM | | 7/12/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 7/12/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 7/12/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L78574-02B | | | | 7/12/2007 | | 2320B-ALK-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | 300.0-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | ACIDITY-W-2310B | june 27 - wc | 1 |
| | | | | 7/12/2007 | | NO2-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | NO3-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | PO4-O | june 27 - wc | 1 |

# WORK ORDER Summary

*27-Jun-07*

**Work Order** L78574

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L78574-02C | Sulfur Spring | 6/25/2007 2:50:00 PM | 6/27/2007 | 7/12/2007 | Aqueous | NH3-W | june 27 - nh3 | 1 |
| | | | | 7/12/2007 | | NH3-W-PREP | june 27 - nh3 | 1 |
| L78574-02D | | | | 7/12/2007 | | OGB-W | ogb | 1 |
| L78574-02E | | | | 7/12/2007 | | 3005A-ICPMS | june 27 - met | 1 |
| | | | | 7/12/2007 | | ICP-W | june 27 - met | 1 |
| L78574-02F | | | | 7/12/2007 | Aqueous-Dissolved | 3005A-Diss | june 27 - dis met | 1 |
| | | | | 7/12/2007 | | 6020-W-DISS | june 27 - dis met | 1 |
| | | | | 7/12/2007 | | HARD | june 27 - dis met | 1 |
| | | | | 7/12/2007 | | ICP-W-DIS | june 27 - dis met | 1 |
| L78574-03A | RES-1 | 6/25/2007 3:15:00 PM | | 7/12/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 7/12/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 7/12/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L78574-03B | | | | 7/12/2007 | | 2320B-ALK-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | 300.0-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | ACIDITY-W-2310B | june 27 - wc | 1 |
| | | | | 7/12/2007 | | NO2-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | NO3-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | PO4-O | june 27 - wc | 1 |
| L78574-03C | | | | 7/12/2007 | | NH3-W | june 27 - nh3 | 1 |
| | | | | 7/12/2007 | | NH3-W-PREP | june 27 - nh3 | 1 |
| L78574-03D | | | | 7/12/2007 | | OGB-W | ogb | 1 |
| L78574-03E | | | | 7/12/2007 | | 3005A-ICPMS | june 27 - met | 1 |
| | | | | 7/12/2007 | | ICP-W | june 27 - met | 1 |
| L78574-03F | | | | 7/12/2007 | Aqueous-Dissolved | 3005A-Diss | june 27 - dis met | 1 |
| | | | | 7/12/2007 | | 6020-W-DISS | june 27 - dis met | 1 |
| | | | | 7/12/2007 | | HARD | june 27 - dis met | 1 |
| | | | | 7/12/2007 | | ICP-W-DIS | june 27 - dis met | 1 |
| L78574-04A | Miller Outlet | 6/25/2007 2:30:00 PM | | 7/12/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |

# WORK ORDER Summary

*27-Jun-07*

**Work Order** L78574

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L78574-04A | Miller Outlet | 6/25/2007 2:30:00 PM | 6/27/2007 | 7/12/2007 | Aqueous | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 7/12/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L78574-04B | | | | 7/12/2007 | | 2320B-ALK-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | 300.0-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | ACIDITY-W-2310B | june 27 - wc | 1 |
| | | | | 7/12/2007 | | NO2-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | NO3-W | june 27 - wc | 1 |
| | | | | 7/12/2007 | | PO4-O | june 27 - wc | 1 |
| L78574-04C | | | | 7/12/2007 | | NH3-W | june 27 - nh3 | 1 |
| | | | | 7/12/2007 | | NH3-W-PREP | june 27 - nh3 | 1 |
| L78574-04D | | | | 7/12/2007 | | OGB-W | ogb | 1 |
| L78574-04E | | | | 7/12/2007 | | 3005A-ICPMS | june 27 - met | 1 |
| | | | | 7/12/2007 | | ICP-W | june 27 - met | 1 |
| L78574-04F | | | | 7/12/2007 | Aqueous-Dissolved | 3005A-Diss | june 27 - dis met | 1 |
| | | | | 7/12/2007 | | 6020-W-DISS | june 27 - dis met | 1 |
| | | | | 7/12/2007 | | HARD | june 27 - dis met | 1 |
| | | | | 7/12/2007 | | ICP-W-DIS | june 27 - dis met | 1 |

Client CARBON RESOURCES c/o ROCK LOGIC

Address P.O. BOX 544

CEDAREDGE (City) CO (State) 81413 (Zip)

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail rocklogicconsulting@gmail.com

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY


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# CHAIN OF CUSTODY

Lab Sample Set # 78574

Page 1 of 1

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day (Standard)

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TABLE N | | | | | | | | | | QC LEVEL / COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MUD CREEK | 6-25-07 13:45 | W | 6 | ✓ | | | | | | | | | | |
| SULFUR SPRING | 14:50 | | | ✓ | | | | | | | | | | |
| RES-1 | 15:15 | | | ✓ | | | | | | | | | | |
| MILLER OUTLET | 14:30 | | | ✓ | | | | | | | | | | |

QC LEVEL: 1 2 2+ 3 3+ 4

COMMENTS

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME: BRAD LINDSAY | Time: 17:00 | PRINT NAME: UPS |
| Relinquished By: Signature: UPS | Date: 6/27/07 | Received By: Signature |
| PRINT NAME | Time: 11:46 | PRINT NAME: REBEKAH WINKLER |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

PLEASE FILTER FOR DISOLVED SOLIDS

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
Notes: UPS

2 Ambient or Chilled
Notes:

3 Temperature 11.6°C

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved)[1] | mg/l |
| | - | Arsenic (Dissolved)[1] | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved)[1] | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved)[1] | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved)[1] | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.
½ gallon HDPE

Sample Set: 78574

## Preservation Check Sheet

| | | Sample Set Extension and pH | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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August 15, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L79128

Dear Brad Lindsay:

American West Analytical Labs received 2 samples on 8/1/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79128-01E
Field Sample ID: **Miller Outlet**
Collected: 7/30/2007 8:15:00 PM
Received: 8/1/2007

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 8/7/2007 5:13:00 PM | 6010B | 0.050 | **2.6** |
| Manganese | mg/L | 8/7/2007 5:13:00 PM | 6010B | 0.0050 | **0.086** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

**AMERICAN WEST ANALYTICAL LABORATORIES**

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79128-02E
Field Sample ID: **RES-1**
Collected: 7/30/2007 8:45:00 PM
Received: 8/1/2007

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 8/7/2007 5:29:00 PM | 6010B | 0.050 | **0.40** |
| Manganese | mg/L | 8/7/2007 5:29:00 PM | 6010B | 0.0050 | **0.38** |



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Contact: Brad Lindsay
Project ID: Scofield Baseline

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79128-01F
Field Sample ID: **Miller Outlet**
Collected: 7/30/2007 8:15:00 PM
Received: 8/1/2007

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 8/10/2007 11:28:00 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 8/6/2007 12:48:58 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 8/10/2007 11:28:00 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 8/6/2007 12:48:58 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 8/10/2007 10:54:00 AM | 6010B | 10 | **64** | * |
| Copper | mg/L | 8/6/2007 12:48:58 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 8/10/2007 11:28:00 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 8/6/2007 12:48:58 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 8/10/2007 10:54:00 AM | 6010B | 10 | **16** | * |
| Manganese | mg/L | 8/6/2007 12:48:58 PM | 6020 | 0.0050 | < 0.0050 | |
| Molybdenum | mg/L | 8/10/2007 11:28:00 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 8/10/2007 11:28:00 AM | 6010B | 1.0 | **2.5** | |
| Selenium | mg/L | 8/6/2007 12:48:58 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 8/10/2007 10:54:00 AM | 6010B | 10 | **16** | * |
| Zinc | mg/L | 8/6/2007 12:48:58 PM | 6020 | 0.010 | < 0.010 | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79128-02F
Field Sample ID: **RES-1**
Collected: 7/30/2007 8:45:00 PM
Received: 8/1/2007

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 8/10/2007 11:44:00 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 8/6/2007 1:16:22 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 8/10/2007 11:44:00 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 8/6/2007 1:16:22 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 8/10/2007 11:05:00 AM | 6010B | 10 | **71** | * |
| Copper | mg/L | 8/6/2007 1:16:22 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 8/10/2007 11:44:00 AM | 6010B | 0.050 | **0.15** | |
| Lead | mg/L | 8/6/2007 1:16:22 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 8/10/2007 11:05:00 AM | 6010B | 10 | **58** | * |
| Manganese | mg/L | 8/6/2007 1:16:22 PM | 6020 | 0.0050 | **0.43** | |
| Molybdenum | mg/L | 8/10/2007 11:44:00 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 8/10/2007 11:44:00 AM | 6010B | 1.0 | **15** | |
| Selenium | mg/L | 8/6/2007 1:16:22 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 8/10/2007 11:05:00 AM | 6010B | 10 | **42** | * |
| Zinc | mg/L | 8/6/2007 1:16:22 PM | 6020 | 0.010 | < 0.010 | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79128-01
Field Sample ID: **Miller Outlet**
Collected: 7/30/2007 8:15:00 PM
Received: 8/1/2007

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 8/2/2007 8:10:00 AM | SM2310B | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 8/2/2007 9:45:00 AM | 2320B | 20 | **210** | |
| Ammonia (as N) | mg/L | 8/3/2007 10:21:00 AM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 8/2/2007 9:45:00 AM | 2320B | 20 | **210** | |
| Carbonate (As CaCO3) | mg/L | 8/2/2007 9:45:00 AM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 8/11/2007 1:45:00 PM | 300.0 | 5.0 | **9.4** | * |
| Hardness (as CaCO3) | mg/L | 8/10/2007 10:54:00 AM | SM2340 B | 10 | **230** | |
| Nitrate (as N) | mg/L | 8/1/2007 2:04:00 PM | 353.2 | 0.010 | < 0.010 | |
| Nitrite (as N) | mg/L | 8/1/2007 2:04:00 PM | 353.2 | 0.010 | **0.025** | |
| Oil & Grease | mg/L | 8/2/2007 1:30:00 PM | EPA 1664A | 3.0 | **4.3** | |
| Phosphate, ortho (as P) | mg/L | 8/1/2007 1:26:00 PM | 365.1 | 0.050 | **0.11** | 1 |
| Settleable Solids | ml/L | 8/1/2007 1:00:00 PM | SM2540F | 0.10 | < 0.10 | |
| Sulfate | mg/L | 8/11/2007 1:45:00 PM | 300.0 | 5.0 | **19** | * |
| TDS | mg/L | 8/3/2007 1:45:00 PM | 160.1 | 10 | **280** | |
| TSS | mg/L | 8/1/2007 3:30:00 PM | SM2540D | 3.0 | **110** | |

*1 Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79128-02
Field Sample ID: **RES-1**
Collected: 7/30/2007 8:45:00 PM
Received: 8/1/2007

| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/2/2007 8:10:00 AM | SM2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/2/2007 9:45:00 AM | 2320B | 20 | **330** |
| Ammonia (as N) | mg/L | 8/3/2007 10:21:00 AM | 350.1 | 0.050 | **0.11** |
| Bicarbonate (As CaCO3) | mg/L | 8/2/2007 9:45:00 AM | 2320B | 20 | **330** |
| Carbonate (As CaCO3) | mg/L | 8/2/2007 9:45:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 8/11/2007 3:25:00 PM | 300.0 | 10 | **86** |
| Hardness (as CaCO3) | mg/L | 8/10/2007 11:05:00 AM | SM2340 B | 10 | **420** |
| Nitrate (as N) | mg/L | 8/1/2007 2:04:00 PM | 353.2 | 0.010 | **0.017** |
| Nitrite (as N) | mg/L | 8/1/2007 2:04:00 PM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 8/2/2007 1:30:00 PM | EPA 1664A | 3.0 | **4.0** |
| Phosphate, ortho (as P) | mg/L | 8/1/2007 1:26:00 PM | 365.1 | 0.050 | **0.098** |
| Settleable Solids | ml/L | 8/1/2007 1:00:00 PM | SM2540F | 0.10 | **0.50** |
| Sulfate | mg/L | 8/11/2007 3:25:00 PM | 300.0 | 10 | **48** |
| TDS | mg/L | 8/3/2007 1:45:00 PM | 160.1 | 10 | **590** |
| TSS | mg/L | 8/1/2007 3:30:00 PM | SM2540D | 3.0 | **38** |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-35929 | Arsenic | mg/L | 6020 | 0.2113 | 0.2 | 0 | 106 | 85-115 | | | | 8/6/2007 |
| LCS-35929 | Cadmium | mg/L | 6020 | 0.2078 | 0.2 | 0.000039 | 104 | 85-115 | | | | 8/6/2007 |
| LCS-35929 | Copper | mg/L | 6020 | 0.2188 | 0.2 | 0.000375 | 109 | 85-115 | | | | 8/6/2007 |
| LCS-35929 | Lead | mg/L | 6020 | 0.1992 | 0.2 | 0.000019 | 99.6 | 85-115 | | | | 8/6/2007 |
| LCS-35929 | Manganese | mg/L | 6020 | 0.2110 | 0.2 | 0 | 105 | 85-115 | | | | 8/6/2007 |
| LCS-35929 | Selenium | mg/L | 6020 | 0.1848 | 0.2 | 0 | 92.4 | 85-115 | | | | 8/6/2007 |
| LCS-35929 | Zinc | mg/L | 6020 | 0.9930 | 1 | 0 | 99.3 | 85-115 | | | | 8/6/2007 |
| LCS-35902 | Iron | mg/L | 6010B | 0.9730 | 1 | 0 | 97.3 | 75-125 | | | | 8/7/2007 |
| LCS-35902 | Manganese | mg/L | 6010B | 0.1930 | 0.2 | 0 | 96.5 | 75-125 | | | | 8/7/2007 |
| LCS-35929 | Aluminum | mg/L | 6010B | 1.043 | 1 | 0 | 104 | 75-125 | | | | 8/10/2007 |
| LCS-35929 | Boron | mg/L | 6010B | 1.091 | 1 | 0 | 109 | 75-125 | | | | 8/10/2007 |
| LCS-35929 | Calcium | mg/L | 6010B | 10.16 | 10 | 0 | 102 | 75-125 | | | | 8/10/2007 |
| LCS-35929 | Iron | mg/L | 6010B | 1.040 | 1 | 0 | 104 | 75-125 | | | | 8/10/2007 |
| LCS-35929 | Magnesium | mg/L | 6010B | 10.07 | 10 | 0 | 101 | 75-125 | | | | 8/10/2007 |
| LCS-35929 | Molybdenum | mg/L | 6010B | 0.2006 | 0.2 | 0 | 100 | 75-125 | | | | 8/10/2007 |
| LCS-35929 | Potassium | mg/L | 6010B | 10.06 | 10 | 0 | 101 | 75-125 | | | | 8/10/2007 |
| LCS-35929 | Sodium | mg/L | 6010B | 10.12 | 10 | 0 | 101 | 75-125 | | | | 8/10/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

**Dept:** ME

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-35929 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/6/2007 |
| MB-35929 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 8/6/2007 |
| MB-35929 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 8/6/2007 |
| MB-35929 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/6/2007 |
| MB-35929 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/6/2007 |
| MB-35929 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/6/2007 |
| MB-35929 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 8/6/2007 |
| MB-35902 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 8/7/2007 |
| MB-35902 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 8/7/2007 |
| MB-35929 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 8/10/2007 |
| MB-35929 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 8/10/2007 |
| MB-35929 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 8/10/2007 |
| MB-35929 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 8/10/2007 |
| MB-35929 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 8/10/2007 |
| MB-35929 | Molybdenum | mg/L | 6010B | < 0.040 | | | | - | | | | 8/10/2007 |
| MB-35929 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 8/10/2007 |
| MB-35929 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 8/10/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L79128-01FMS | Arsenic | mg/L | 6020 | 0.2131 | 0.2 | 0.001031 | 106 | 70-130 | | | | 8/6/2007 |
| L79128-01FMS | Cadmium | mg/L | 6020 | 0.2109 | 0.2 | 0 | 105 | 70-130 | | | | 8/6/2007 |
| L79128-01FMS | Copper | mg/L | 6020 | 0.2235 | 0.2 | 0.002095 | 111 | 70-130 | | | | 8/6/2007 |
| L79128-01FMS | Lead | mg/L | 6020 | 0.2017 | 0.2 | 0 | 101 | 70-130 | | | | 8/6/2007 |
| L79128-01FMS | Manganese | mg/L | 6020 | 0.2134 | 0.2 | 0.001039 | 106 | 70-130 | | | | 8/6/2007 |
| L79128-01FMS | Selenium | mg/L | 6020 | 0.1872 | 0.2 | 0.000717 | 93.2 | 70-130 | | | | 8/6/2007 |
| L79128-01FMS | Zinc | mg/L | 6020 | 0.9962 | 1 | 0 | 99.6 | 70-130 | | | | 8/6/2007 |
| L79128-01EMS | Iron | mg/L | 6010B | 3.830 | 1 | 2.63 | 120 | 75-125 | | | | 8/7/2007 |
| L79128-01EMS | Manganese | mg/L | 6010B | 0.2800 | 0.2 | 0.0858 | 97.1 | 75-125 | | | | 8/7/2007 |
| L79128-01FMS | Calcium | mg/L | 6010B | 71.65 | 10 | 63.88 | 77.7 | 75-125 | | | | 8/10/2007 |
| L79128-01FMS | Magnesium | mg/L | 6010B | 25.86 | 10 | 16.2 | 96.6 | 75-125 | | | | 8/10/2007 |
| L79128-01FMS | Sodium | mg/L | 6010B | 25.37 | 10 | 15.52 | 98.5 | 75-125 | | | | 8/10/2007 |
| L79128-01FMS | Aluminum | mg/L | 6010B | 1.090 | 1 | 0.0546 | 104 | 75-125 | | | | 8/10/2007 |
| L79128-01FMS | Boron | mg/L | 6010B | 1.190 | 1 | 0.0569 | 113 | 75-125 | | | | 8/10/2007 |
| L79128-01FMS | Iron | mg/L | 6010B | 1.080 | 1 | 0.0293 | 105 | 75-125 | | | | 8/10/2007 |
| L79128-01FMS | Molybdenum | mg/L | 6010B | 0.2060 | 0.2 | 0 | 103 | 75-125 | | | | 8/10/2007 |
| L79128-01FMS | Potassium | mg/L | 6010B | 12.90 | 10 | 2.54 | 104 | 75-125 | | | | 8/10/2007 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

**Dept:** ME
**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L79128-01FMSD | Arsenic | mg/L | 6020 | 0.2127 | 0.2 | 0.001031 | 106 | 70-130 | 0.178 | 20 | | 8/6/2007 |
| L79128-01FMSD | Cadmium | mg/L | 6020 | 0.2041 | 0.2 | 0 | 102 | 70-130 | 3.28 | 20 | | 8/6/2007 |
| L79128-01FMSD | Copper | mg/L | 6020 | 0.2194 | 0.2 | 0.002095 | 109 | 70-130 | 1.84 | 20 | | 8/6/2007 |
| L79128-01FMSD | Lead | mg/L | 6020 | 0.1971 | 0.2 | 0 | 98.5 | 70-130 | 2.34 | 20 | | 8/6/2007 |
| L79128-01FMSD | Manganese | mg/L | 6020 | 0.2098 | 0.2 | 0.001039 | 104 | 70-130 | 1.72 | 20 | | 8/6/2007 |
| L79128-01FMSD | Selenium | mg/L | 6020 | 0.1807 | 0.2 | 0.000717 | 90.0 | 70-130 | 3.52 | 20 | | 8/6/2007 |
| L79128-01FMSD | Zinc | mg/L | 6020 | 0.9577 | 1 | 0 | 95.8 | 70-130 | 3.94 | 20 | | 8/6/2007 |
| L79128-01EMSD | Iron | mg/L | 6010B | 3.700 | 1 | 2.63 | 107 | 75-125 | 3.45 | 20 | | 8/7/2007 |
| L79128-01EMSD | Manganese | mg/L | 6010B | 0.2760 | 0.2 | 0.0858 | 95.1 | 75-125 | 1.44 | 20 | | 8/7/2007 |
| L79128-01FMSD | Calcium | mg/L | 6010B | 72.29 | 10 | 63.88 | 84.1 | 75-125 | 0.889 | 20 | | 8/10/2007 |
| L79128-01FMSD | Magnesium | mg/L | 6010B | 26.02 | 10 | 16.2 | 98.3 | 75-125 | 0.636 | 20 | | 8/10/2007 |
| L79128-01FMSD | Sodium | mg/L | 6010B | 25.28 | 10 | 15.52 | 97.6 | 75-125 | 0.354 | 20 | | 8/10/2007 |
| L79128-01FMSD | Aluminum | mg/L | 6010B | 1.080 | 1 | 0.0546 | 103 | 75-125 | 0.922 | 20 | | 8/10/2007 |
| L79128-01FMSD | Boron | mg/L | 6010B | 1.170 | 1 | 0.0569 | 111 | 75-125 | 1.69 | 20 | | 8/10/2007 |
| L79128-01FMSD | Iron | mg/L | 6010B | 1.070 | 1 | 0.0293 | 104 | 75-125 | 0.930 | 20 | | 8/10/2007 |
| L79128-01FMSD | Molybdenum | mg/L | 6010B | 0.2030 | 0.2 | 0 | 102 | 75-125 | 1.47 | 20 | | 8/10/2007 |
| L79128-01FMSD | Potassium | mg/L | 6010B | 12.60 | 10 | 2.54 | 101 | 75-125 | 2.35 | 20 | | 8/10/2007 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L78914-05ADUP | TDS | mg/L | 160.1 | 348.0 | 0 | 334 | | - | 4.11 | 20 | | 8/3/2007 |
| L79156-02ADUP | TDS | mg/L | 160.1 | 442.0 | 0 | 438 | | - | 0.909 | 20 | | 8/3/2007 |
| L78914-04ADUP | TSS | mg/L | SM2540D | 77.00 | 0 | 78 | | - | 1.29 | 20 | | 8/1/2007 |
| L79118-02ADUP | TSS | mg/L | SM2540D | < 3.0 | 0 | 0 | | - | 0 | 20 | | 8/1/2007 |
| L79128-02ADUP | TSS | mg/L | SM2540D | 39.00 | 0 | 38 | | - | 2.60 | 20 | | 8/1/2007 |
| L79133-03ADUP | TSS | mg/L | SM2540D | 1195 | 0 | 1260 | | - | 5.30 | 20 | | 8/1/2007 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R72525 | Alkalinity,(As CaCO3) | mg/L | 2320B | 51540 | 50000 | 0 | 103 | 90-110 | | | | 8/2/2007 |
| LCS-R72900 | Chloride | mg/L | 300.0 | 4.782 | 5 | 0.01 | 95.4 | 90-110 | | | | 8/11/2007 |
| LCS-R72900 | Sulfate | mg/L | 300.0 | 4.997 | 5 | 0.013 | 99.7 | 90-110 | | | | 8/11/2007 |
| LCS-R72514 | Acidity | mg/L | SM2310B | 55.00 | 50 | 0 | 110 | 80-120 | | | | 8/2/2007 |
| LCS-35876 | Ammonia (as N) | mg/L | 350.1 | 0.9950 | 1 | 0 | 99.5 | 90-110 | | | | 8/3/2007 |
| LCS-72484 | Nitrite (as N) | mg/L | 353.2 | 1.071 | 1 | 0 | 107 | 90-110 | | | | 8/1/2007 |
| LCS-72486 | Nitrate (as N) | mg/L | 353.2 | 1.030 | 1 | 0 | 103 | 90-110 | | | | 8/1/2007 |
| LCS-R72613 | Oil & Grease | mg/L | EPA 1664A | 41.50 | 40 | 0 | 104 | 79-114 | | | | 8/2/2007 |
| LCS-72477 | Phosphate, ortho (as P) | mg/L | 365.1 | 1.060 | 1 | 0 | 106 | 90-110 | | | | 8/1/2007 |
| LCS-R72674 | TDS | mg/L | 160.1 | 208.0 | 205 | 0 | 101 | 80-120 | | | | 8/3/2007 |
| LCS-R72520 | TSS | mg/L | SM2540D | 96.00 | 100 | 0 | 96.0 | 80-120 | | | | 8/1/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R72525 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 8/2/2007 |
| MB-R72525 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 8/2/2007 |
| MB-R72525 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 8/2/2007 |
| MB-R72900 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 8/11/2007 |
| MB-R72900 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 8/11/2007 |
| MB-R72514 | Acidity | mg/L | SM2310B | < 15 | | | | - | | | | 8/2/2007 |
| MB-35876 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 8/3/2007 |
| MB-72484 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 8/1/2007 |
| MB-72486 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 8/1/2007 |
| MB-R72613 | Oil & Grease | mg/L | EPA 1664A | < 3.0 | | | | - | | | | 8/2/2007 |
| MB-72477 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 8/1/2007 |
| MB-R72674 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 8/3/2007 |
| MB-R72520 | TSS | mg/L | SM2540D | < 3.0 | | | | - | | | | 8/1/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L79128-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 308.0 | 100 | 210 | 98.0 | 80-120 | | | | 8/2/2007 |
| L79144-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 987.0 | 200 | 791 | 98.0 | 80-120 | | | | 8/2/2007 |
| L79128-01BMS | Chloride | mg/L | 300.0 | 33.92 | 25 | 9.392 | 98.1 | 90-110 | | | | 8/11/2007 |
| L79128-01BMS | Sulfate | mg/L | 300.0 | 45.86 | 25 | 18.71 | 109 | 90-110 | | | | 8/11/2007 |
| L79128-01BMS | Acidity | mg/L | SM2310B | 54.00 | 50 | 0 | 108 | 80-120 | | | | 8/2/2007 |
| L79121-05DMS | Ammonia (as N) | mg/L | 350.1 | 0.9490 | 1 | 0 | 94.9 | 90-110 | | | | 8/3/2007 |
| L79128-02CMS | Ammonia (as N) | mg/L | 350.1 | 1.108 | 1 | 0.11 | 99.8 | 90-110 | | | | 8/3/2007 |
| L79128-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.119 | 1 | 0.025 | 109 | 90-110 | | | | 8/1/2007 |
| L79128-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.096 | 1 | 0 | 110 | 90-110 | | | | 8/1/2007 |
| L79128-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.210 | 1 | 0.107 | 110 | 90-110 | | | [1] | 8/1/2007 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79128
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L79128-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 309.0 | 100 | 210 | 99.0 | 80-120 | 0.324 | 10 | | 8/2/2007 |
| L79144-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 990.0 | 200 | 791 | 99.5 | 80-120 | 0.303 | 10 | | 8/2/2007 |
| L79128-01BMSD | Chloride | mg/L | 300.0 | 34.20 | 25 | 9.392 | 99.2 | 90-110 | 0.819 | 20 | | 8/11/2007 |
| L79128-01BMSD | Sulfate | mg/L | 300.0 | 45.78 | 25 | 18.71 | 108 | 90-110 | 0.170 | 20 | | 8/11/2007 |
| L79128-01BMSD | Acidity | mg/L | SM2310B | 56.00 | 50 | 0 | 112 | 80-120 | 3.64 | 20 | | 8/2/2007 |
| L79121-05DMSD | Ammonia (as N) | mg/L | 350.1 | 0.9840 | 1 | 0 | 98.4 | 90-110 | 3.62 | 10 | | 8/3/2007 |
| L79128-02CMSD | Ammonia (as N) | mg/L | 350.1 | 1.124 | 1 | 0.11 | 101 | 90-110 | 1.43 | 10 | | 8/3/2007 |
| L79128-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.092 | 1 | 0.025 | 107 | 90-110 | 2.44 | 10 | | 8/1/2007 |
| L79128-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.087 | 1 | 0 | 109 | 90-110 | 0.825 | 10 | | 8/1/2007 |
| L79128-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.277 | 1 | 0.107 | 117 | 90-110 | 5.39 | 10 | 1 | 8/1/2007 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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# American West Analytical Labs

## WORK ORDER Summary

*01-Aug-07*

**Work Order** L79128

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

10K-DB

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L79128-01A | Miller Outlet | 7/30/2007 8:15:00 PM | 8/1/2007 | 8/15/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 8/15/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 8/15/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L79128-01B | | | | 8/15/2007 | | 2320B-ALK-W | aug 1 - wc | 1 |
| | | | | 8/15/2007 | | 300.0-W | aug 1 - wc | 1 |
| | | | | 8/15/2007 | | ACIDITY-W-2310B | aug 1 - wc | 1 |
| | | | | 8/15/2007 | | NO2-W | aug 1 - wc | 1 |
| | | | | 8/15/2007 | | NO3-W | aug 1 - wc | 1 |
| | | | | 8/15/2007 | | PO4-O | aug 1 - wc | 1 |
| L79128-01C | | | | 8/15/2007 | | NH3-W | aug 1 - nh3 | 1 |
| | | | | 8/15/2007 | | NH3-W-PREP | aug 1 - nh3 | 1 |
| L79128-01D | | | | 8/15/2007 | | OGB-W | ogb | 1 |
| L79128-01E | | | | 8/15/2007 | | 3005A-ICPMS | aug 1 - met | 1 |
| | | | | 8/15/2007 | | ICP-W | aug 1 - met | 1 |
| L79128-01F | | | | 8/15/2007 | Aqueous-Dissolved | 3005A-Diss | aug 1 - dis met | 1 |
| | | | | 8/15/2007 | | 6020-W-DISS | aug 1 - dis met | 1 |
| | | | | 8/15/2007 | | HARD | aug 1 - dis met | 1 |
| | | | | 8/15/2007 | | ICP-W-DIS | aug 1 - dis met | 1 |
| L79128-02A | RES-1 | 7/30/2007 8:45:00 PM | | 8/15/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 8/15/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 8/15/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L79128-02B | | | | 8/15/2007 | | 2320B-ALK-W | aug 1 - wc | 1 |
| | | | | 8/15/2007 | | 300.0-W | aug 1 - wc | 1 |
| | | | | 8/15/2007 | | ACIDITY-W-2310B | aug 1 - wc | 1 |
| | | | | 8/15/2007 | | NO2-W | aug 1 - wc | 1 |
| | | | | 8/15/2007 | | NO3-W | aug 1 - wc | 1 |
| | | | | 8/15/2007 | | PO4-O | aug 1 - wc | 1 |

# WORK ORDER Summary

*01-Aug-07*

**Work Order** L79128

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L79128-02C | RES-1 | 7/30/2007 8:45:00 PM | 8/1/2007 | 8/15/2007 | Aqueous | NH3-W | aug 1 - nh3 | 1 |
| | | | | 8/15/2007 | | NH3-W-PREP | aug 1 - nh3 | 1 |
| L79128-02D | | | | 8/15/2007 | | OGB-W | ogb | 1 |
| L79128-02E | | | | 8/15/2007 | | 3005A-ICPMS | aug 1 - met | 1 |
| | | | | 8/15/2007 | | ICP-W | aug 1 - met | 1 |
| L79128-02F | | | | 8/15/2007 | Aqueous-Dissolved | 3005A-Diss | aug 1 - dis met | 1 |
| | | | | 8/15/2007 | | 6020-W-DISS | aug 1 - dis met | 1 |
| | | | | 8/15/2007 | | HARD | aug 1 - dis met | 1 |
| | | | | 8/15/2007 | | ICP-W-DIS | aug 1 - dis met | 1 |

Client ROCK LOGIC CONSULTING

Address P.O. BOX 544

CEDAREDGE, CO 81413
City / State Zip

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGIC CONSULTING@GMAIL.COM

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY


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Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com


# CHAIN OF CUSTODY

Lab Sample Set # 29128

Page _____ of _____

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day (Standard)

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TABLE 2 | | | | | | | | | | QC LEVEL | LABORATORY USE ONLY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MILLER OUTLET | 7/30/07 20:15 | W | 6 | 1 | | | | | | | | | | 1 2 2+ 3 3+ 4 | SAMPLES WERE: 1 Shipped or hand delivered Notes: 2 Ambient or Chilled Notes: ON ICE 3 Temperature 8° |
| RES-1 | 20:45 | | | | | | | | | | | | | COMMENTS | 4 Received Broken/Leaking (Improperly Sealed) Y (N) Notes: |
| * SULFUR SPRING | 21:00 | | | | | | | | | | | | | | 5 Properly Preserved Y N Notes: |
| * MUD CREEK | 21:30 | | | | | | | | | | | | | | 6 Received Within Holding Times Y N Notes: |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 9:30 | PRINT NAME UPS |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date 8/1/07 | Received By: Signature |
| PRINT NAME | Time 1056 | PRINT NAME Elena Hayes |

Special Instructions:

PLEASE FILTER

*SULFUR SPRING AND MUD CREEK NOT RECEIVED 8/1/07-RW

COC Tape Was:

1 Present on Outer Package (Y) N NA

2 Unbroken on Outer Package (Y) N NA

3 Present on Sample Y N (NA)

4 Unbroken on Sample Y N (NA) Notes:

Discrepancies Between Sample Labels and COC Record? Y (N) Notes:

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 79128

## Preservation Check Sheet

| | | Sample Set Extension and pH | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

August 16, 2007

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L79156

Dear Brad Lindsay:

American West Analytical Labs received 2 samples on 8/2/2007 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Approved by: _____
Laboratory Director or designee



All analysis applicable to the CWA, SDWA and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached Chain-of-Custody. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Lab Sample ID: L79156-01E
Field Sample ID: **Sulfur Spring**
Collected: 7/30/2007 9:00:00 PM
Received: 8/2/2007

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 8/7/2007 5:33:00 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 8/7/2007 5:33:00 PM | 6010B | 0.0050 | **0.031** |

Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79156-02E
Field Sample ID: **Mud Creek**
Collected: 7/30/2007 9:30:00 PM
Received: 8/2/2007

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 8/7/2007 5:45:00 PM | 6010B | 0.050 | **0.34** |
| Manganese | mg/L | 8/7/2007 5:45:00 PM | 6010B | 0.0050 | **0.028** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79156-01F
Field Sample ID: **Sulfur Spring**
Collected: 7/30/2007 9:00:00 PM
Received: 8/2/2007

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 8/10/2007 11:48:00 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 8/6/2007 1:21:51 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 8/10/2007 11:48:00 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 8/6/2007 1:21:51 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 8/10/2007 11:09:00 AM | 6010B | 10 | **89** | * |
| Copper | mg/L | 8/6/2007 1:21:51 PM | 6020 | 0.0040 | **0.0090** | |
| Iron | mg/L | 8/10/2007 11:48:00 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 8/6/2007 1:21:51 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 8/10/2007 11:09:00 AM | 6010B | 10 | **35** | * |
| Manganese | mg/L | 8/6/2007 1:21:51 PM | 6020 | 0.0050 | **0.038** | |
| Molybdenum | mg/L | 8/10/2007 11:48:00 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 8/10/2007 11:48:00 AM | 6010B | 1.0 | **4.9** | |
| Selenium | mg/L | 8/6/2007 1:21:51 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 8/10/2007 11:48:00 AM | 6010B | 1.0 | **8.5** | |
| Zinc | mg/L | 8/6/2007 1:21:51 PM | 6020 | 0.010 | **0.018** | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79156-02F
Field Sample ID: **Mud Creek**
Collected: 7/30/2007 9:30:00 PM
Received: 8/2/2007

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 8/10/2007 11:52:00 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 8/6/2007 1:27:20 PM | 6020 | 0.0050 | < 0.0050 | |
| Boron | mg/L | 8/10/2007 11:52:00 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 8/6/2007 1:27:20 PM | 6020 | 0.0040 | < 0.0040 | |
| Calcium | mg/L | 8/10/2007 11:13:00 AM | 6010B | 10 | **63** | * |
| Copper | mg/L | 8/6/2007 1:27:20 PM | 6020 | 0.0040 | < 0.0040 | |
| Iron | mg/L | 8/10/2007 11:52:00 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 8/6/2007 1:27:20 PM | 6020 | 0.0050 | < 0.0050 | |
| Magnesium | mg/L | 8/10/2007 11:13:00 AM | 6010B | 10 | **38** | * |
| Manganese | mg/L | 8/6/2007 1:27:20 PM | 6020 | 0.0050 | **0.0090** | |
| Molybdenum | mg/L | 8/10/2007 11:52:00 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 8/10/2007 11:52:00 AM | 6010B | 1.0 | **6.8** | |
| Selenium | mg/L | 8/6/2007 1:27:20 PM | 6020 | 0.0050 | < 0.0050 | |
| Sodium | mg/L | 8/10/2007 11:13:00 AM | 6010B | 10 | **34** | * |
| Zinc | mg/L | 8/6/2007 1:27:20 PM | 6020 | 0.010 | < 0.010 | |

** The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

**AMERICAN WEST ANALYTICAL LABORATORIES**

Lab Sample ID: L79156-01
Field Sample ID: **Sulfur Spring**
Collected: 7/30/2007 9:00:00 PM
Received: 8/2/2007

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 8/6/2007 7:00:00 AM | SM2310B | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 8/3/2007 10:40:00 AM | 2320B | 20 | **340** | |
| Ammonia (as N) | mg/L | 8/3/2007 11:09:00 AM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 8/3/2007 10:40:00 AM | 2320B | 20 | **340** | |
| Carbonate (As CaCO3) | mg/L | 8/3/2007 10:40:00 AM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 8/11/2007 3:58:00 PM | 300.0 | 5.0 | **6.3** | |
| Hardness (as CaCO3) | mg/L | 8/10/2007 11:09:00 AM | SM2340 B | 10 | **370** | |
| Nitrate (as N) | mg/L | 8/2/2007 11:59:00 AM | 353.2 | 0.010 | < 0.010 | **H** |
| Nitrite (as N) | mg/L | 8/2/2007 11:59:00 AM | 353.2 | 0.010 | < 0.010 | **[1]H** |
| Oil & Grease | mg/L | 8/6/2007 11:10:00 AM | EPA 1664A | 3.0 | **3.7** | |
| Phosphate, ortho (as P) | mg/L | 8/2/2007 2:07:00 PM | 365.1 | 0.050 | < 0.050 | **[1]H** |
| Settleable Solids | ml/L | 8/2/2007 12:00:00 PM | SM2540F | 0.10 | < 0.10 | **H** |
| Sulfate | mg/L | 8/11/2007 3:58:00 PM | 300.0 | 5.0 | **47** | |
| TDS | mg/L | 8/3/2007 1:45:00 PM | 160.1 | 10 | **390** | |
| TSS | mg/L | 8/2/2007 3:30:00 PM | SM2540D | 3.0 | < 3.0 | |

*H - Sample was received outside of holding time.*

*[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

Lab Sample ID: L79156-02
Field Sample ID: **Mud Creek**
Collected: 7/30/2007 9:30:00 PM
Received: 8/2/2007

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 8/6/2007 7:00:00 AM | SM2310B | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 8/3/2007 10:40:00 AM | 2320B | 20 | **230** | |
| Ammonia (as N) | mg/L | 8/3/2007 11:09:00 AM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 8/3/2007 10:40:00 AM | 2320B | 20 | **230** | |
| Carbonate (As CaCO3) | mg/L | 8/3/2007 10:40:00 AM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 8/11/2007 5:38:00 PM | 300.0 | 10 | **12** | |
| Hardness (as CaCO3) | mg/L | 8/10/2007 11:13:00 AM | SM2340 B | 10 | **310** | |
| Nitrate (as N) | mg/L | 8/2/2007 11:59:00 AM | 353.2 | 0.010 | **0.15** | **H** |
| Nitrite (as N) | mg/L | 8/2/2007 11:59:00 AM | 353.2 | 0.010 | < 0.010 | **H** |
| Oil & Grease | mg/L | 8/6/2007 11:10:00 AM | EPA 1664A | 3.0 | **4.9** | |
| Phosphate, ortho (as P) | mg/L | 8/2/2007 2:07:00 PM | 365.1 | 0.050 | < 0.050 | **H** |
| Settleable Solids | ml/L | 8/2/2007 12:00:00 PM | SM2540F | 0.10 | **0.10** | **H** |
| Sulfate | mg/L | 8/11/2007 6:11:00 PM | 300.0 | 20 | **140** | |
| TDS | mg/L | 8/3/2007 1:45:00 PM | 160.1 | 10 | **440** | |
| TSS | mg/L | 8/2/2007 3:30:00 PM | SM2540D | 3.0 | **28** | |

*H - Sample was received outside of holding time.*



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-35929 | Arsenic | mg/L | 6020 | 0.2113 | 0.2 | 0 | 106 | 85-115 | | | | 8/6/2007 |
| LCS-35929 | Cadmium | mg/L | 6020 | 0.2078 | 0.2 | 0.000039 | 104 | 85-115 | | | | 8/6/2007 |
| LCS-35929 | Copper | mg/L | 6020 | 0.2188 | 0.2 | 0.000375 | 109 | 85-115 | | | | 8/6/2007 |
| LCS-35929 | Lead | mg/L | 6020 | 0.1992 | 0.2 | 0.000019 | 99.6 | 85-115 | | | | 8/6/2007 |
| LCS-35929 | Manganese | mg/L | 6020 | 0.2110 | 0.2 | 0 | 105 | 85-115 | | | | 8/6/2007 |
| LCS-35929 | Selenium | mg/L | 6020 | 0.1848 | 0.2 | 0 | 92.4 | 85-115 | | | | 8/6/2007 |
| LCS-35929 | Zinc | mg/L | 6020 | 0.9930 | 1 | 0 | 99.3 | 85-115 | | | | 8/6/2007 |
| LCS-35902 | Iron | mg/L | 6010B | 0.9730 | 1 | 0 | 97.3 | 75-125 | | | | 8/7/2007 |
| LCS-35902 | Manganese | mg/L | 6010B | 0.1930 | 0.2 | 0 | 96.5 | 75-125 | | | | 8/7/2007 |
| LCS-35929 | Aluminum | mg/L | 6010B | 1.043 | 1 | 0 | 104 | 75-125 | | | | 8/10/2007 |
| LCS-35929 | Boron | mg/L | 6010B | 1.091 | 1 | 0 | 109 | 75-125 | | | | 8/10/2007 |
| LCS-35929 | Calcium | mg/L | 6010B | 10.16 | 10 | 0 | 102 | 75-125 | | | | 8/10/2007 |
| LCS-35929 | Iron | mg/L | 6010B | 1.040 | 1 | 0 | 104 | 75-125 | | | | 8/10/2007 |
| LCS-35929 | Magnesium | mg/L | 6010B | 10.07 | 10 | 0 | 101 | 75-125 | | | | 8/10/2007 |
| LCS-35929 | Molybdenum | mg/L | 6010B | 0.2006 | 0.2 | 0 | 100 | 75-125 | | | | 8/10/2007 |
| LCS-35929 | Potassium | mg/L | 6010B | 10.06 | 10 | 0 | 101 | 75-125 | | | | 8/10/2007 |
| LCS-35929 | Sodium | mg/L | 6010B | 10.12 | 10 | 0 | 101 | 75-125 | | | | 8/10/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

**Dept:** ME

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-35929 | Arsenic | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/6/2007 |
| MB-35929 | Cadmium | mg/L | 6020 | < 0.0040 | | | | - | | | | 8/6/2007 |
| MB-35929 | Copper | mg/L | 6020 | < 0.0040 | | | | - | | | | 8/6/2007 |
| MB-35929 | Lead | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/6/2007 |
| MB-35929 | Manganese | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/6/2007 |
| MB-35929 | Selenium | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/6/2007 |
| MB-35929 | Zinc | mg/L | 6020 | < 0.010 | | | | - | | | | 8/6/2007 |
| MB-35902 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 8/7/2007 |
| MB-35902 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 8/7/2007 |
| MB-35929 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 8/10/2007 |
| MB-35929 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 8/10/2007 |
| MB-35929 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 8/10/2007 |
| MB-35929 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 8/10/2007 |
| MB-35929 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 8/10/2007 |
| MB-35929 | Molybdenum | mg/L | 6010B | < 0.040 | | | | - | | | | 8/10/2007 |
| MB-35929 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 8/10/2007 |
| MB-35929 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 8/10/2007 |



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Kyle F. Gross
Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L79128-01FMS | Arsenic | mg/L | 6020 | 0.2131 | 0.2 | 0.001031 | 106 | 70-130 | | | | 8/6/2007 |
| L79128-01FMS | Cadmium | mg/L | 6020 | 0.2109 | 0.2 | 0 | 105 | 70-130 | | | | 8/6/2007 |
| L79128-01FMS | Copper | mg/L | 6020 | 0.2235 | 0.2 | 0.002095 | 111 | 70-130 | | | | 8/6/2007 |
| L79128-01FMS | Lead | mg/L | 6020 | 0.2017 | 0.2 | 0 | 101 | 70-130 | | | | 8/6/2007 |
| L79128-01FMS | Manganese | mg/L | 6020 | 0.2134 | 0.2 | 0.001039 | 106 | 70-130 | | | | 8/6/2007 |
| L79128-01FMS | Selenium | mg/L | 6020 | 0.1872 | 0.2 | 0.000717 | 93.2 | 70-130 | | | | 8/6/2007 |
| L79128-01FMS | Zinc | mg/L | 6020 | 0.9962 | 1 | 0 | 99.6 | 70-130 | | | | 8/6/2007 |
| L79128-01EMS | Iron | mg/L | 6010B | 3.830 | 1 | 2.63 | 120 | 75-125 | | | | 8/7/2007 |
| L79128-01EMS | Manganese | mg/L | 6010B | 0.2800 | 0.2 | 0.0858 | 97.1 | 75-125 | | | | 8/7/2007 |
| L79128-01FMS | Calcium | mg/L | 6010B | 71.65 | 10 | 63.88 | 77.7 | 75-125 | | | | 8/10/2007 |
| L79128-01FMS | Magnesium | mg/L | 6010B | 25.86 | 10 | 16.2 | 96.6 | 75-125 | | | | 8/10/2007 |
| L79128-01FMS | Sodium | mg/L | 6010B | 25.37 | 10 | 15.52 | 98.5 | 75-125 | | | | 8/10/2007 |
| L79128-01FMS | Aluminum | mg/L | 6010B | 1.090 | 1 | 0.0546 | 104 | 75-125 | | | | 8/10/2007 |
| L79128-01FMS | Boron | mg/L | 6010B | 1.190 | 1 | 0.0569 | 113 | 75-125 | | | | 8/10/2007 |
| L79128-01FMS | Iron | mg/L | 6010B | 1.080 | 1 | 0.0293 | 105 | 75-125 | | | | 8/10/2007 |
| L79128-01FMS | Molybdenum | mg/L | 6010B | 0.2060 | 0.2 | 0 | 103 | 75-125 | | | | 8/10/2007 |
| L79128-01FMS | Potassium | mg/L | 6010B | 12.90 | 10 | 2.54 | 104 | 75-125 | | | | 8/10/2007 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L79128-01FMSD | Arsenic | mg/L | 6020 | 0.2127 | 0.2 | 0.001031 | 106 | 70-130 | 0.178 | 20 | | 8/6/2007 |
| L79128-01FMSD | Cadmium | mg/L | 6020 | 0.2041 | 0.2 | 0 | 102 | 70-130 | 3.28 | 20 | | 8/6/2007 |
| L79128-01FMSD | Copper | mg/L | 6020 | 0.2194 | 0.2 | 0.002095 | 109 | 70-130 | 1.84 | 20 | | 8/6/2007 |
| L79128-01FMSD | Lead | mg/L | 6020 | 0.1971 | 0.2 | 0 | 98.5 | 70-130 | 2.34 | 20 | | 8/6/2007 |
| L79128-01FMSD | Manganese | mg/L | 6020 | 0.2098 | 0.2 | 0.001039 | 104 | 70-130 | 1.72 | 20 | | 8/6/2007 |
| L79128-01FMSD | Selenium | mg/L | 6020 | 0.1807 | 0.2 | 0.000717 | 90.0 | 70-130 | 3.52 | 20 | | 8/6/2007 |
| L79128-01FMSD | Zinc | mg/L | 6020 | 0.9577 | 1 | 0 | 95.8 | 70-130 | 3.94 | 20 | | 8/6/2007 |
| L79128-01EMSD | Iron | mg/L | 6010B | 3.700 | 1 | 2.63 | 107 | 75-125 | 3.45 | 20 | | 8/7/2007 |
| L79128-01EMSD | Manganese | mg/L | 6010B | 0.2760 | 0.2 | 0.0858 | 95.1 | 75-125 | 1.44 | 20 | | 8/7/2007 |
| L79128-01FMSD | Calcium | mg/L | 6010B | 72.29 | 10 | 63.88 | 84.1 | 75-125 | 0.889 | 20 | | 8/10/2007 |
| L79128-01FMSD | Magnesium | mg/L | 6010B | 26.02 | 10 | 16.2 | 98.3 | 75-125 | 0.636 | 20 | | 8/10/2007 |
| L79128-01FMSD | Sodium | mg/L | 6010B | 25.28 | 10 | 15.52 | 97.6 | 75-125 | 0.354 | 20 | | 8/10/2007 |
| L79128-01FMSD | Aluminum | mg/L | 6010B | 1.080 | 1 | 0.0546 | 103 | 75-125 | 0.922 | 20 | | 8/10/2007 |
| L79128-01FMSD | Boron | mg/L | 6010B | 1.170 | 1 | 0.0569 | 111 | 75-125 | 1.69 | 20 | | 8/10/2007 |
| L79128-01FMSD | Iron | mg/L | 6010B | 1.070 | 1 | 0.0293 | 104 | 75-125 | 0.930 | 20 | | 8/10/2007 |
| L79128-01FMSD | Molybdenum | mg/L | 6010B | 0.2030 | 0.2 | 0 | 102 | 75-125 | 1.47 | 20 | | 8/10/2007 |
| L79128-01FMSD | Potassium | mg/L | 6010B | 12.60 | 10 | 2.54 | 101 | 75-125 | 2.35 | 20 | | 8/10/2007 |



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Laboratory Director

Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L78914-05ADUP | TDS | mg/L | 160.1 | 348.0 | 0 | 334 | | - | 4.11 | 20 | | 8/3/2007 |
| L79156-02ADUP | TDS | mg/L | 160.1 | 442.0 | 0 | 438 | | - | 0.909 | 20 | | 8/3/2007 |
| L79147-02ADUP | TSS | mg/L | SM2540D | 5.000 | 0 | 6 | | - | 18.2 | 20 | | 8/2/2007 |
| L79156-02ADUP | TSS | mg/L | SM2540D | 27.00 | 0 | 28 | | - | 3.64 | 20 | | 8/2/2007 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R72590 | Alkalinity,(As CaCO3) | mg/L | 2320B | 51540 | 50000 | 0 | 103 | 90-110 | | | | 8/3/2007 |
| LCS-R72900 | Chloride | mg/L | 300.0 | 4.782 | 5 | 0.01 | 95.4 | 90-110 | | | | 8/11/2007 |
| LCS-R72900 | Sulfate | mg/L | 300.0 | 4.997 | 5 | 0.013 | 99.7 | 90-110 | | | | 8/11/2007 |
| LCS-R72624 | Acidity | mg/L | SM2310B | 55.00 | 50 | 0 | 110 | 80-120 | | | | 8/6/2007 |
| LCS-35901 | Ammonia (as N) | mg/L | 350.1 | 0.9360 | 1 | 0.024 | 91.2 | 90-110 | | | | 8/3/2007 |
| LCS-72537 | Nitrite (as N) | mg/L | 353.2 | 1.036 | 1 | 0 | 104 | 90-110 | | | | 8/2/2007 |
| LCS-72539 | Nitrate (as N) | mg/L | 353.2 | 1.028 | 1 | 0 | 103 | 90-110 | | | | 8/2/2007 |
| LCS-R72665 | Oil & Grease | mg/L | EPA 1664A | 40.60 | 40 | 0 | 102 | 79-114 | | | | 8/6/2007 |
| LCS-72548 | Phosphate, ortho (as P) | mg/L | 365.1 | 1.054 | 1 | 0 | 105 | 90-110 | | | | 8/2/2007 |
| LCS-R72674 | TDS | mg/L | 160.1 | 208.0 | 205 | 0 | 101 | 80-120 | | | | 8/3/2007 |
| LCS-R72578 | TSS | mg/L | SM2540D | 97.00 | 100 | 0 | 97.0 | 80-120 | | | | 8/2/2007 |



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R72590 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 8/3/2007 |
| MB-R72590 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 8/3/2007 |
| MB-R72590 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 8/3/2007 |
| MB-R72900 | Chloride | mg/L | 300.0 | < 1.0 | | | | - | | | | 8/11/2007 |
| MB-R72900 | Sulfate | mg/L | 300.0 | < 1.0 | | | | - | | | | 8/11/2007 |
| MB-R72624 | Acidity | mg/L | SM2310B | < 15 | | | | - | | | | 8/6/2007 |
| MB-35901 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 8/3/2007 |
| MB-72537 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 8/2/2007 |
| MB-72539 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 8/2/2007 |
| MB-R72665 | Oil & Grease | mg/L | EPA 1664A | < 3.0 | | | | - | | | | 8/6/2007 |
| MB-72548 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 8/2/2007 |
| MB-R72674 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 8/3/2007 |
| MB-R72578 | TSS | mg/L | SM2540D | < 3.0 | | | | - | | | | 8/2/2007 |



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

**Dept:** WC
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L79156-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 439.0 | 100 | 336 | 103 | 80-120 | | | | 8/3/2007 |
| L79128-01BMS | Chloride | mg/L | 300.0 | 33.92 | 25 | 9.392 | 98.1 | 90-110 | | | | 8/11/2007 |
| L79128-01BMS | Sulfate | mg/L | 300.0 | 45.86 | 25 | 18.71 | 109 | 90-110 | | | | 8/11/2007 |
| L79156-01BMS | Acidity | mg/L | SM2310B | 50.00 | 50 | 0 | 100 | 80-120 | | | | 8/6/2007 |
| L79144-03DMS | Ammonia (as N) | mg/L | 350.1 | 2.206 | 1 | 1.243 | 96.3 | 90-110 | | | | 8/3/2007 |
| L79156-01CMS | Ammonia (as N) | mg/L | 350.1 | 1.023 | 1 | 0.042 | 98.1 | 90-110 | | | | 8/3/2007 |
| L79156-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.120 | 1 | 0 | 112 | 90-110 | | | [1]H | 8/2/2007 |
| L79144-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.065 | 1 | 0 | 106 | 90-110 | | | | 8/2/2007 |
| L79156-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.014 | 1 | 0 | 101 | 90-110 | | | H | 8/2/2007 |
| L79156-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 1.133 | 1 | 0 | 113 | 90-110 | | | [1]H | 8/2/2007 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).

H - Sample was received outside of holding time.



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Peggy McNicol
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L79156-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 434.0 | 100 | 336 | 98.0 | 80-120 | 1.15 | 10 | | 8/3/2007 |
| L79128-01BMSD | Chloride | mg/L | 300.0 | 34.20 | 25 | 9.392 | 99.2 | 90-110 | 0.819 | 20 | | 8/11/2007 |
| L79128-01BMSD | Sulfate | mg/L | 300.0 | 45.78 | 25 | 18.71 | 108 | 90-110 | 0.170 | 20 | | 8/11/2007 |
| L79156-01BMSD | Acidity | mg/L | SM2310B | 48.00 | 50 | 0 | 96.0 | 80-120 | 4.08 | 20 | | 8/6/2007 |
| L79144-03DMSD | Ammonia (as N) | mg/L | 350.1 | 2.156 | 1 | 1.243 | 91.3 | 90-110 | 2.29 | 10 | | 8/3/2007 |
| L79156-01CMSD | Ammonia (as N) | mg/L | 350.1 | 1.062 | 1 | 0.042 | 102 | 90-110 | 3.74 | 10 | | 8/3/2007 |
| L79156-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.058 | 1 | 0 | 106 | 90-110 | 5.69 | 10 | H | 8/2/2007 |
| L79144-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.042 | 1 | 0 | 104 | 90-110 | 2.18 | 10 | | 8/2/2007 |
| L79156-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.009 | 1 | 0 | 101 | 90-110 | 0.494 | 10 | H | 8/2/2007 |
| L79156-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.071 | 1 | 0 | 107 | 90-110 | 5.63 | 10 | H | 8/2/2007 |

H - Sample was received outside of holding time.



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Peggy McNicol
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R72665 | Oil & Grease | mg/L | EPA 1664A | 38.10 | 40 | 0 | 95.2 | 79-114 | | | | 8/6/2007 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L79156
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R72665 | Oil & Grease | mg/L | EPA 1664A | 36.60 | 40 | 0 | 91.5 | 79-114 | 0 | 18 | | 8/6/2007 |



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# American West Analytical Labs

## WORK ORDER Summary

*02-Aug-07*

**Work Order** L79156

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+. Footnote report: SS, NO3, NO2, PO4-O received outside of hold. HOK-DB

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L79156-01A | Sulfur Spring | 7/30/2007 9:00:00 PM | 8/2/2007 | 8/16/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 8/16/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 8/16/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L79156-01B | | | | 8/16/2007 | | 2320B-ALK-W | aug 2 - wc | 1 |
| | | | | 8/16/2007 | | 300.0-W | aug 2 - wc | 1 |
| | | | | 8/16/2007 | | ACIDITY-W-2310B | aug 2 - wc | 1 |
| | | | | 8/16/2007 | | NO2-W | aug 2 - wc | 1 |
| | | | | 8/16/2007 | | NO3-W | aug 2 - wc | 1 |
| | | | | 8/16/2007 | | PO4-O | aug 2 - wc | 1 |
| L79156-01C | | | | 8/16/2007 | | NH3-W | aug 2 - nh3 | 1 |
| | | | | 8/16/2007 | | NH3-W-PREP | aug 2 - nh3 | 1 |
| L79156-01D | | | | 8/16/2007 | | OGB-W | ogb | 1 |
| L79156-01E | | | | 8/16/2007 | | 3005A-ICPMS | aug 2 - met | 1 |
| | | | | 8/16/2007 | | ICP-W | aug 2 - met | 1 |
| L79156-01F | | | | 8/16/2007 | Aqueous-Dissolved | 3005A-Diss | aug 2 - dis met | 1 |
| | | | | 8/16/2007 | | 6020-W-DISS | aug 2 - dis met | 1 |
| | | | | 8/16/2007 | | HARD | aug 2 - dis met | 1 |
| | | | | 8/16/2007 | | ICP-W-DIS | aug 2 - dis met | 1 |
| L79156-02A | Mud Creek | 7/30/2007 9:30:00 PM | | 8/16/2007 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 8/16/2007 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 8/16/2007 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L79156-02B | | | | 8/16/2007 | | 2320B-ALK-W | aug 2 - wc | 1 |
| | | | | 8/16/2007 | | 300.0-W | aug 2 - wc | 1 |
| | | | | 8/16/2007 | | ACIDITY-W-2310B | aug 2 - wc | 1 |
| | | | | 8/16/2007 | | NO2-W | aug 2 - wc | 1 |
| | | | | 8/16/2007 | | NO3-W | aug 2 - wc | 1 |
| | | | | 8/16/2007 | | PO4-O | aug 2 - wc | 1 |

# WORK ORDER Summary

*02-Aug-07*

**Work Order** L79156

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+. Footnote report: SS, NO3, NO2, PO4-O received outside of hold.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L79156-02C | Mud Creek | 7/30/2007 9:30:00 PM | 8/2/2007 | 8/16/2007 | Aqueous | NH3-W | aug 2 - nh3 | 1 |
| | | | | 8/16/2007 | | NH3-W-PREP | aug 2 - nh3 | 1 |
| L79156-02D | | | | 8/16/2007 | | OGB-W | ogb | 1 |
| L79156-02E | | | | 8/16/2007 | | 3005A-ICPMS | aug 2 - met | 1 |
| | | | | 8/16/2007 | | ICP-W | aug 2 - met | 1 |
| L79156-02F | | | | 8/16/2007 | Aqueous-Dissolved | 3005A-Diss | aug 2 - dis met | 1 |
| | | | | 8/16/2007 | | 6020-W-DISS | aug 2 - dis met | 1 |
| | | | | 8/16/2007 | | HARD | aug 2 - dis met | 1 |
| | | | | 8/16/2007 | | ICP-W-DIS | aug 2 - dis met | 1 |

Client ROCK LOGIC CONSULTING

Address P.O. BOX 544

CEDAREDGE, CO 81413
City / State / Zip

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGIC CONSULTING@GMAIL.COM

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

# CHAIN OF CUSTODY

Lab Sample Set # ~~79128~~ RW

Page _____ of _____

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day (Standard)

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TABLE 2 | QC LEVEL 1 2 2+ 3 3+ 4 COMMENTS |
|---|---|---|---|---|---|
| MILLER OUTLET | 7/30/07 20:15 | W | 6 | | 79128 |
| RES-1 | 20:45 | | | | |
| * SULFUR SPRING | 21:00 | | | | 79156 |
| * MUD CREEK | 21:30 | | | | |

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes: on ice

3 Temperature 8° 20°C RW 8-2-07

4 Received Broken/Leaking (Improperly Sealed)
Y (N) RW
Notes: 1 L HDPE FOR MUD CREEK WAS CRACKED. SAMPLE COMPROMISED.

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y RW (N)
Notes: SS, NO2, NO3, PO4-O

COC Tape Was:

1 Present on Outer Package
(Y) N NA

2 Unbroken on Outer Package
(Y) N NA

3 Present on Sample
Y N (NA)

4 Unbroken on Sample
Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 9:30 | PRINT NAME UPS |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date 8/1/07 | Received By: Signature |
| PRINT NAME | Time 1056 | PRINT NAME Elmer Hayes |

Special Instructions:

PLEASE FILTER

*SULFUR SPRING AND MUD CREEK NOT RECEIVED 8/1/07-RW
SAMPLES RECEIVED 8/2/07
79156 RW

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

[1] Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
[2] O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.
½ gallon HDPE

Sample Set: 79156

## Preservation Check Sheet

| | | | Sample Set Extension and pH | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
| Ammonia[1] | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX[2] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$[1] | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

**AMERICAN WEST ANALYTICAL LABORATORIES**

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e-mail: awal@awal-labs.com

November 12, 2008

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L87283

Dear Brad Lindsay:

American West Analytical Labs received 5 samples on 10/30/2008 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Approved by: _____
Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-01F
Field Sample ID: **Mud Creek**
Collected: 10/29/2008 2:15:00 PM
Received: 10/30/2008

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/5/2008 2:14:00 PM | 6010B | 0.050 | **0.25** |
| Manganese | mg/L | 11/5/2008 2:14:00 PM | 6010B | 0.0050 | **0.020** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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e-mail: awal@awal-labs.com

Lab Sample ID: L87283-02F
Field Sample ID: **Sulfur Spring**
Collected: 10/29/2008 2:40:00 PM
Received: 10/30/2008

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/5/2008 2:30:00 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 11/5/2008 2:30:00 PM | 6010B | 0.0050 | **0.029** |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-03F
Field Sample ID: **RES-1**
Collected: 10/29/2008 3:00:00 PM
Received: 10/30/2008

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**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/5/2008 2:34:00 PM | 6010B | 0.050 | **3.3** |
| Manganese | mg/L | 11/5/2008 2:34:00 PM | 6010B | 0.0050 | **0.65** |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L87283-04F
Field Sample ID: **Miller Outlet**
Collected: 10/29/2008 3:15:00 PM
Received: 10/30/2008

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/5/2008 2:37:00 PM | 6010B | 0.050 | **0.67** |
| Manganese | mg/L | 11/5/2008 2:37:00 PM | 6010B | 0.0050 | **0.026** |

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-05F
Field Sample ID: **Aspen Spring**
Collected: 10/29/2008 12:00:00 PM
Received: 10/30/2008

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 11/5/2008 2:49:00 PM | 6010B | 0.050 | **2.5** |
| Manganese | mg/L | 11/5/2008 2:49:00 PM | 6010B | 0.0050 | **0.65** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-01E
Field Sample ID: **Mud Creek**
Collected: 10/29/2008 2:15:00 PM
Received: 10/30/2008


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 11/5/2008 1:17:00 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 10/31/2008 8:07:26 PM | 6020 | 0.00060 | < 0.00060 |
| Boron | mg/L | 11/5/2008 1:17:00 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 10/31/2008 8:07:26 PM | 6020 | 0.00018 | < 0.00018 |
| Calcium | mg/L | 11/5/2008 12:39:00 PM | 6010B | 10 | **66** ~ |
| Copper | mg/L | 10/31/2008 8:07:26 PM | 6020 | 0.00080 | < 0.00080 |
| Iron | mg/L | 11/5/2008 1:17:00 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 10/31/2008 8:07:26 PM | 6020 | 0.00040 | < 0.00040 |
| Magnesium | mg/L | 11/5/2008 1:17:00 PM | 6010B | 1.0 | **38** |
| Manganese | mg/L | 10/31/2008 8:07:26 PM | 6020 | 0.0012 | **0.012** |
| Molybdenum | mg/L | 11/5/2008 1:17:00 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 11/5/2008 1:17:00 PM | 6010B | 1.0 | **6.9** |
| Selenium | mg/L | 10/31/2008 8:07:26 PM | 6020 | 0.00080 | < 0.00080 |
| Sodium | mg/L | 11/5/2008 1:17:00 PM | 6010B | 1.0 | **37** |
| Zinc | mg/L | 10/31/2008 8:07:26 PM | 6020 | 0.0054 | < 0.0054 |

*~ - The reporting limits were raised due to high analyte concentrations.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L87283-02E
Field Sample ID: **Sulfur Spring**
Collected: 10/29/2008 2:40:00 PM
Received: 10/30/2008

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 11/5/2008 1:33:00 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 10/31/2008 8:34:28 PM | 6020 | 0.00060 | < 0.00060 |
| Boron | mg/L | 11/5/2008 1:33:00 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 10/31/2008 8:34:28 PM | 6020 | 0.00018 | < 0.00018 |
| Calcium | mg/L | 11/5/2008 12:50:00 PM | 6010B | 10 | **89** ~ |
| Copper | mg/L | 10/31/2008 8:34:28 PM | 6020 | 0.00080 | < 0.00080 |
| Iron | mg/L | 11/5/2008 1:33:00 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 10/31/2008 8:34:28 PM | 6020 | 0.00040 | < 0.00040 |
| Magnesium | mg/L | 11/5/2008 1:33:00 PM | 6010B | 1.0 | **36** |
| Manganese | mg/L | 10/31/2008 8:34:28 PM | 6020 | 0.0012 | **0.028** |
| Molybdenum | mg/L | 11/5/2008 1:33:00 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 11/5/2008 1:33:00 PM | 6010B | 1.0 | **5.0** |
| Selenium | mg/L | 10/31/2008 8:34:28 PM | 6020 | 0.00080 | < 0.00080 |
| Sodium | mg/L | 11/5/2008 1:33:00 PM | 6010B | 1.0 | **9.1** |
| Zinc | mg/L | 10/31/2008 8:34:28 PM | 6020 | 0.0054 | < 0.0054 |

*~ - The reporting limits were raised due to high analyte concentrations.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L87283-03E
Field Sample ID: **RES-1**
Collected: 10/29/2008 3:00:00 PM
Received: 10/30/2008

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 11/5/2008 1:37:00 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 10/31/2008 8:39:52 PM | 6020 | 0.00060 | **0.0013** |
| Boron | mg/L | 11/5/2008 1:37:00 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 10/31/2008 8:39:52 PM | 6020 | 0.00018 | < 0.00018 |
| Calcium | mg/L | 11/5/2008 12:54:00 PM | 6010B | 10 | **79** ~ |
| Copper | mg/L | 10/31/2008 8:39:52 PM | 6020 | 0.00080 | < 0.00080 |
| Iron | mg/L | 11/5/2008 1:37:00 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 10/31/2008 8:39:52 PM | 6020 | 0.00040 | < 0.00040 |
| Magnesium | mg/L | 11/5/2008 1:37:00 PM | 6010B | 1.0 | **33** |
| Manganese | mg/L | 10/31/2008 8:39:52 PM | 6020 | 0.0012 | **0.47** |
| Molybdenum | mg/L | 11/5/2008 1:37:00 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 11/5/2008 1:37:00 PM | 6010B | 1.0 | **7.2** |
| Selenium | mg/L | 10/31/2008 8:39:52 PM | 6020 | 0.00080 | < 0.00080 |
| Sodium | mg/L | 11/5/2008 1:37:00 PM | 6010B | 1.0 | **22** |
| Zinc | mg/L | 10/31/2008 8:39:52 PM | 6020 | 0.0054 | < 0.0054 |

*~ - The reporting limits were raised due to high analyte concentrations.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L87283-04E
Field Sample ID: **Miller Outlet**
Collected: 10/29/2008 3:15:00 PM
Received: 10/30/2008

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 11/5/2008 1:41:00 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 10/31/2008 8:45:17 PM | 6020 | 0.00060 | **0.00063** |
| Boron | mg/L | 11/5/2008 1:41:00 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 10/31/2008 8:45:17 PM | 6020 | 0.00018 | < 0.00018 |
| Calcium | mg/L | 11/5/2008 12:58:00 PM | 6010B | 10 | **74** ~ |
| Copper | mg/L | 10/31/2008 8:45:17 PM | 6020 | 0.00080 | < 0.00080 |
| Iron | mg/L | 11/5/2008 1:41:00 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 10/31/2008 8:45:17 PM | 6020 | 0.00040 | < 0.00040 |
| Magnesium | mg/L | 11/5/2008 1:41:00 PM | 6010B | 1.0 | **17** |
| Manganese | mg/L | 10/31/2008 8:45:17 PM | 6020 | 0.0012 | **0.0054** |
| Molybdenum | mg/L | 11/5/2008 1:41:00 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 11/5/2008 1:41:00 PM | 6010B | 1.0 | **2.0** |
| Selenium | mg/L | 10/31/2008 8:45:17 PM | 6020 | 0.00080 | < 0.00080 |
| Sodium | mg/L | 11/5/2008 1:41:00 PM | 6010B | 1.0 | **6.4** |
| Zinc | mg/L | 10/31/2008 8:45:17 PM | 6020 | 0.0054 | **0.010** |

*~ - The reporting limits were raised due to high analyte concentrations.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L87283-05E
Field Sample ID: **Aspen Spring**
Collected: 10/29/2008 12:00:00 PM
Received: 10/30/2008

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 11/5/2008 1:45:00 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 10/31/2008 9:03:43 PM | 6020 | 0.00060 | **0.00094** |
| Boron | mg/L | 11/5/2008 1:45:00 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 10/31/2008 9:03:43 PM | 6020 | 0.00018 | < 0.00018 |
| Calcium | mg/L | 11/5/2008 1:02:00 PM | 6010B | 10 | **92** ~ |
| Copper | mg/L | 10/31/2008 9:03:43 PM | 6020 | 0.00080 | **0.00089** |
| Iron | mg/L | 11/5/2008 1:45:00 PM | 6010B | 0.050 | **0.057** |
| Lead | mg/L | 10/31/2008 9:03:43 PM | 6020 | 0.00040 | < 0.00040 |
| Magnesium | mg/L | 11/5/2008 1:45:00 PM | 6010B | 1.0 | **15** |
| Manganese | mg/L | 10/31/2008 9:03:43 PM | 6020 | 0.0012 | **0.025** |
| Molybdenum | mg/L | 11/5/2008 1:45:00 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 11/5/2008 1:45:00 PM | 6010B | 1.0 | **6.0** |
| Selenium | mg/L | 10/31/2008 9:03:43 PM | 6020 | 0.00080 | < 0.00080 |
| Sodium | mg/L | 11/5/2008 1:45:00 PM | 6010B | 1.0 | **8.6** |
| Zinc | mg/L | 10/31/2008 9:03:43 PM | 6020 | 0.0054 | **0.022** |

*~ - The reporting limits were raised due to high analyte concentrations.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-01
Field Sample ID: **Mud Creek**
Collected: 10/29/2008 2:15:00 PM
Received: 10/30/2008


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 10/31/2008 12:00:00 PM | 2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 10/31/2008 8:00:00 AM | 2320B | 20 | **250** |
| Ammonia (as N) | mg/L | 11/7/2008 9:59:00 AM | 350.1 | 0.050 | < 0.050 [1] |
| Bicarbonate (As CaCO3) | mg/L | 10/31/2008 8:00:00 AM | 2320B | 20 | **250** |
| Carbonate (As CaCO3) | mg/L | 10/31/2008 8:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 11/11/2008 10:40:15 AM | 300.0 | 0.50 | **14** |
| Hardness (as CaCO3) | mg/L | 11/5/2008 | 2340B | 10 | **320** |
| Nitrate (as N) | mg/L | 10/31/2008 9:22:00 AM | 353.2 | 0.010 | **0.20** |
| Nitrite (as N) | mg/L | 10/31/2008 9:22:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/2/2008 4:03:00 PM | 1664A | 3.0 | **6.2** |
| Phosphate, ortho (as P) | mg/L | 10/30/2008 2:50:00 PM | 365.1 | 0.050 | < 0.050 [1] |
| Settleable Solids | ml/L | 10/30/2008 11:00:00 AM | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 11/11/2008 5:36:45 AM | 300.0 | 75 | **130** |
| TDS | mg/L | 10/31/2008 2:30:00 PM | 160.1 | 20 | **460** |
| TSS | mg/L | 10/30/2008 3:45:00 PM | 2540D | 3.0 | **15** |

[1] - *Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-02
Field Sample ID: **Sulfur Spring**
Collected: 10/29/2008 2:40:00 PM
Received: 10/30/2008


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 10/31/2008 12:00:00 PM | 2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 10/31/2008 8:00:00 AM | 2320B | 20 | **340** |
| Ammonia (as N) | mg/L | 11/7/2008 9:59:00 AM | 350.1 | 0.050 | **0.074** |
| Bicarbonate (As CaCO3) | mg/L | 10/31/2008 8:00:00 AM | 2320B | 20 | **340** |
| Carbonate (As CaCO3) | mg/L | 10/31/2008 8:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 11/11/2008 11:05:32 AM | 300.0 | 0.50 | **6.5** |
| Hardness (as CaCO3) | mg/L | 11/5/2008 | 2340B | 10 | **370** |
| Nitrate (as N) | mg/L | 10/31/2008 9:22:00 AM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 10/31/2008 9:22:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/2/2008 4:03:00 PM | 1664A | 3.0 | **4.4** |
| Phosphate, ortho (as P) | mg/L | 10/31/2008 8:16:00 AM | 365.1 | 0.050 | < 0.050 [1] |
| Settleable Solids | ml/L | 10/30/2008 11:00:00 AM | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 11/11/2008 11:05:32 AM | 300.0 | 3.8 | **47** |
| TDS | mg/L | 10/31/2008 2:30:00 PM | 160.1 | 20 | **390** |
| TSS | mg/L | 10/30/2008 3:45:00 PM | 2540D | 3.0 | < 3.0 |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*




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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-03
Field Sample ID: **RES-1**
Collected: 10/29/2008 3:00:00 PM
Received: 10/30/2008


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 10/31/2008 12:00:00 PM | 2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 10/31/2008 8:00:00 AM | 2320B | 20 | **300** |
| Ammonia (as N) | mg/L | 11/7/2008 9:59:00 AM | 350.1 | 0.050 | **0.12** |
| Bicarbonate (As CaCO3) | mg/L | 10/31/2008 8:00:00 AM | 2320B | 20 | **300** |
| Carbonate (As CaCO3) | mg/L | 10/31/2008 8:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 11/11/2008 8:33:44 AM | 300.0 | 2.0 | **31** |
| Hardness (as CaCO3) | mg/L | 11/5/2008 | 2340B | 10 | **330** |
| Nitrate (as N) | mg/L | 10/31/2008 9:22:00 AM | 353.2 | 0.010 | **0.015** |
| Nitrite (as N) | mg/L | 10/31/2008 9:22:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/2/2008 4:03:00 PM | 1664A | 3.0 | **4.3** |
| Phosphate, ortho (as P) | mg/L | 10/31/2008 8:16:00 AM | 365.1 | 0.050 | < 0.050 |
| Settleable Solids | ml/L | 10/30/2008 11:00:00 AM | 2540F | 0.10 | **0.20** |
| Sulfate | mg/L | 11/11/2008 8:33:44 AM | 300.0 | 15 | **57** |
| TDS | mg/L | 10/31/2008 2:30:00 PM | 160.1 | 20 | **420** |
| TSS | mg/L | 10/30/2008 3:45:00 PM | 2540D | 3.0 | **99** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L87283-04
Field Sample ID: **Miller Outlet**
Collected: 10/29/2008 3:15:00 PM
Received: 10/30/2008

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Jose Rocha
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 10/31/2008 12:00:00 PM | 2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 10/31/2008 8:00:00 AM | 2320B | 20 | **230** |
| Ammonia (as N) | mg/L | 11/7/2008 9:59:00 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 10/31/2008 8:00:00 AM | 2320B | 20 | **220** |
| Carbonate (As CaCO3) | mg/L | 10/31/2008 8:00:00 AM | 2320B | 10 | **18** |
| Chloride | mg/L | 11/11/2008 11:30:50 AM | 300.0 | 0.50 | **9.8** |
| Hardness (as CaCO3) | mg/L | 11/5/2008 | 2340B | 10 | **250** |
| Nitrate (as N) | mg/L | 10/31/2008 9:22:00 AM | 353.2 | 0.010 | **0.15** |
| Nitrite (as N) | mg/L | 10/31/2008 9:22:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/2/2008 4:03:00 PM | 1664A | 3.0 | < 3.0 |
| Phosphate, ortho (as P) | mg/L | 10/31/2008 8:16:00 AM | 365.1 | 0.050 | < 0.050 |
| Settleable Solids | ml/L | 10/30/2008 11:00:00 AM | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 11/11/2008 11:30:50 AM | 300.0 | 3.8 | **23** |
| TDS | mg/L | 10/31/2008 2:30:00 PM | 160.1 | 20 | **290** |
| TSS | mg/L | 10/30/2008 3:45:00 PM | 2540D | 3.0 | **18** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L87283-05
Field Sample ID: **Aspen Spring**
Collected: 10/29/2008 12:00:00 PM
Received: 10/30/2008

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Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 10/31/2008 12:00:00 PM | 2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 10/31/2008 8:00:00 AM | 2320B | 20 | **280** |
| Ammonia (as N) | mg/L | 11/7/2008 9:59:00 AM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 10/31/2008 8:00:00 AM | 2320B | 20 | **280** |
| Carbonate (As CaCO3) | mg/L | 10/31/2008 8:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 11/11/2008 11:56:08 AM | 300.0 | 0.50 | **25** |
| Hardness (as CaCO3) | mg/L | 11/5/2008 | 2340B | 10 | **290** |
| Nitrate (as N) | mg/L | 10/31/2008 9:22:00 AM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 10/31/2008 9:22:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 11/2/2008 4:03:00 PM | 1664A | 3.0 | **4.0** |
| Phosphate, ortho (as P) | mg/L | 10/31/2008 8:16:00 AM | 365.1 | 0.050 | < 0.050 |
| Settleable Solids | ml/L | 10/30/2008 11:00:00 AM | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 11/11/2008 11:56:08 AM | 300.0 | 3.8 | **8.7** |
| TDS | mg/L | 10/31/2008 2:30:00 PM | 160.1 | 20 | **370** |
| TSS | mg/L | 10/30/2008 3:45:00 PM | 2540D | 3.0 | **26** |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

**Dept:** ME
**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-43223 | Arsenic | mg/L | 6020 | 0.2096 | 0.2 | 0 | 105 | 85-115 | | | | 10/31/2008 |
| LCS-43223 | Cadmium | mg/L | 6020 | 0.2045 | 0.2 | 0 | 102 | 85-115 | | | | 10/31/2008 |
| LCS-43223 | Copper | mg/L | 6020 | 0.2042 | 0.2 | 0 | 102 | 85-115 | | | | 10/31/2008 |
| LCS-43223 | Lead | mg/L | 6020 | 0.2193 | 0.2 | 0 | 110 | 85-115 | | | | 10/31/2008 |
| LCS-43223 | Manganese | mg/L | 6020 | 0.2035 | 0.2 | 0 | 102 | 85-115 | | | | 10/31/2008 |
| LCS-43223 | Selenium | mg/L | 6020 | 0.1954 | 0.2 | 0 | 97.7 | 85-115 | | | | 10/31/2008 |
| LCS-43223 | Zinc | mg/L | 6020 | 1.047 | 1 | 0 | 105 | 85-115 | | | | 10/31/2008 |
| LCS-43221 | Iron | mg/L | 6010B | 1.200 | 1 | 0 | 120 | 75-125 | | | | 11/5/2008 |
| LCS-43221 | Manganese | mg/L | 6010B | 0.2230 | 0.2 | 0 | 112 | 75-125 | | | | 11/5/2008 |
| LCS-43223 | Aluminum | mg/L | 6010B | 1.060 | 1 | 0 | 106 | 75-125 | | | | 11/5/2008 |
| LCS-43223 | Boron | mg/L | 6010B | 1.020 | 1 | 0 | 102 | 75-125 | | | | 11/5/2008 |
| LCS-43223 | Calcium | mg/L | 6010B | 11.00 | 10 | 0 | 110 | 75-125 | | | | 11/5/2008 |
| LCS-43223 | Iron | mg/L | 6010B | 1.200 | 1 | 0 | 120 | 75-125 | | | | 11/5/2008 |
| LCS-43223 | Magnesium | mg/L | 6010B | 11.60 | 10 | 0 | 116 | 75-125 | | | | 11/5/2008 |
| LCS-43223 | Molybdenum | mg/L | 6010B | 0.2300 | 0.2 | 0 | 115 | 75-125 | | | | 11/5/2008 |
| LCS-43223 | Potassium | mg/L | 6010B | 10.40 | 10 | 0 | 104 | 75-125 | | | | 11/5/2008 |
| LCS-43223 | Sodium | mg/L | 6010B | 10.50 | 10 | 0 | 105 | 75-125 | | | | 11/5/2008 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

**Dept:** ME

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-43223 | Arsenic | mg/L | 6020 | < 0.00060 | | | | - | | | | 10/31/2008 |
| MB-43223 | Cadmium | mg/L | 6020 | < 0.00018 | | | | - | | | | 10/31/2008 |
| MB-43223 | Copper | mg/L | 6020 | < 0.00080 | | | | - | | | | 10/31/2008 |
| MB-43223 | Lead | mg/L | 6020 | < 0.00040 | | | | - | | | | 10/31/2008 |
| MB-43223 | Manganese | mg/L | 6020 | < 0.0012 | | | | - | | | | 10/31/2008 |
| MB-43223 | Selenium | mg/L | 6020 | < 0.00080 | | | | - | | | | 10/31/2008 |
| MB-43223 | Zinc | mg/L | 6020 | < 0.0050 | | | | - | | | | 10/31/2008 |
| MB-43221 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 11/5/2008 |
| MB-43221 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 11/5/2008 |
| MB-43223 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 11/5/2008 |
| MB-43223 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 11/5/2008 |
| MB-43223 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/5/2008 |
| MB-43223 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 11/5/2008 |
| MB-43223 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/5/2008 |
| MB-43223 | Molybdenum | mg/L | 6010B | < 0.040 | | | | - | | | | 11/5/2008 |
| MB-43223 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/5/2008 |
| MB-43223 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 11/5/2008 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

**Dept:** ME
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L87283-01EMS | Arsenic | mg/L | 6020 | 0.2101 | 0.2 | 0.000506 | 105 | 70-130 | | | | 10/31/2008 |
| L87283-01EMS | Cadmium | mg/L | 6020 | 0.1977 | 0.2 | 0 | 98.9 | 70-130 | | | | 10/31/2008 |
| L87283-01EMS | Copper | mg/L | 6020 | 0.2027 | 0.2 | 0.000797 | 101 | 70-130 | | | | 10/31/2008 |
| L87283-01EMS | Lead | mg/L | 6020 | 0.2057 | 0.2 | 0 | 103 | 70-130 | | | | 10/31/2008 |
| L87283-01EMS | Manganese | mg/L | 6020 | 0.2187 | 0.2 | 0.01178 | 103 | 70-130 | | | | 10/31/2008 |
| L87283-01EMS | Selenium | mg/L | 6020 | 0.1986 | 0.2 | 0.000252 | 99.2 | 70-130 | | | | 10/31/2008 |
| L87283-01EMS | Zinc | mg/L | 6020 | 1.014 | 1 | 0 | 101 | 70-130 | | | | 10/31/2008 |
| L87283-01FMS | Iron | mg/L | 6010B | 1.460 | 1 | 0.252 | 121 | 75-125 | | | | 11/5/2008 |
| L87283-01FMS | Manganese | mg/L | 6010B | 0.2420 | 0.2 | 0.0198 | 111 | 75-125 | | | | 11/5/2008 |
| L87283-01EMS | Calcium | mg/L | 6010B | 75.90 | 10 | 65.7 | 102 | 75-125 | | | | 11/5/2008 |
| L87283-01EMS | Aluminum | mg/L | 6010B | 1.070 | 1 | 0 | 107 | 75-125 | | | | 11/5/2008 |
| L87283-01EMS | Boron | mg/L | 6010B | 1.220 | 1 | 0.0885 | 113 | 75-125 | | | | 11/5/2008 |
| L87283-01EMS | Iron | mg/L | 6010B | 1.190 | 1 | 0 | 119 | 75-125 | | | | 11/5/2008 |
| L87283-01EMS | Magnesium | mg/L | 6010B | 48.20 | 10 | 37.9 | 103 | 75-125 | | | | 11/5/2008 |
| L87283-01EMS | Molybdenum | mg/L | 6010B | 0.2570 | 0.2 | 0.0285 | 114 | 75-125 | | | | 11/5/2008 |
| L87283-01EMS | Potassium | mg/L | 6010B | 19.00 | 10 | 6.85 | 122 | 75-125 | | | | 11/5/2008 |
| L87283-01EMS | Sodium | mg/L | 6010B | 47.80 | 10 | 37.2 | 106 | 75-125 | | | | 11/5/2008 |



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L87283-01EMSD | Arsenic | mg/L | 6020 | 0.2046 | 0.2 | 0.000506 | 102 | 70-130 | 2.66 | 20 | | 10/31/2008 |
| L87283-01EMSD | Cadmium | mg/L | 6020 | 0.1949 | 0.2 | 0 | 97.5 | 70-130 | 1.42 | 20 | | 10/31/2008 |
| L87283-01EMSD | Copper | mg/L | 6020 | 0.2005 | 0.2 | 0.000797 | 99.8 | 70-130 | 1.11 | 20 | | 10/31/2008 |
| L87283-01EMSD | Lead | mg/L | 6020 | 0.2021 | 0.2 | 0 | 101 | 70-130 | 1.74 | 20 | | 10/31/2008 |
| L87283-01EMSD | Manganese | mg/L | 6020 | 0.2160 | 0.2 | 0.01178 | 102 | 70-130 | 1.26 | 20 | | 10/31/2008 |
| L87283-01EMSD | Selenium | mg/L | 6020 | 0.1951 | 0.2 | 0.000252 | 97.4 | 70-130 | 1.76 | 20 | | 10/31/2008 |
| L87283-01EMSD | Zinc | mg/L | 6020 | 0.9837 | 1 | 0 | 98.4 | 70-130 | 3.02 | 20 | | 10/31/2008 |
| L87283-01FMSD | Iron | mg/L | 6010B | 1.420 | 1 | 0.252 | 117 | 75-125 | 2.78 | 20 | | 11/5/2008 |
| L87283-01FMSD | Manganese | mg/L | 6010B | 0.2410 | 0.2 | 0.0198 | 111 | 75-125 | 0.414 | 20 | | 11/5/2008 |
| L87283-01EMSD | Calcium | mg/L | 6010B | 76.40 | 10 | 65.7 | 107 | 75-125 | 0.657 | 20 | | 11/5/2008 |
| L87283-01EMSD | Aluminum | mg/L | 6010B | 1.060 | 1 | 0 | 106 | 75-125 | 0.939 | 20 | | 11/5/2008 |
| L87283-01EMSD | Boron | mg/L | 6010B | 1.200 | 1 | 0.0885 | 111 | 75-125 | 1.65 | 20 | | 11/5/2008 |
| L87283-01EMSD | Iron | mg/L | 6010B | 1.150 | 1 | 0 | 115 | 75-125 | 3.42 | 20 | | 11/5/2008 |
| L87283-01EMSD | Magnesium | mg/L | 6010B | 48.10 | 10 | 37.9 | 102 | 75-125 | 0.208 | 20 | | 11/5/2008 |
| L87283-01EMSD | Molybdenum | mg/L | 6010B | 0.2490 | 0.2 | 0.0285 | 110 | 75-125 | 3.16 | 20 | | 11/5/2008 |
| L87283-01EMSD | Potassium | mg/L | 6010B | 18.90 | 10 | 6.85 | 120 | 75-125 | 0.528 | 20 | | 11/5/2008 |
| L87283-01EMSD | Sodium | mg/L | 6010B | 48.70 | 10 | 37.2 | 115 | 75-125 | 1.87 | 20 | | 11/5/2008 |



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L87261-03GDUP | TDS | mg/L | 160.1 | 760.0 | 0 | 724 | | - | 4.85 | 20 | | 10/31/2008 |
| L87283-05ADUP | TDS | mg/L | 160.1 | 356.0 | 0 | 368 | | - | 3.31 | 20 | | 10/31/2008 |
| L87311-04LDUP | TDS | mg/L | 160.1 | 932.0 | 0 | 900 | | - | 3.49 | 20 | | 10/31/2008 |
| L87266-02ADUP | TSS | mg/L | 2540D | < 3.0 | 0 | 2 | | - | 0 | 20 | | 10/30/2008 |
| L87267-01ADUP | TSS | mg/L | 2540D | 76.00 | 0 | 80 | | - | 5.13 | 20 | | 10/30/2008 |
| L87283-01ADUP | TSS | mg/L | 2540D | 13.00 | 0 | 15 | | - | 14.3 | 20 | | 10/30/2008 |



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Jose Rocha
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R88501 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50750 | 50000 | 0 | 102 | 90-110 | | | | 10/31/2008 |
| LCS-R88946 | Chloride | mg/L | 300.0 | 4.893 | 5 | 0 | 97.9 | 90-110 | | | | 11/11/2008 |
| LCS-R88946 | Sulfate | mg/L | 300.0 | 5.036 | 5 | 0 | 101 | 90-110 | | | | 11/11/2008 |
| LCS-R88574 | Acidity | mg/L | 2310B | 20.00 | 20 | 0 | 100 | 80-120 | | | | 10/31/2008 |
| LCS-43317 | Ammonia (as N) | mg/L | 350.1 | 1.006 | 1 | 0 | 101 | 90-110 | | | | 11/7/2008 |
| LCS-88508 | Nitrite (as N) | mg/L | 353.2 | 0.9979 | 1 | 0 | 99.8 | 90-110 | | | | 10/31/2008 |
| LCS-88509 | Nitrate (as N) | mg/L | 353.2 | 1.019 | 1 | 0 | 102 | 90-110 | | | | 10/31/2008 |
| LCS-88609 | Oil & Grease | mg/L | 1664A | 42.60 | 40 | 0 | 106 | 78-114 | | | | 11/2/2008 |
| LCS-R88465 | Phosphate, ortho (as P) | mg/L | 365.1 | 1.006 | 1 | 0.0462 | 96.0 | 90-110 | | | | 10/30/2008 |
| LCS-88500 | Phosphate, ortho (as P) | mg/L | 365.1 | 1.014 | 1 | 0.0068 | 101 | 90-110 | | | | 10/31/2008 |
| LCS-R88623 | TDS | mg/L | 160.1 | 204.0 | 205 | 0 | 99.5 | 80-120 | | | | 10/31/2008 |
| LCS-R88505 | TSS | mg/L | 2540D | 98.00 | 100 | 0 | 98.0 | 80-120 | | | | 10/30/2008 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

**Dept:** WC
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R88501 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 10/31/2008 |
| MB-R88501 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 10/31/2008 |
| MB-R88501 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 10/31/2008 |
| MB-R88946 | Chloride | mg/L | 300.0 | < 0.10 | | | | - | | | | 11/11/2008 |
| MB-R88946 | Sulfate | mg/L | 300.0 | < 0.75 | | | | - | | | | 11/11/2008 |
| MB-R88574 | Acidity | mg/L | 2310B | < 15 | | | | - | | | | 10/31/2008 |
| MB-43317 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 11/7/2008 |
| MB-88508 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 10/31/2008 |
| MB-88509 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 10/31/2008 |
| MB-88609 | Oil & Grease | mg/L | 1664A | < 3.0 | | | | - | | | | 11/2/2008 |
| MB-R88465 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 10/30/2008 |
| MB-88500 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 10/31/2008 |
| MB-R88623 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 10/31/2008 |
| M-R88505 | TSS | mg/L | 2540D | < 3.0 | | | | - | | | | 10/30/2008 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L87283-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 354.0 | 100 | 249 | 105 | 80-120 | | | | 10/31/2008 |
| L87283-01BMS | Chloride | mg/L | 300.0 | 504.4 | 500 | 13.76 | 98.1 | 90-110 | | | | 11/11/2008 |
| L87283-01BMS | Sulfate | mg/L | 300.0 | 624.6 | 500 | 129.3 | 99.1 | 90-110 | | | | 11/11/2008 |
| L87283-05BMS | Acidity | mg/L | 2310B | 50.00 | 50 | 0 | 100 | 80-120 | | | | 10/31/2008 |
| L87238-05FMS | Ammonia (as N) | mg/L | 350.1 | 0.9282 | 1 | 0 | 92.8 | 90-110 | | | | 11/7/2008 |
| L87261-03EMS | Ammonia (as N) | mg/L | 350.1 | 1.276 | 1 | 0.4669 | 81.0 | 90-110 | | | [1] | 11/7/2008 |
| L87283-01DMS | Ammonia (as N) | mg/L | 350.1 | 0.8935 | 1 | 0 | 89.4 | 90-110 | | | [1] | 11/7/2008 |
| L87299-01IMS | Ammonia (as N) | mg/L | 350.1 | 1.327 | 1 | 0.4357 | 89.1 | 90-110 | | | [1] | 11/7/2008 |
| L87283-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.028 | 1 | 0 | 103 | 90-110 | | | | 10/31/2008 |
| L87283-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.245 | 1 | 0.1955 | 105 | 90-110 | | | | 10/31/2008 |
| L87311-04FMS | Nitrate (as N) | mg/L | 353.2 | 1.006 | 1 | 0.0822 | 92.3 | 90-110 | | | | 10/31/2008 |
| L87283-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 0.8012 | 1 | 0.0433 | 75.8 | 90-110 | | | [1] | 10/30/2008 |
| L87283-02BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 0.7902 | 1 | 0.0104 | 78.0 | 90-110 | | | [1] | 10/31/2008 |

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L87283-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 354.0 | 100 | 249 | 105 | 80-120 | 0 | 10 | | 10/31/2008 |
| L87283-01BMSD | Chloride | mg/L | 300.0 | 500.2 | 500 | 13.76 | 97.3 | 90-110 | 0.828 | 20 | | 11/11/2008 |
| L87283-01BMSD | Sulfate | mg/L | 300.0 | 619.6 | 500 | 129.3 | 98.1 | 90-110 | 0.803 | 20 | | 11/11/2008 |
| L87283-05BMSD | Acidity | mg/L | 2310B | 48.00 | 50 | 0 | 96.0 | 80-120 | 4.08 | 20 | | 10/31/2008 |
| L87238-05FMSD | Ammonia (as N) | mg/L | 350.1 | 0.9491 | 1 | 0 | 94.9 | 90-110 | 2.23 | 10 | | 11/7/2008 |
| L87261-03EMSD | Ammonia (as N) | mg/L | 350.1 | 1.272 | 1 | 0.4669 | 80.5 | 90-110 | 0.377 | 10 | [1] | 11/7/2008 |
| L87283-01DMSD | Ammonia (as N) | mg/L | 350.1 | 0.9356 | 1 | 0 | 93.6 | 90-110 | 4.60 | 10 | | 11/7/2008 |
| L87299-01IMSD | Ammonia (as N) | mg/L | 350.1 | 1.296 | 1 | 0.4357 | 86.1 | 90-110 | 2.33 | 10 | [1] | 11/7/2008 |
| L87283-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.016 | 1 | 0 | 102 | 90-110 | 1.11 | 10 | | 10/31/2008 |
| L87283-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.239 | 1 | 0.1955 | 104 | 90-110 | 0.515 | 10 | | 10/31/2008 |
| L87311-04FMSD | Nitrate (as N) | mg/L | 353.2 | 1.004 | 1 | 0.0822 | 92.2 | 90-110 | 0.149 | 10 | | 10/31/2008 |
| L87283-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 0.8339 | 1 | 0.0433 | 79.1 | 90-110 | 4.00 | 10 | [1] | 10/30/2008 |
| L87283-02BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 0.7940 | 1 | 0.0104 | 78.4 | 90-110 | 0.480 | 10 | [1] | 10/31/2008 |

[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-88609 | Oil & Grease | mg/L | 1664A | 44.90 | 40 | 0 | 112 | 79-114 | | | | 11/2/2008 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L87283
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-88609 | Oil & Grease | mg/L | 1664A | 44.50 | 40 | 0 | 111 | 78-114 | 0.895 | 18 | | 11/2/2008 |



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# American West Analytical Labs

## WORK ORDER Summary

*31-Oct-08*

**Work Order** L87283

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+; EDD report.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L87283-01A | Mud Creek | 10/29/2008 2:15:00 PM | 10/30/2008 | 11/13/2008 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 11/13/2008 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/13/2008 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L87283-01B | | | | 11/13/2008 | | 2320B-ALK-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | 300.0-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | ACIDITY-W-2310B | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | NO2-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | NO3-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | PO4-O | oct 30 - wc | 1 |
| L87283-01C | | | | 11/13/2008 | | OGB-W | OGBFridge | 1 |
| L87283-01D | | | | 11/13/2008 | | NH3-W | oct 30 - nh3 | 1 |
| | | | | 11/13/2008 | | NH3-W-PREP | oct 30 - nh3 | 1 |
| L87283-01E | | | | 11/13/2008 | Aqueous-Dissolved | 3005A-Diss | oct 30 - dis met | 1 |
| | | | | 11/13/2008 | | 6020-W-DISS | oct 30 - dis met | 1 |
| | | | | 11/13/2008 | | HARD | oct 30 - dis met | 1 |
| | | | | 11/13/2008 | | ICP-W-DIS | oct 30 - dis met | 1 |
| L87283-01F | | | | 11/13/2008 | Aqueous | 3005A-ICPMS | oct 30 - met | 1 |
| | | | | 11/13/2008 | | ICP-W | oct 30 - met | 1 |
| L87283-02A | Sulfur Spring | 10/29/2008 2:40:00 PM | | 11/13/2008 | | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 11/13/2008 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/13/2008 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L87283-02B | | | | 11/13/2008 | | 2320B-ALK-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | 300.0-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | ACIDITY-W-2310B | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | NO2-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | NO3-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | PO4-O | oct 30 - wc | 1 |

# WORK ORDER Summary

*31-Oct-08*

**Work Order** L87283

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+; EDD report.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L87283-02C | Sulfur Spring | 10/29/2008 2:40:00 PM | 10/30/2008 | 11/13/2008 | Aqueous | OGB-W | OGBFridge | 1 |
| L87283-02D | | | | 11/13/2008 | | NH3-W | oct 30 - nh3 | 1 |
| | | | | 11/13/2008 | | NH3-W-PREP | oct 30 - nh3 | 1 |
| L87283-02E | | | | 11/13/2008 | Aqueous-Dissolved | 3005A-Diss | oct 30 - dis met | 1 |
| | | | | 11/13/2008 | | 6020-W-DISS | oct 30 - dis met | 1 |
| | | | | 11/13/2008 | | HARD | oct 30 - dis met | 1 |
| | | | | 11/13/2008 | | ICP-W-DIS | oct 30 - dis met | 1 |
| L87283-02F | | | | 11/13/2008 | Aqueous | 3005A-ICPMS | oct 30 - met | 1 |
| | | | | 11/13/2008 | | ICP-W | oct 30 - met | 1 |
| L87283-03A | RES-1 | 10/29/2008 3:00:00 PM | | 11/13/2008 | | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 11/13/2008 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/13/2008 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L87283-03B | | | | 11/13/2008 | | 2320B-ALK-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | 300.0-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | ACIDITY-W-2310B | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | NO2-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | NO3-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | PO4-O | oct 30 - wc | 1 |
| L87283-03C | | | | 11/13/2008 | | OGB-W | OGBFridge | 1 |
| L87283-03D | | | | 11/13/2008 | | NH3-W | oct 30 - nh3 | 1 |
| | | | | 11/13/2008 | | NH3-W-PREP | oct 30 - nh3 | 1 |
| L87283-03E | | | | 11/13/2008 | Aqueous-Dissolved | 3005A-Diss | oct 30 - dis met | 1 |
| | | | | 11/13/2008 | | 6020-W-DISS | oct 30 - dis met | 1 |
| | | | | 11/13/2008 | | HARD | oct 30 - dis met | 1 |
| | | | | 11/13/2008 | | ICP-W-DIS | oct 30 - dis met | 1 |
| L87283-03F | | | | 11/13/2008 | Aqueous | 3005A-ICPMS | oct 30 - met | 1 |
| | | | | 11/13/2008 | | ICP-W | oct 30 - met | 1 |
| L87283-04A | Miller Outlet | 10/29/2008 3:15:00 PM | | 11/13/2008 | | SS-W-2540F | ww - tss/tds/ss | 1 |

# WORK ORDER Summary

*31-Oct-08*

**Work Order** L87283

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+; EDD report.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L87283-04A | Miller Outlet | 10/29/2008 3:15:00 PM | 10/30/2008 | 11/13/2008 | Aqueous | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/13/2008 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L87283-04B | | | | 11/13/2008 | | 2320B-ALK-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | 300.0-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | ACIDITY-W-2310B | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | NO2-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | NO3-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | PO4-O | oct 30 - wc | 1 |
| L87283-04C | | | | 11/13/2008 | | OGB-W | OGBFridge | 1 |
| L87283-04D | | | | 11/13/2008 | | NH3-W | oct 30 - nh3 | 1 |
| | | | | 11/13/2008 | | NH3-W-PREP | oct 30 - nh3 | 1 |
| L87283-04E | | | | 11/13/2008 | Aqueous-Dissolved | 3005A-Diss | oct 30 - dis met | 1 |
| | | | | 11/13/2008 | | 6020-W-DISS | oct 30 - dis met | 1 |
| | | | | 11/13/2008 | | HARD | oct 30 - dis met | 1 |
| | | | | 11/13/2008 | | ICP-W-DIS | oct 30 - dis met | 1 |
| L87283-04F | | | | 11/13/2008 | Aqueous | 3005A-ICPMS | oct 30 - met | 1 |
| | | | | 11/13/2008 | | ICP-W | oct 30 - met | 1 |
| L87283-05A | Aspen Spring | 10/29/2008 12:00:00 PM | | 11/13/2008 | | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 11/13/2008 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 11/13/2008 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L87283-05B | | | | 11/13/2008 | | 2320B-ALK-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | 300.0-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | ACIDITY-W-2310B | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | NO2-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | NO3-W | oct 30 - wc | 1 |
| | | | | 11/13/2008 | | PO4-O | oct 30 - wc | 1 |
| L87283-05C | | | | 11/13/2008 | | OGB-W | OGBFridge | 1 |
| L87283-05D | | | | 11/13/2008 | | NH3-W | oct 30 - nh3 | 1 |

# WORK ORDER Summary

*31-Oct-08*

**Work Order** L87283

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+; EDD report.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L87283-05D | Aspen Spring | 10/29/2008 12:00:00 PM | 10/30/2008 | 11/13/2008 | Aqueous | NH3-W-PREP | oct 30 - nh3 | 1 |
| L87283-05E | | | | 11/13/2008 | Aqueous-Dissolved | 3005A-Diss | oct 30 - dis met | 1 |
| | | | | 11/13/2008 | | 6020-W-DISS | oct 30 - dis met | 1 |
| | | | | 11/13/2008 | | HARD | oct 30 - dis met | 1 |
| | | | | 11/13/2008 | | ICP-W-DIS | oct 30 - dis met | 1 |
| L87283-05F | | | | 11/13/2008 | Aqueous | 3005A-ICPMS | oct 30 - met | 1 |
| | | | | 11/13/2008 | | ICP-W | oct 30 - met | 1 |

Client CARBON RESOURCES c/o ROCK LOGIC

Address P.O. BOX 544

CEDAREDGE CO 81413
City State Zip

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGICCONSULTING@GMAIL.COM

Project Name SCOFIELD BASELINE

Project Number/P.O.# —

Sampler Name BRAD LINDSAY


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Email:awal@awal-labs.com


# CHAIN OF CUSTODY

Lab Sample Set # 87283

Page _____ of _____

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day (Standard)

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TABLE 3 (ON FILE) | QC LEVEL | COMMENTS |
|---|---|---|---|---|---|---|
| MUD CREEK | 10/29/08 14:15 | W | 6 | ✓ | 1 2 2+ 3 3+ 4 | |
| SULFUR SPRING | 14:40 | | | ✓ | | |
| RES-1 | 15:00 | | | ✓ | | |
| MILLER OUTLET | 15:15 | | | ✓ | | |
| ASPEN SPRING | 12:00 | | | ✓ | | |

**LABORATORY USE ONLY**

SAMPLES WERE:
1 (Shipped or hand delivered) Notes: UPS
2 Ambient or (Chilled) Notes:
3 Temperature 2.1
4 Received Broken/Leaking (Improperly Sealed) Y (N) Notes:
5 (Properly Preserved) Y N Notes:
6 Received Within Holding Times (Y) N Notes:

COC Tape Was:
1 Present on Outer Package (Y) N NA
2 Unbroken on Outer Package (Y) N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record? Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 16:30 | PRINT NAME UPS |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date 10/30/08 | Received By: Signature |
| PRINT NAME | Time 2031 | PRINT NAME Elena Hayes |

Special Instructions:

PLEASE FILTER

Shipping 32.00

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

[1] Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
[2] O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.
½ gallon HDPE

Sample Set: 87283

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

**AMERICAN WEST ANALYTICAL LABORATORIES**

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April 14, 2008

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L83169

Dear Brad Lindsay:

American West Analytical Labs received 4 samples on 3/27/2008 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Approved by: _____
Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L83169-01E
Field Sample ID: **Mud Creek**
Collected: 3/25/2008 6:45:00 PM
Received: 3/27/2008

**AMERICAN WEST ANALYTICAL LABORATORIES**

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e-mail: awal@awal-labs.com

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Iron | mg/L | 4/2/2008 5:14:00 PM | 6010B | 0.050 | **2.4** | [1] |
| Manganese | mg/L | 4/2/2008 5:14:00 PM | 6010B | 0.0050 | **0.024** | [1] @ |

*[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*

*@ High RPD due to suspected matrix interference.*

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

**AMERICAN WEST ANALYTICAL LABORATORIES**

463 West 3600 South
Salt Lake City, Utah
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Fax (801) 263-8687
e-mail: awal@awal-labs.com

Lab Sample ID: L83169-02E
Field Sample ID: **Sulfur Spring**
Collected: 3/25/2008 4:45:00 PM
Received: 3/27/2008

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 4/10/2008 6:42:00 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 4/10/2008 6:42:00 PM | 6010B | 0.0050 | **0.033** |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Lab Sample ID: L83169-03E
Field Sample ID: **Miller Outlet**
Collected: 3/25/2008 5:50:00 PM
Received: 3/27/2008

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 4/2/2008 5:31:00 PM | 6010B | 0.050 | **1.6** |
| Manganese | mg/L | 4/2/2008 5:31:00 PM | 6010B | 0.0050 | **0.25** |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L83169-04E
Field Sample ID: **Res-1**
Collected: 3/25/2008 5:10:00 PM
Received: 3/27/2008

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 4/2/2008 5:35:00 PM | 6010B | 0.050 | < 0.050 |
| Manganese | mg/L | 4/2/2008 5:35:00 PM | 6010B | 0.0050 | **0.033** |

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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L83169-01F
Field Sample ID: **Mud Creek**
Collected: 3/25/2008 6:45:00 PM
Received: 3/27/2008

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Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 4/2/2008 2:47:00 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 3/31/2008 7:25:15 PM | 6020 | 0.00060 | < 0.00060 |
| Boron | mg/L | 4/2/2008 2:47:00 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 3/31/2008 7:25:15 PM | 6020 | 0.00018 | < 0.00018 |
| Calcium | mg/L | 4/2/2008 2:16:00 PM | 6010B | 10 | **68** # |
| Copper | mg/L | 3/31/2008 7:25:15 PM | 6020 | 0.00080 | **0.0034** |
| Iron | mg/L | 4/2/2008 2:47:00 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 3/31/2008 7:25:15 PM | 6020 | 0.00040 | < 0.00040 |
| Magnesium | mg/L | 4/2/2008 2:47:00 PM | 6010B | 1.0 | **35** |
| Manganese | mg/L | 3/31/2008 7:25:15 PM | 6020 | 0.0012 | **0.030** |
| Molybdenum | mg/L | 4/2/2008 2:47:00 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 4/2/2008 2:47:00 PM | 6010B | 1.0 | **6.4** |
| Selenium | mg/L | 3/31/2008 7:25:15 PM | 6020 | 0.00080 | < 0.00080 |
| Sodium | mg/L | 4/2/2008 2:47:00 PM | 6010B | 1.0 | **49** |
| Zinc | mg/L | 3/31/2008 7:25:15 PM | 6020 | 0.0054 | **0.0076** |

*# The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L83169-02F
Field Sample ID: **Sulfur Spring**
Collected: 3/25/2008 4:45:00 PM
Received: 3/27/2008

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 4/2/2008 3:07:00 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 3/31/2008 8:03:04 PM | 6020 | 0.00060 | < 0.00060 |
| Boron | mg/L | 4/2/2008 3:07:00 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 3/31/2008 8:03:04 PM | 6020 | 0.00018 | < 0.00018 |
| Calcium | mg/L | 4/2/2008 2:28:00 PM | 6010B | 10 | **86** # |
| Copper | mg/L | 3/31/2008 8:03:04 PM | 6020 | 0.00080 | **0.0015** |
| Iron | mg/L | 4/2/2008 3:07:00 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 3/31/2008 8:03:04 PM | 6020 | 0.00040 | < 0.00040 |
| Magnesium | mg/L | 4/2/2008 3:07:00 PM | 6010B | 1.0 | **35** |
| Manganese | mg/L | 3/31/2008 8:03:04 PM | 6020 | 0.0012 | **0.032** |
| Molybdenum | mg/L | 4/2/2008 3:07:00 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 4/2/2008 3:07:00 PM | 6010B | 1.0 | **4.8** |
| Selenium | mg/L | 3/31/2008 8:03:04 PM | 6020 | 0.00080 | < 0.00080 |
| Sodium | mg/L | 4/2/2008 3:07:00 PM | 6010B | 1.0 | **10** |
| Zinc | mg/L | 3/31/2008 8:03:04 PM | 6020 | 0.0054 | < 0.0054 |

*# The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L83169-03F
Field Sample ID: **Miller Outlet**
Collected: 3/25/2008 5:50:00 PM
Received: 3/27/2008

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 4/2/2008 3:11:00 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 3/31/2008 8:08:29 PM | 6020 | 0.00060 | < 0.00060 |
| Boron | mg/L | 4/2/2008 3:11:00 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 3/31/2008 8:08:29 PM | 6020 | 0.00018 | < 0.00018 |
| Calcium | mg/L | 4/2/2008 2:32:00 PM | 6010B | 10 | **82** # |
| Copper | mg/L | 3/31/2008 8:08:29 PM | 6020 | 0.00080 | **0.0017** |
| Iron | mg/L | 4/2/2008 3:11:00 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 3/31/2008 8:08:29 PM | 6020 | 0.00040 | < 0.00040 |
| Magnesium | mg/L | 4/2/2008 3:11:00 PM | 6010B | 1.0 | **15** |
| Manganese | mg/L | 3/31/2008 8:08:29 PM | 6020 | 0.0012 | **0.043** |
| Molybdenum | mg/L | 4/2/2008 3:11:00 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 4/2/2008 3:11:00 PM | 6010B | 1.0 | **2.1** |
| Selenium | mg/L | 3/31/2008 8:08:29 PM | 6020 | 0.00080 | < 0.00080 |
| Sodium | mg/L | 4/2/2008 3:11:00 PM | 6010B | 1.0 | **6.6** |
| Zinc | mg/L | 3/31/2008 8:08:29 PM | 6020 | 0.0054 | < 0.0054 |

*# The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L83169-04F
Field Sample ID: **Res-1**
Collected: 3/25/2008 5:10:00 PM
Received: 3/27/2008

**AMERICAN WEST ANALYTICAL LABORATORIES**

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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 4/2/2008 3:14:00 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 3/31/2008 8:13:53 PM | 6020 | 0.00060 | **0.00072** |
| Boron | mg/L | 4/2/2008 3:14:00 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 3/31/2008 8:13:53 PM | 6020 | 0.00018 | < 0.00018 |
| Calcium | mg/L | 4/2/2008 2:36:00 PM | 6010B | 10 | **70** # |
| Copper | mg/L | 3/31/2008 8:13:53 PM | 6020 | 0.00080 | **0.0029** |
| Iron | mg/L | 4/2/2008 3:14:00 PM | 6010B | 0.050 | **0.072** |
| Lead | mg/L | 3/31/2008 8:13:53 PM | 6020 | 0.00040 | < 0.00040 |
| Magnesium | mg/L | 4/2/2008 3:14:00 PM | 6010B | 1.0 | **36** |
| Manganese | mg/L | 3/31/2008 8:13:53 PM | 6020 | 0.0012 | **0.14** |
| Molybdenum | mg/L | 4/2/2008 3:14:00 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 4/2/2008 3:14:00 PM | 6010B | 1.0 | **6.0** |
| Selenium | mg/L | 3/31/2008 8:13:53 PM | 6020 | 0.00080 | < 0.00080 |
| Sodium | mg/L | 4/2/2008 3:14:00 PM | 6010B | 1.0 | **41** |
| Zinc | mg/L | 3/31/2008 8:13:53 PM | 6020 | 0.0054 | **0.0065** |

*# The reporting limits were raised due to high analyte concentration.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L83169-01
Field Sample ID: **Mud Creek**
Collected: 3/25/2008 6:45:00 PM
Received: 3/27/2008


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 3/28/2008 5:45:00 AM | 2310B | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 3/28/2008 6:00:00 AM | 2320B | 20 | **230** | |
| Ammonia (as N) | mg/L | 4/1/2008 11:08:00 AM | 350.1 | 0.050 | < 0.050 | |
| Bicarbonate (As CaCO3) | mg/L | 3/28/2008 6:00:00 AM | 2320B | 20 | **230** | |
| Carbonate (As CaCO3) | mg/L | 3/28/2008 6:00:00 AM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 3/29/2008 11:27:04 PM | 300.0 | 1.0 | **45** | |
| Hardness (as CaCO3) | mg/L | 4/2/2008 | 2340B | 10 | **320** | |
| Nitrate (as N) | mg/L | 3/27/2008 11:39:00 AM | 353.2 | 0.010 | **0.12** | |
| Nitrite (as N) | mg/L | 3/27/2008 11:39:00 AM | 353.2 | 0.010 | < 0.010 | 1 |
| Oil & Grease | mg/L | 3/31/2008 10:30:00 AM | 1664A | 3.0 | < 3.0 | |
| Phosphate, ortho (as P) | mg/L | 3/27/2008 12:39:00 PM | 365.1 | 0.050 | < 0.050 | |
| Settleable Solids | ml/L | 3/27/2008 12:00:00 PM | 2540F | 0.10 | **0.10** | |
| Sulfate | mg/L | 3/29/2008 11:27:04 PM | 300.0 | 7.5 | **130** | 1 |
| TDS | mg/L | 3/28/2008 2:45:00 PM | 160.1 | 20 | **490** | |
| TSS | mg/L | 3/27/2008 3:30:00 PM | 2540D | 3.0 | **26** | |

*[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

Lab Sample ID: L83169-02
Field Sample ID: **Sulfur Spring**
Collected: 3/25/2008 4:45:00 PM
Received: 3/27/2008

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Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 3/28/2008 5:45:00 AM | 2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 3/28/2008 6:00:00 AM | 2320B | 20 | **340** |
| Ammonia (as N) | mg/L | 4/1/2008 11:08:00 AM | 350.1 | 0.050 | **0.077** |
| Bicarbonate (As CaCO3) | mg/L | 3/28/2008 6:00:00 AM | 2320B | 20 | **340** |
| Carbonate (As CaCO3) | mg/L | 3/28/2008 6:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 3/30/2008 12:36:56 AM | 300.0 | 1.0 | **9.3** |
| Hardness (as CaCO3) | mg/L | 4/2/2008 | 2340B | 10 | **360** |
| Nitrate (as N) | mg/L | 3/27/2008 11:39:00 AM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 3/27/2008 11:39:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 3/31/2008 10:30:00 AM | 1664A | 3.0 | < 3.0 |
| Phosphate, ortho (as P) | mg/L | 3/27/2008 12:39:00 PM | 365.1 | 0.050 | < 0.050 |
| Settleable Solids | ml/L | 3/27/2008 12:00:00 PM | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 3/30/2008 12:36:56 AM | 300.0 | 7.5 | **44** |
| TDS | mg/L | 3/28/2008 2:45:00 PM | 160.1 | 20 | **400** |
| TSS | mg/L | 3/27/2008 3:30:00 PM | 2540D | 3.0 | < 3.0 |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L83169-03
Field Sample ID: **Miller Outlet**
Collected: 3/25/2008 5:50:00 PM
Received: 3/27/2008

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Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 3/28/2008 5:45:00 AM | 2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 3/28/2008 6:00:00 AM | 2320B | 20 | **250** |
| Ammonia (as N) | mg/L | 4/1/2008 11:08:00 AM | 350.1 | 0.050 | **0.095** |
| Bicarbonate (As CaCO3) | mg/L | 3/28/2008 6:00:00 AM | 2320B | 20 | **250** |
| Carbonate (As CaCO3) | mg/L | 3/28/2008 6:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 3/30/2008 1:00:14 AM | 300.0 | 1.0 | **9.4** |
| Hardness (as CaCO3) | mg/L | 4/2/2008 | 2340B | 10 | **270** |
| Nitrate (as N) | mg/L | 3/27/2008 11:39:00 AM | 353.2 | 0.010 | **0.64** |
| Nitrite (as N) | mg/L | 3/27/2008 11:39:00 AM | 353.2 | 0.010 | **0.014** |
| Oil & Grease | mg/L | 3/31/2008 10:30:00 AM | 1664A | 3.0 | < 3.0 |
| Phosphate, ortho (as P) | mg/L | 3/27/2008 12:39:00 PM | 365.1 | 0.050 | < 0.050 |
| Settleable Solids | ml/L | 3/27/2008 12:00:00 PM | 2540F | 0.10 | **0.50** |
| Sulfate | mg/L | 3/30/2008 1:00:14 AM | 300.0 | 7.5 | **29** |
| TDS | mg/L | 3/28/2008 2:45:00 PM | 160.1 | 20 | **330** |
| TSS | mg/L | 3/27/2008 3:30:00 PM | 2540D | 3.0 | **430** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L83169-04
Field Sample ID: **Res-1**
Collected: 3/25/2008 5:10:00 PM
Received: 3/27/2008


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 3/28/2008 5:45:00 AM | 2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 3/28/2008 6:00:00 AM | 2320B | 20 | **220** |
| Ammonia (as N) | mg/L | 4/1/2008 11:08:00 AM | 350.1 | 0.050 | **0.20** |
| Bicarbonate (As CaCO3) | mg/L | 3/28/2008 6:00:00 AM | 2320B | 20 | **220** |
| Carbonate (As CaCO3) | mg/L | 3/28/2008 6:00:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 3/30/2008 1:23:32 AM | 300.0 | 1.0 | **40** |
| Hardness (as CaCO3) | mg/L | 4/2/2008 | 2340B | 10 | **320** |
| Nitrate (as N) | mg/L | 3/27/2008 11:39:00 AM | 353.2 | 0.010 | **0.15** |
| Nitrite (as N) | mg/L | 3/27/2008 11:39:00 AM | 353.2 | 0.010 | **0.011** |
| Oil & Grease | mg/L | 3/31/2008 10:30:00 AM | 1664A | 3.0 | < 3.0 |
| Phosphate, ortho (as P) | mg/L | 3/27/2008 12:39:00 PM | 365.1 | 0.050 | < 0.050 |
| Settleable Solids | ml/L | 3/27/2008 12:00:00 PM | 2540F | 0.10 | **0.30** |
| Sulfate | mg/L | 3/30/2008 1:23:32 AM | 300.0 | 7.5 | **110** |
| TDS | mg/L | 3/28/2008 2:45:00 PM | 160.1 | 20 | **470** |
| TSS | mg/L | 3/27/2008 3:30:00 PM | 2540D | 3.0 | **180** |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-39726 | Arsenic | mg/L | 6020 | 0.2134 | 0.2 | 0 | 107 | 85-115 | | | | 3/31/2008 |
| LCS-39726 | Cadmium | mg/L | 6020 | 0.1968 | 0.2 | 0 | 98.4 | 85-115 | | | | 3/31/2008 |
| LCS-39726 | Copper | mg/L | 6020 | 0.2228 | 0.2 | 0.000799 | 111 | 85-115 | | | | 3/31/2008 |
| LCS-39726 | Lead | mg/L | 6020 | 0.2251 | 0.2 | 0 | 113 | 85-115 | | | | 3/31/2008 |
| LCS-39726 | Manganese | mg/L | 6020 | 0.1982 | 0.2 | 0.000577 | 98.8 | 85-115 | | | | 3/31/2008 |
| LCS-39726 | Selenium | mg/L | 6020 | 0.1789 | 0.2 | 0 | 89.4 | 85-115 | | | | 3/31/2008 |
| LCS-39726 | Zinc | mg/L | 6020 | 1.004 | 1 | 0 | 100 | 85-115 | | | | 3/31/2008 |
| LCS-39739 | Iron | mg/L | 6010B | 1.040 | 1 | 0 | 104 | 75-125 | | | | 4/2/2008 |
| LCS-39739 | Manganese | mg/L | 6010B | 0.2010 | 0.2 | 0 | 101 | 75-125 | | | | 4/2/2008 |
| LCS-39937 | Iron | mg/L | 6010B | 0.9973 | 1 | 0 | 99.7 | 75-125 | | | | 4/10/2008 |
| LCS-39937 | Manganese | mg/L | 6010B | 0.1960 | 0.2 | 0 | 98.0 | 75-125 | | | | 4/10/2008 |
| LCS-39726 | Aluminum | mg/L | 6010B | 0.9810 | 1 | 0 | 98.1 | 75-125 | | | | 4/2/2008 |
| LCS-39726 | Boron | mg/L | 6010B | 1.010 | 1 | 0 | 101 | 75-125 | | | | 4/2/2008 |
| LCS-39726 | Calcium | mg/L | 6010B | 9.820 | 10 | 0.063 | 97.6 | 75-125 | | | | 4/2/2008 |
| LCS-39726 | Iron | mg/L | 6010B | 1.040 | 1 | 0.00831 | 103 | 75-125 | | | | 4/2/2008 |
| LCS-39726 | Magnesium | mg/L | 6010B | 10.10 | 10 | 0 | 101 | 75-125 | | | | 4/2/2008 |
| LCS-39726 | Molybdenum | mg/L | 6010B | 0.2050 | 0.2 | 0.00541 | 99.8 | 75-125 | | | | 4/2/2008 |
| LCS-39726 | Potassium | mg/L | 6010B | 9.740 | 10 | 0.222 | 95.2 | 75-125 | | | | 4/2/2008 |
| LCS-39726 | Sodium | mg/L | 6010B | 9.130 | 10 | 0 | 91.3 | 75-125 | | | | 4/2/2008 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

**Dept:** ME

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-39726 | Arsenic | mg/L | 6020 | < 0.00060 | | | | - | | | | 3/31/2008 |
| MB-39726 | Cadmium | mg/L | 6020 | < 0.00018 | | | | - | | | | 3/31/2008 |
| MB-39726 | Copper | mg/L | 6020 | < 0.00080 | | | | - | | | | 3/31/2008 |
| MB-39726 | Lead | mg/L | 6020 | < 0.00040 | | | | - | | | | 3/31/2008 |
| MB-39726 | Manganese | mg/L | 6020 | < 0.0012 | | | | - | | | | 3/31/2008 |
| MB-39726 | Selenium | mg/L | 6020 | < 0.00080 | | | | - | | | | 3/31/2008 |
| MB-39726 | Zinc | mg/L | 6020 | < 0.0050 | | | | - | | | | 3/31/2008 |
| MB-39739 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 4/2/2008 |
| MB-39739 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 4/2/2008 |
| MB-39937 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 4/10/2008 |
| MB-39937 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 4/10/2008 |
| MB-39726 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 4/2/2008 |
| MB-39726 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 4/2/2008 |
| MB-39726 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 4/2/2008 |
| MB-39726 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 4/2/2008 |
| MB-39726 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 4/2/2008 |
| MB-39726 | Molybdenum | mg/L | 6010B | < 0.040 | | | | - | | | | 4/2/2008 |
| MB-39726 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 4/2/2008 |
| MB-39726 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 4/2/2008 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L83169-01FMS | Arsenic | mg/L | 6020 | 0.2112 | 0.2 | 0.000221 | 105 | 70-130 | | | | 3/31/2008 |
| L83169-01FMS | Cadmium | mg/L | 6020 | 0.1976 | 0.2 | 0 | 98.8 | 70-130 | | | | 3/31/2008 |
| L83169-01FMS | Copper | mg/L | 6020 | 0.2148 | 0.2 | 0.003392 | 106 | 70-130 | | | | 3/31/2008 |
| L83169-01FMS | Lead | mg/L | 6020 | 0.2176 | 0.2 | 0.000322 | 109 | 70-130 | | | | 3/31/2008 |
| L83169-01FMS | Manganese | mg/L | 6020 | 0.2266 | 0.2 | 0.02999 | 98.3 | 70-130 | | | | 3/31/2008 |
| L83169-01FMS | Selenium | mg/L | 6020 | 0.1773 | 0.2 | 0.00028 | 88.5 | 70-130 | | | | 3/31/2008 |
| L83169-01FMS | Zinc | mg/L | 6020 | 1.005 | 1 | 0.007633 | 99.7 | 70-130 | | | | 3/31/2008 |
| L83169-01EMS | Iron | mg/L | 6010B | 0.5740 | 1 | 2.38 | -181 | 75-125 | | | [1] | 4/2/2008 |
| L83169-01EMS | Manganese | mg/L | 6010B | 0.04950 | 0.2 | 0.0242 | 12.6 | 75-125 | | | [1] | 4/2/2008 |
| L83169-02EMS | Iron | mg/L | 6010B | 1.040 | 1 | 0.03146 | 101 | 75-125 | | | | 4/10/2008 |
| L83169-02EMS | Manganese | mg/L | 6010B | 0.2302 | 0.2 | 0.0327 | 98.7 | 75-125 | | | | 4/10/2008 |
| L83169-01FMS | Aluminum | mg/L | 6010B | 1.020 | 1 | 0.04914 | 97.1 | 75-125 | | | | 4/2/2008 |
| L83169-01FMS | Boron | mg/L | 6010B | 1.150 | 1 | 0.1325 | 102 | 75-125 | | | | 4/2/2008 |
| L83169-01FMS | Iron | mg/L | 6010B | 1.050 | 1 | 0.01798 | 103 | 75-125 | | | | 4/2/2008 |
| L83169-01FMS | Magnesium | mg/L | 6010B | 44.40 | 10 | 35.14 | 92.6 | 75-125 | | | | 4/2/2008 |
| L83169-01FMS | Molybdenum | mg/L | 6010B | 0.2040 | 0.2 | 0.00527 | 99.4 | 75-125 | | | | 4/2/2008 |
| L83169-01FMS | Potassium | mg/L | 6010B | 16.00 | 10 | 6.363 | 96.4 | 75-125 | | | | 4/2/2008 |
| L83169-01FMS | Sodium | mg/L | 6010B | 58.90 | 10 | 49.31 | 95.9 | 75-125 | | | | 4/2/2008 |
| L83169-01FMS | Calcium | mg/L | 6010B | 78.00 | 10 | 68.5 | 95.0 | 75-125 | | | | 4/2/2008 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L83169-01FMSD | Arsenic | mg/L | 6020 | 0.2149 | 0.2 | 0.000221 | 107 | 70-130 | 1.74 | 20 | | 3/31/2008 |
| L83169-01FMSD | Cadmium | mg/L | 6020 | 0.2002 | 0.2 | 0 | 100 | 70-130 | 1.34 | 20 | | 3/31/2008 |
| L83169-01FMSD | Copper | mg/L | 6020 | 0.2108 | 0.2 | 0.003392 | 104 | 70-130 | 1.88 | 20 | | 3/31/2008 |
| L83169-01FMSD | Lead | mg/L | 6020 | 0.2181 | 0.2 | 0.000322 | 109 | 70-130 | 0.230 | 20 | | 3/31/2008 |
| L83169-01FMSD | Manganese | mg/L | 6020 | 0.2279 | 0.2 | 0.02999 | 99.0 | 70-130 | 0.593 | 20 | | 3/31/2008 |
| L83169-01FMSD | Selenium | mg/L | 6020 | 0.1862 | 0.2 | 0.00028 | 93.0 | 70-130 | 4.87 | 20 | | 3/31/2008 |
| L83169-01FMSD | Zinc | mg/L | 6020 | 1.006 | 1 | 0.007633 | 99.9 | 70-130 | 0.192 | 20 | | 3/31/2008 |
| L83169-01EMSD | Iron | mg/L | 6010B | 1.610 | 1 | 2.38 | -77.0 | 75-125 | 94.9 | 20 | [1] | 4/2/2008 |
| L83169-01EMSD | Manganese | mg/L | 6010B | 0.2560 | 0.2 | 0.0242 | 116 | 75-125 | 135 | 20 | @ | 4/2/2008 |
| L83169-02EMSD | Iron | mg/L | 6010B | 1.033 | 1 | 0.03146 | 100 | 75-125 | 0.705 | 20 | | 4/10/2008 |
| L83169-02EMSD | Manganese | mg/L | 6010B | 0.2267 | 0.2 | 0.0327 | 97.0 | 75-125 | 1.52 | 20 | | 4/10/2008 |
| L83169-01FMSD | Aluminum | mg/L | 6010B | 1.070 | 1 | 0.04914 | 102 | 75-125 | 4.78 | 20 | | 4/2/2008 |
| L83169-01FMSD | Boron | mg/L | 6010B | 1.180 | 1 | 0.1325 | 105 | 75-125 | 2.58 | 20 | | 4/2/2008 |
| L83169-01FMSD | Iron | mg/L | 6010B | 1.050 | 1 | 0.01798 | 103 | 75-125 | 0 | 20 | | 4/2/2008 |
| L83169-01FMSD | Magnesium | mg/L | 6010B | 44.90 | 10 | 35.14 | 97.6 | 75-125 | 1.12 | 20 | | 4/2/2008 |
| L83169-01FMSD | Molybdenum | mg/L | 6010B | 0.2090 | 0.2 | 0.00527 | 102 | 75-125 | 2.42 | 20 | | 4/2/2008 |
| L83169-01FMSD | Potassium | mg/L | 6010B | 16.40 | 10 | 6.363 | 100 | 75-125 | 2.47 | 20 | | 4/2/2008 |
| L83169-01FMSD | Sodium | mg/L | 6010B | 59.90 | 10 | 49.31 | 106 | 75-125 | 1.68 | 20 | | 4/2/2008 |
| L83169-01FMSD | Calcium | mg/L | 6010B | 76.40 | 10 | 68.5 | 79.0 | 75-125 | 2.07 | 20 | | 4/2/2008 |

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

**Dept:** WC
**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L83161-05DDUP | TDS | mg/L | 160.1 | 908.0 | 0 | 944 | | - | 3.89 | 20 | | 3/28/2008 |
| L83162-01CDUP | TDS | mg/L | 160.1 | 684.0 | 0 | 656 | | - | 4.18 | 20 | | 3/28/2008 |
| L83169-01ADUP | TDS | mg/L | 160.1 | 492.0 | 0 | 492 | | - | 0 | 20 | | 3/28/2008 |
| L83154-02ADUP | TSS | mg/L | 2540D | 4.000 | 0 | 4 | | - | 0 | 20 | | 3/27/2008 |
| L83169-01ADUP | TSS | mg/L | 2540D | 25.00 | 0 | 26 | | - | 3.92 | 20 | | 3/27/2008 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R80517 | Alkalinity,(As CaCO3) | mg/L | 2320B | 50960 | 50000 | 0 | 102 | 90-110 | | | | 3/28/2008 |
| LCS-R80572 | Chloride | mg/L | 300.0 | 4.849 | 5 | 0 | 97.0 | 90-110 | | | | 3/29/2008 |
| LCS-R80572 | Sulfate | mg/L | 300.0 | 4.859 | 5 | 0 | 97.2 | 90-110 | | | | 3/29/2008 |
| LCS-R81107 | Chloride | mg/L | 300.0 | 5.371 | 5 | 0 | 107 | 90-110 | | | | 4/9/2008 |
| LCS-R81107 | Sulfate | mg/L | 300.0 | 4.983 | 5 | 0 | 99.7 | 90-110 | | | | 4/9/2008 |
| LCS-R80519 | Acidity | mg/L | 2310B | 20.00 | 20 | 0 | 100 | 80-120 | | | | 3/28/2008 |
| LCS-39775 | Ammonia (as N) | mg/L | 350.1 | 0.9700 | 1 | 0 | 97.0 | 90-110 | | | | 4/1/2008 |
| LCS-R80468 | Nitrite (as N) | mg/L | 353.2 | 0.9750 | 1 | 0 | 97.5 | 90-110 | | | | 3/27/2008 |
| LCS-R80469 | Nitrate (as N) | mg/L | 353.2 | 0.9560 | 1 | 0 | 95.6 | 90-110 | | | | 3/27/2008 |
| LCS-R80682 | Oil & Grease | mg/L | 1664A | 40.00 | 40 | 0 | 100 | 79-114 | | | | 3/31/2008 |
| LCS-R80471 | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9720 | 1 | 0 | 97.2 | 90-110 | | | | 3/27/2008 |
| LCS-R80627 | TDS | mg/L | 160.1 | 202.0 | 205 | 0 | 98.5 | 80-120 | | | | 3/28/2008 |
| LCS-R80515 | TSS | mg/L | 2540D | 97.00 | 100 | 0 | 97.0 | 80-120 | | | | 3/27/2008 |



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Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

**Dept:** WC

**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R80517 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 3/28/2008 |
| MB-R80517 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 3/28/2008 |
| MB-R80517 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 3/28/2008 |
| MB-R80572 | Chloride | mg/L | 300.0 | < 0.10 | | | | - | | | | 3/29/2008 |
| MB-R80572 | Sulfate | mg/L | 300.0 | < 0.75 | | | | - | | | | 3/29/2008 |
| MB-R81107 | Chloride | mg/L | 300.0 | < 0.10 | | | | - | | | | 4/9/2008 |
| MB-R81107 | Sulfate | mg/L | 300.0 | < 0.75 | | | | - | | | | 4/9/2008 |
| MB-R80519 | Acidity | mg/L | 2310B | < 15 | | | | - | | | | 3/28/2008 |
| MB-39775 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 4/1/2008 |
| MB-R80468 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 3/27/2008 |
| MB-R80469 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 3/27/2008 |
| MB-R80682 | Oil & Grease | mg/L | 1664A | < 3.0 | | | | - | | | | 3/31/2008 |
| MB-R80471 | Phosphate, ortho (as P) | mg/L | 365.1 | < 0.050 | | | | - | | | | 3/27/2008 |
| MB-R80627 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 3/28/2008 |
| MB-R80515 | TSS | mg/L | 2540D | < 3.0 | | | | - | | | | 3/27/2008 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

**Dept:** WC

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L83162-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 402.0 | 100 | 300 | 102 | 80-120 | | | | 3/28/2008 |
| L83169-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 329.0 | 100 | 228 | 101 | 80-120 | | | | 3/28/2008 |
| L83169-01BMS | Chloride | mg/L | 300.0 | 153.4 | 100 | 44.56 | 109 | 90-110 | | | | 3/29/2008 |
| L83169-01BMS | Sulfate | mg/L | 300.0 | 239.6 | 100 | 128.4 | 111 | 90-110 | | | [1] | 3/29/2008 |
| L83420-01AMS | Chloride | mg/L | 300.0 | 528.5 | 500 | 3.772 | 105 | 90-110 | | | | 4/9/2008 |
| L83420-01AMS | Sulfate | mg/L | 300.0 | 494.6 | 500 | 1.773 | 98.6 | 90-110 | | | | 4/9/2008 |
| L82946-03AMS | Chloride | mg/L | 300.0 | 472.8 | 250 | 83.73 | 156 | 90-110 | | | [1] | 4/10/2008 |
| L82946-03AMS | Sulfate | mg/L | 300.0 | 314.3 | 250 | 49.62 | 106 | 90-110 | | | | 4/10/2008 |
| L83169-01BMS | Acidity | mg/L | 2310B | 48.00 | 50 | 0 | 96.0 | 80-120 | | | | 3/28/2008 |
| L83169-02CMS | Ammonia (as N) | mg/L | 350.1 | 1.043 | 1 | 0.077 | 96.6 | 90-110 | | | | 4/1/2008 |
| L83169-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.106 | 1 | 0 | 111 | 90-110 | | | [1] | 3/27/2008 |
| L83169-01BMS | Nitrate (as N) | mg/L | 353.2 | 1.184 | 1 | 0.123 | 106 | 90-110 | | | | 3/27/2008 |
| L83169-01BMS | Phosphate, ortho (as P) | mg/L | 365.1 | 0.9620 | 1 | 0.008 | 95.4 | 90-110 | | | | 3/27/2008 |

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L83162-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 399.0 | 100 | 300 | 99.0 | 80-120 | 0.749 | 10 | | 3/28/2008 |
| L83169-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 333.0 | 100 | 228 | 105 | 80-120 | 1.21 | 10 | | 3/28/2008 |
| L83169-01BMSD | Chloride | mg/L | 300.0 | 149.7 | 100 | 44.56 | 105 | 90-110 | 2.50 | 20 | | 3/30/2008 |
| L83169-01BMSD | Sulfate | mg/L | 300.0 | 233.0 | 100 | 128.4 | 105 | 90-110 | 2.81 | 20 | | 3/30/2008 |
| L83420-01AMSD | Chloride | mg/L | 300.0 | 528.5 | 500 | 3.772 | 105 | 90-110 | 0.00606 | 20 | | 4/9/2008 |
| L83420-01AMSD | Sulfate | mg/L | 300.0 | 494.8 | 500 | 1.773 | 98.6 | 90-110 | 0.0437 | 20 | | 4/9/2008 |
| L82946-03AMSD | Chloride | mg/L | 300.0 | 372.5 | 250 | 83.73 | 116 | 90-110 | 23.7 | 20 | [1]@ | 4/10/2008 |
| L82946-03AMSD | Sulfate | mg/L | 300.0 | 317.3 | 250 | 49.62 | 107 | 90-110 | 0.945 | 20 | | 4/10/2008 |
| L83169-01BMSD | Acidity | mg/L | 2310B | 52.00 | 50 | 0 | 104 | 80-120 | 8.00 | 20 | | 3/28/2008 |
| L83169-02CMSD | Ammonia (as N) | mg/L | 350.1 | 1.014 | 1 | 0.077 | 93.7 | 90-110 | 2.82 | 10 | | 4/1/2008 |
| L83169-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.146 | 1 | 0 | 115 | 90-110 | 3.55 | 10 | [1] | 3/27/2008 |
| L83169-01BMSD | Nitrate (as N) | mg/L | 353.2 | 1.197 | 1 | 0.123 | 107 | 90-110 | 1.09 | 10 | | 3/27/2008 |
| L83169-01BMSD | Phosphate, ortho (as P) | mg/L | 365.1 | 1.044 | 1 | 0.008 | 104 | 90-110 | 8.18 | 10 | | 3/27/2008 |

@ High RPD due to suspected matrix interference.

[1] Spike recovery indicates matrix interference. The method is in control as indicated by the laboratory control sample (LCS).



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-R80682 | Oil & Grease | mg/L | 1664A | 37.50 | 40 | 0 | 93.8 | 79-114 | | | | 3/31/2008 |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L83169
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-R80682 | Oil & Grease | mg/L | 1664A | 37.80 | 40 | 0 | 94.5 | 79-114 | 0.797 | 18 | | 3/31/2008 |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# American West Analytical Labs

## WORK ORDER Summary

*28-Mar-08*

**Work Order** L83169

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** Hallsb

**Contact:** Brad Lindsay

**Comments:** QCLevel: 2+. Include EDD.

DB

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L83169-01A | Mud Creek | 3/25/2008 6:45:00 PM | 3/27/2008 | 4/10/2008 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 4/10/2008 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 4/10/2008 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L83169-01B | | | | 4/10/2008 | | 2320B-ALK-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | 300.0-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | ACIDITY-W-2310B | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | NO2-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | NO3-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | PO4-O | mar 27 - wc | 1 |
| L83169-01C | | | | 4/10/2008 | | NH3-W | mar 27 - nh3 | 1 |
| | | | | 4/10/2008 | | NH3-W-PREP | mar 27 - nh3 | 1 |
| L83169-01D | | | | 4/10/2008 | | OGB-W | OGBFridge | 1 |
| L83169-01E | | | | 4/10/2008 | | 3005A-ICPMS | mar 27 - met | 1 |
| | | | | 4/10/2008 | | ICP-W | mar 27 - met | 1 |
| L83169-01F | | | | 4/10/2008 | Aqueous-Dissolved | 3005A-Diss | mar 27 - dis met | 1 |
| | | | | 4/10/2008 | | 6020-W-DISS | mar 27 - dis met | 1 |
| | | | | 4/10/2008 | | HARD | mar 27 - dis met | 1 |
| | | | | 4/10/2008 | | ICP-W-DIS | mar 27 - dis met | 1 |
| L83169-02A | Sulfur Spring | 3/25/2008 4:45:00 PM | | 4/10/2008 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 4/10/2008 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 4/10/2008 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L83169-02B | | | | 4/10/2008 | | 2320B-ALK-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | 300.0-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | ACIDITY-W-2310B | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | NO2-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | NO3-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | PO4-O | mar 27 - wc | 1 |

# WORK ORDER Summary

*28-Mar-08*

**Work Order** L83169

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+. Include EDD.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L83169-02C | Sulfur Spring | 3/25/2008 4:45:00 PM | 3/27/2008 | 4/10/2008 | Aqueous | NH3-W | mar 27 - nh3 | 1 |
| | | | | 4/10/2008 | | NH3-W-PREP | mar 27 - nh3 | 1 |
| L83169-02D | | | | 4/10/2008 | | OGB-W | OGBFridge | 1 |
| L83169-02E | | | | 4/10/2008 | | 3005A-ICPMS | mar 27 - met | 1 |
| | | | | 4/10/2008 | | ICP-W | mar 27 - met | 1 |
| L83169-02F | | | | 4/10/2008 | Aqueous-Dissolved | 3005A-Diss | mar 27 - dis met | 1 |
| | | | | 4/10/2008 | | 6020-W-DISS | mar 27 - dis met | 1 |
| | | | | 4/10/2008 | | HARD | mar 27 - dis met | 1 |
| | | | | 4/10/2008 | | ICP-W-DIS | mar 27 - dis met | 1 |
| L83169-03A | Miller Outlet | 3/25/2008 5:50:00 PM | | 4/10/2008 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 4/10/2008 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 4/10/2008 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L83169-03B | | | | 4/10/2008 | | 2320B-ALK-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | 300.0-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | ACIDITY-W-2310B | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | NO2-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | NO3-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | PO4-O | mar 27 - wc | 1 |
| L83169-03C | | | | 4/10/2008 | | NH3-W | mar 27 - nh3 | 1 |
| | | | | 4/10/2008 | | NH3-W-PREP | mar 27 - nh3 | 1 |
| L83169-03D | | | | 4/10/2008 | | OGB-W | OGBFridge | 1 |
| L83169-03E | | | | 4/10/2008 | | 3005A-ICPMS | mar 27 - met | 1 |
| | | | | 4/10/2008 | | ICP-W | mar 27 - met | 1 |
| L83169-03F | | | | 4/10/2008 | Aqueous-Dissolved | 3005A-Diss | mar 27 - dis met | 1 |
| | | | | 4/10/2008 | | 6020-W-DISS | mar 27 - dis met | 1 |
| | | | | 4/10/2008 | | HARD | mar 27 - dis met | 1 |
| | | | | 4/10/2008 | | ICP-W-DIS | mar 27 - dis met | 1 |
| L83169-04A | Res-1 | 3/25/2008 5:10:00 PM | | 4/10/2008 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |

# WORK ORDER Summary

*28-Mar-08*

**Work Order** L83169

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+. Include EDD.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L83169-04A | Res-1 | 3/25/2008 5:10:00 PM | 3/27/2008 | 4/10/2008 | Aqueous | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 4/10/2008 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L83169-04B | | | | 4/10/2008 | | 2320B-ALK-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | 300.0-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | ACIDITY-W-2310B | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | NO2-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | NO3-W | mar 27 - wc | 1 |
| | | | | 4/10/2008 | | PO4-O | mar 27 - wc | 1 |
| L83169-04C | | | | 4/10/2008 | | NH3-W | mar 27 - nh3 | 1 |
| | | | | 4/10/2008 | | NH3-W-PREP | mar 27 - nh3 | 1 |
| L83169-04D | | | | 4/10/2008 | | OGB-W | OGBFridge | 1 |
| L83169-04E | | | | 4/10/2008 | | 3005A-ICPMS | mar 27 - met | 1 |
| | | | | 4/10/2008 | | ICP-W | mar 27 - met | 1 |
| L83169-04F | | | | 4/10/2008 | Aqueous-Dissolved | 3005A-Diss | mar 27 - dis met | 1 |
| | | | | 4/10/2008 | | 6020-W-DISS | mar 27 - dis met | 1 |
| | | | | 4/10/2008 | | HARD | mar 27 - dis met | 1 |
| | | | | 4/10/2008 | | ICP-W-DIS | mar 27 - dis met | 1 |

Client CARBON RESOURCES C/O ROCK LOGIC

Address PO BOX 544

CEDAREDGE CO 81413
City State Zip

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGICCONSULTING@GMAIL.COM

Project Name SOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY


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Email:awal@awal-labs.com


# CHAIN OF CUSTODY

Lab Sample Set # 83169

Page _____ of _____

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day (Standard)

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TABLE 3 | | | | | | | | | | QC LEVEL / COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MUD CREEK | 3/25/08 18:45 | W | 6 | ✓ | | | | | | | | | | |
| SULFUR SPRING | 3/25/08 16:45 | W | 6 | ✓ | | | | | | | | | | |
| MILLER OUTLET | 3/25/08 17:50 | W | 6 | ✓ | | | | | | | | | | |
| RES-1 | 3/25/08 17:10 | W | 6 | ✓ | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

QC LEVEL: 1 2 2+ 3 3+ 4

COMMENTS

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date 3-27-08 | Received By: Signature Denise Brown |
| PRINT NAME | Time 1825 | PRINT NAME Denise Brown |

Special Instructions:

I DID NOT FILTER.

PLEASE MAIL RESULTS & E-MAIL .XLS & .PDF

THANKS!

**LABORATORY USE ONLY**

SAMPLES WERE: DB 3/27/08

1 Shipped or hand delivered
Notes: UPS

2 Ambient or Chilled
Notes:

3 Temperature 0.5°

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Notes:

6 Received Within Holding Times
(Y) N
Notes:

**COC Tape Was:**

1 Present on Outer Package
(Y) (N) DB 3/27/08 NA

2 Unbroken on Outer Package
(Y) N (NA)

3 Present on Sample DB 3/27/08
(Y) N NA

4 Unbroken on Sample
(Y) N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| * | - | Acidity | mg/l |
| * | - | Aluminum (Dissolved) | mg/l |
| * | - | Arsenic (Dissolved) | mg/l |
| * | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| * | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| * | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| * | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| * | - | Molybdenum (Dissolved) | mg/l |
| * | - | Ammonia | mg/l |
| * | - | Nitrates | mg/l |
| * | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| * | - | Phosphates(Ortho) | mg/l |
| * | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| * | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

[1] Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
[2] O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 83169

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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September 09, 2008

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413

TEL: (970) 856-6788
FAX:

RE: Scofield Baseline

Lab Set ID: L85972

Dear Brad Lindsay:

American West Analytical Labs received 5 samples on 8/27/2008 for the analyses presented in the following report.

All analyses were performed in accordance to National Environmental Laboratory Accreditation Program (NELAP) protocols unless noted otherwise. If you have any questions or concerns regarding this report please feel free to call.

Thank you.

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Approved by: _____
Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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e-mail: awal@awal-labs.com

Lab Sample ID: L85972-01F
Field Sample ID: **Aspen Spring**
Collected: 8/26/2008 3:50:00 PM
Received: 8/27/2008

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 9/5/2008 11:32:00 AM | 6010B | 0.050 | **1.4** |
| Manganese | mg/L | 9/5/2008 11:32:00 AM | 6010B | 0.0050 | **0.22** |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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Project ID: Scofield Baseline

Contact: Brad Lindsay

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Lab Sample ID: L85972-02F
Field Sample ID: **Sulfur Spring**
Collected: 8/26/2008 5:15:00 PM
Received: 8/27/2008

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 9/5/2008 11:48:00 AM | 6010B | 0.050 | **0.073** |
| Manganese | mg/L | 9/5/2008 11:48:00 AM | 6010B | 0.0050 | **0.035** |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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Lab Sample ID: L85972-03F
Field Sample ID: **RES-1**
Collected: 8/26/2008 6:20:00 PM
Received: 8/27/2008

## TOTAL METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 9/5/2008 11:52:00 AM | 6010B | 0.050 | **1.1** |
| Manganese | mg/L | 9/5/2008 11:52:00 AM | 6010B | 0.0050 | **0.55** |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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Lab Sample ID: L85972-04F
Field Sample ID: **Miller Outlet**
Collected: 8/26/2008 6:00:00 PM
Received: 8/27/2008

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 9/5/2008 11:56:00 AM | 6010B | 0.050 | **1.3** |
| Manganese | mg/L | 9/5/2008 11:56:00 AM | 6010B | 0.0050 | **0.058** |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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Project ID: Scofield Baseline

Contact: Brad Lindsay

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e-mail: awal@awal-labs.com

Lab Sample ID: L85972-05F
Field Sample ID: **Mud Creek**
Collected: 8/26/2008 6:40:00 PM
Received: 8/27/2008

**TOTAL METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Iron | mg/L | 9/5/2008 2:31:00 PM | 6010B | 0.050 | **0.11** |
| Manganese | mg/L | 9/5/2008 12:08:00 PM | 6010B | 0.0050 | **0.016** |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L85972-01E
Field Sample ID: **Aspen Spring**
Collected: 8/26/2008 3:50:00 PM
Received: 8/27/2008

## DISSOLVED METALS

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 9/5/2008 11:40:00 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 8/28/2008 5:34:38 PM | 6020 | 0.00060 | **0.00092** | |
| Boron | mg/L | 9/5/2008 11:40:00 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 8/28/2008 5:34:38 PM | 6020 | 0.00018 | < 0.00018 | |
| Calcium | mg/L | 9/5/2008 12:26:00 PM | 6010B | 10 | **57** | ² ~ |
| Copper | mg/L | 8/28/2008 5:34:38 PM | 6020 | 0.00080 | **0.0022** | |
| Iron | mg/L | 9/5/2008 11:40:00 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 8/28/2008 5:34:38 PM | 6020 | 0.00040 | **0.0011** | |
| Magnesium | mg/L | 9/5/2008 11:40:00 AM | 6010B | 1.0 | **12** | |
| Manganese | mg/L | 8/28/2008 5:34:38 PM | 6020 | 0.0012 | **0.053** | |
| Molybdenum | mg/L | 9/5/2008 11:40:00 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 9/5/2008 11:40:00 AM | 6010B | 1.0 | **10** | |
| Selenium | mg/L | 8/28/2008 5:34:38 PM | 6020 | 0.00080 | < 0.00080 | |
| Sodium | mg/L | 9/5/2008 12:26:00 PM | 6010B | 10 | **22** | ~ |
| Zinc | mg/L | 8/28/2008 5:34:38 PM | 6020 | 0.0054 | < 0.0054 | |

*² - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*
*~ - The reporting limits were raised due to high analyte concentrations.*



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# INORGANIC ANALYSIS REPORT

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Contact: Brad Lindsay

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L85972-02E
Field Sample ID: **Sulfur Spring**
Collected: 8/26/2008 5:15:00 PM
Received: 8/27/2008

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 9/5/2008 11:55:00 AM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 8/28/2008 6:01:31 PM | 6020 | 0.00060 | < 0.00060 |
| Boron | mg/L | 9/5/2008 11:55:00 AM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 8/28/2008 6:01:31 PM | 6020 | 0.00018 | < 0.00018 |
| Calcium | mg/L | 9/5/2008 12:38:00 PM | 6010B | 10 | **88** ~ |
| Copper | mg/L | 8/28/2008 6:01:31 PM | 6020 | 0.00080 | **0.0011** |
| Iron | mg/L | 9/5/2008 11:55:00 AM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 8/28/2008 6:01:31 PM | 6020 | 0.00040 | < 0.00040 |
| Magnesium | mg/L | 9/5/2008 11:55:00 AM | 6010B | 1.0 | **35** |
| Manganese | mg/L | 8/28/2008 6:01:31 PM | 6020 | 0.0012 | **0.036** |
| Molybdenum | mg/L | 9/5/2008 11:55:00 AM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 9/5/2008 11:55:00 AM | 6010B | 1.0 | **5.2** |
| Selenium | mg/L | 8/28/2008 6:01:31 PM | 6020 | 0.00080 | < 0.00080 |
| Sodium | mg/L | 9/5/2008 11:55:00 AM | 6010B | 1.0 | **9.0** |
| Zinc | mg/L | 8/28/2008 6:01:31 PM | 6020 | 0.0054 | **0.011** |

*~ - The reporting limits were raised due to high analyte concentrations.*



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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L85972-03E
Field Sample ID: **RES-1**
Collected: 8/26/2008 6:20:00 PM
Received: 8/27/2008

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 9/5/2008 11:59:00 AM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 8/28/2008 6:06:54 PM | 6020 | 0.00060 | **0.0023** | |
| Boron | mg/L | 9/5/2008 11:59:00 AM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 8/28/2008 6:06:54 PM | 6020 | 0.00018 | < 0.00018 | |
| Calcium | mg/L | 9/5/2008 12:42:00 PM | 6010B | 10 | **81** | ~ |
| Copper | mg/L | 8/28/2008 6:06:54 PM | 6020 | 0.00080 | **0.0031** | |
| Iron | mg/L | 9/5/2008 11:59:00 AM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 8/28/2008 6:06:54 PM | 6020 | 0.00040 | < 0.00040 | |
| Magnesium | mg/L | 9/5/2008 12:42:00 PM | 6010B | 10 | **56** | ~ |
| Manganese | mg/L | 8/28/2008 6:06:54 PM | 6020 | 0.0012 | **0.11** | |
| Molybdenum | mg/L | 9/5/2008 11:59:00 AM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 9/5/2008 11:59:00 AM | 6010B | 1.0 | **2.5** | |
| Selenium | mg/L | 8/28/2008 6:06:54 PM | 6020 | 0.00080 | < 0.00080 | |
| Sodium | mg/L | 9/5/2008 12:42:00 PM | 6010B | 10 | **41** | ~ |
| Zinc | mg/L | 8/28/2008 6:06:54 PM | 6020 | 0.0054 | **0.0066** | |

*~ - The reporting limits were raised due to high analyte concentrations.*



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Contact: Brad Lindsay
Project ID: Scofield Baseline

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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L85972-04E
Field Sample ID: **Miller Outlet**
Collected: 8/26/2008 6:00:00 PM
Received: 8/27/2008

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results |
|---|---|---|---|---|---|
| Aluminum | mg/L | 9/5/2008 12:03:00 PM | 6010B | 0.10 | < 0.10 |
| Arsenic | mg/L | 8/28/2008 6:12:17 PM | 6020 | 0.00060 | **0.0010** |
| Boron | mg/L | 9/5/2008 12:03:00 PM | 6010B | 0.50 | < 0.50 |
| Cadmium | mg/L | 8/28/2008 6:12:17 PM | 6020 | 0.00018 | < 0.00018 |
| Calcium | mg/L | 9/5/2008 12:46:00 PM | 6010B | 10 | **63** ~ |
| Copper | mg/L | 8/28/2008 6:12:17 PM | 6020 | 0.00080 | **0.0016** |
| Iron | mg/L | 9/5/2008 12:03:00 PM | 6010B | 0.050 | < 0.050 |
| Lead | mg/L | 8/28/2008 6:12:17 PM | 6020 | 0.00040 | < 0.00040 |
| Magnesium | mg/L | 9/5/2008 12:03:00 PM | 6010B | 1.0 | **15** |
| Manganese | mg/L | 8/28/2008 6:12:17 PM | 6020 | 0.0012 | < 0.0012 |
| Molybdenum | mg/L | 9/5/2008 12:03:00 PM | 6010B | 0.10 | < 0.10 |
| Potassium | mg/L | 9/5/2008 12:03:00 PM | 6010B | 1.0 | **2.0** |
| Selenium | mg/L | 8/28/2008 6:12:17 PM | 6020 | 0.00080 | < 0.00080 |
| Sodium | mg/L | 9/5/2008 12:03:00 PM | 6010B | 1.0 | **6.6** |
| Zinc | mg/L | 8/28/2008 6:12:17 PM | 6020 | 0.0054 | < 0.0054 |

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Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L85972-05E
Field Sample ID: **Mud Creek**
Collected: 8/26/2008 6:40:00 PM
Received: 8/27/2008

**DISSOLVED METALS**

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Results | |
|---|---|---|---|---|---|---|
| Aluminum | mg/L | 9/5/2008 12:15:00 PM | 6010B | 0.10 | < 0.10 | |
| Arsenic | mg/L | 8/28/2008 6:28:26 PM | 6020 | 0.00060 | < 0.00060 | |
| Boron | mg/L | 9/5/2008 12:15:00 PM | 6010B | 0.50 | < 0.50 | |
| Cadmium | mg/L | 8/28/2008 6:28:26 PM | 6020 | 0.00018 | < 0.00018 | |
| Calcium | mg/L | 9/5/2008 12:50:00 PM | 6010B | 10 | **63** | ~ |
| Copper | mg/L | 8/28/2008 6:28:26 PM | 6020 | 0.00080 | **0.0019** | |
| Iron | mg/L | 9/5/2008 12:15:00 PM | 6010B | 0.050 | < 0.050 | |
| Lead | mg/L | 8/28/2008 6:28:26 PM | 6020 | 0.00040 | < 0.00040 | |
| Magnesium | mg/L | 9/5/2008 12:15:00 PM | 6010B | 1.0 | **34** | |
| Manganese | mg/L | 8/28/2008 6:28:26 PM | 6020 | 0.0012 | **0.011** | |
| Molybdenum | mg/L | 9/5/2008 12:15:00 PM | 6010B | 0.10 | < 0.10 | |
| Potassium | mg/L | 9/5/2008 12:15:00 PM | 6010B | 1.0 | **6.1** | |
| Selenium | mg/L | 8/28/2008 6:28:26 PM | 6020 | 0.00080 | < 0.00080 | |
| Sodium | mg/L | 9/5/2008 12:50:00 PM | 6010B | 10 | **33** | ~ |
| Zinc | mg/L | 8/28/2008 6:28:26 PM | 6020 | 0.0054 | **0.020** | |

*~ - The reporting limits were raised due to high analyte concentrations.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L85972-01
Field Sample ID: **Aspen Spring**
Collected: 8/26/2008 3:50:00 PM
Received: 8/27/2008


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/29/2008 5:10:00 AM | 2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/28/2008 11:15:00 AM | 2320B | 20 | **180** |
| Ammonia (as N) | mg/L | 8/29/2008 12:32:00 PM | 350.1 | 0.050 | **0.057** |
| Bicarbonate (As CaCO3) | mg/L | 8/28/2008 11:15:00 AM | 2320B | 20 | **180** |
| Carbonate (As CaCO3) | mg/L | 8/28/2008 11:15:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 8/28/2008 3:32:05 PM | 300.0 | 2.0 | **24** |
| Hardness (as CaCO3) | mg/L | 9/5/2008 | 2340B | 10 | **200** |
| Nitrate (as N) | mg/L | 8/28/2008 11:21:00 AM | 353.2 | 0.010 | < 0.010 |
| Nitrite (as N) | mg/L | 8/28/2008 11:21:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 9/5/2008 12:04:00 PM | 1664A | 3.0 | **3.2** |
| Phosphorus, Orthophosphate (as P) | mg/L | 8/28/2008 12:01:45 PM | 300.0 | 0.10 | < 0.10 |
| Settleable Solids | ml/L | 8/28/2008 10:30:00 AM | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 8/28/2008 12:01:45 PM | 300.0 | 0.75 | **8.7** |
| TDS | mg/L | 8/28/2008 2:00:00 PM | 160.1 | 20 | **280** |
| TSS | mg/L | 8/28/2008 4:15:00 PM | 2540D | 3.0 | **27** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Contact: Brad Lindsay
Project ID: Scofield Baseline

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Jose Rocha
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Lab Sample ID: L85972-02
Field Sample ID: **Sulfur Spring**
Collected: 8/26/2008 5:15:00 PM
Received: 8/27/2008

| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result | |
|---|---|---|---|---|---|---|
| Acidity | mg/L | 8/29/2008 5:10:00 AM | 2310B | 15 | < 15 | |
| Alkalinity,(As CaCO3) | mg/L | 8/28/2008 11:15:00 AM | 2320B | 20 | **350** | |
| Ammonia (as N) | mg/L | 8/29/2008 12:32:00 PM | 350.1 | 0.050 | **0.090** | |
| Bicarbonate (As CaCO3) | mg/L | 8/28/2008 11:15:00 AM | 2320B | 20 | **350** | |
| Carbonate (As CaCO3) | mg/L | 8/28/2008 11:15:00 AM | 2320B | 10 | < 10 | |
| Chloride | mg/L | 8/28/2008 1:11:58 PM | 300.0 | 0.10 | **7.7** | |
| Hardness (as CaCO3) | mg/L | 9/5/2008 | 2340B | 10 | **360** | |
| Nitrate (as N) | mg/L | 8/28/2008 11:21:00 AM | 353.2 | 0.010 | < 0.010 | |
| Nitrite (as N) | mg/L | 8/28/2008 11:21:00 AM | 353.2 | 0.010 | < 0.010 | |
| Oil & Grease | mg/L | 9/5/2008 12:04:00 PM | 1664A | 3.0 | **3.8** | |
| Phosphorus, Orthophosphate (as P) | mg/L | 8/28/2008 1:11:58 PM | 300.0 | 0.10 | < 0.10 | |
| Settleable Solids | ml/L | 8/28/2008 10:30:00 AM | 2540F | 0.10 | < 0.10 | |
| Sulfate | mg/L | 8/28/2008 4:42:07 PM | 300.0 | 15 | **43** | |
| TDS | mg/L | 8/28/2008 2:00:00 PM | 160.1 | 20 | **420** | |
| TSS | mg/L | 8/28/2008 4:15:00 PM | 2540D | 3.0 | **3.0** | # |

*# - High RPD due to low analyte concentration. In this range, high RPDs are expected.*



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Laboratory Director

Jose Rocha
QA Officer

Lab Sample ID: L85972-03
Field Sample ID: **RES-1**
Collected: 8/26/2008 6:20:00 PM
Received: 8/27/2008

| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/29/2008 5:10:00 AM | 2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/28/2008 11:15:00 AM | 2320B | 20 | **240** |
| Ammonia (as N) | mg/L | 8/29/2008 12:32:00 PM | 350.1 | 0.050 | **0.11** |
| Bicarbonate (As CaCO3) | mg/L | 8/28/2008 11:15:00 AM | 2320B | 20 | **240** |
| Carbonate (As CaCO3) | mg/L | 8/28/2008 11:15:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 8/28/2008 5:05:27 PM | 300.0 | 2.0 | **61** |
| Hardness (as CaCO3) | mg/L | 9/5/2008 | 2340B | 10 | **430** |
| Nitrate (as N) | mg/L | 8/28/2008 11:21:00 AM | 353.2 | 0.010 | **0.054** |
| Nitrite (as N) | mg/L | 8/28/2008 11:21:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 9/5/2008 12:04:00 PM | 1664A | 3.0 | **3.2** |
| Phosphorus, Orthophosphate (as P) | mg/L | 8/28/2008 1:35:25 PM | 300.0 | 0.10 | < 0.10 |
| Settleable Solids | ml/L | 8/28/2008 10:30:00 AM | 2540F | 0.10 | **2.5** |
| Sulfate | mg/L | 8/28/2008 5:05:27 PM | 300.0 | 15 | **140** |
| TDS | mg/L | 8/28/2008 2:00:00 PM | 160.1 | 20 | **620** |
| TSS | mg/L | 8/28/2008 4:15:00 PM | 2540D | 3.0 | **200** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

Lab Sample ID: L85972-04
Field Sample ID: **Miller Outlet**
Collected: 8/26/2008 6:00:00 PM
Received: 8/27/2008


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/29/2008 5:10:00 AM | 2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/28/2008 11:15:00 AM | 2320B | 20 | **220** |
| Ammonia (as N) | mg/L | 8/29/2008 12:32:00 PM | 350.1 | 0.050 | **0.056** |
| Bicarbonate (As CaCO3) | mg/L | 8/28/2008 11:15:00 AM | 2320B | 20 | **220** |
| Carbonate (As CaCO3) | mg/L | 8/28/2008 11:15:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 8/28/2008 1:58:45 PM | 300.0 | 0.10 | **12** |
| Hardness (as CaCO3) | mg/L | 9/5/2008 | 2340B | 10 | **220** |
| Nitrate (as N) | mg/L | 8/28/2008 11:21:00 AM | 353.2 | 0.010 | **0.025** |
| Nitrite (as N) | mg/L | 8/28/2008 11:21:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 9/5/2008 12:04:00 PM | 1664A | 3.0 | **3.0** |
| Phosphorus, Orthophosphate (as P) | mg/L | 8/28/2008 1:58:45 PM | 300.0 | 0.10 | < 0.10 |
| Settleable Solids | ml/L | 8/28/2008 10:30:00 AM | 2540F | 0.10 | **0.20** |
| Sulfate | mg/L | 8/28/2008 1:58:45 PM | 300.0 | 0.75 | **22** |
| TDS | mg/L | 8/28/2008 2:00:00 PM | 160.1 | 20 | **310** |
| TSS | mg/L | 8/28/2008 4:15:00 PM | 2540D | 3.0 | **88** |



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# INORGANIC ANALYSIS REPORT

Client: Carbon Resources
Project ID: Scofield Baseline

Contact: Brad Lindsay

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Lab Sample ID: L85972-05
Field Sample ID: **Mud Creek**
Collected: 8/26/2008 6:40:00 PM
Received: 8/27/2008

| **Analytical Results** | Units | Date Analyzed | Method Used | Reporting Limit | Analytical Result |
|---|---|---|---|---|---|
| Acidity | mg/L | 8/29/2008 5:10:00 AM | 2310B | 15 | < 15 |
| Alkalinity,(As CaCO3) | mg/L | 8/28/2008 11:15:00 AM | 2320B | 20 | **250** |
| Ammonia (as N) | mg/L | 8/29/2008 12:32:00 PM | 350.1 | 0.050 | < 0.050 |
| Bicarbonate (As CaCO3) | mg/L | 8/28/2008 11:15:00 AM | 2320B | 20 | **250** |
| Carbonate (As CaCO3) | mg/L | 8/28/2008 11:15:00 AM | 2320B | 10 | < 10 |
| Chloride | mg/L | 8/28/2008 5:28:47 PM | 300.0 | 2.0 | **16** |
| Hardness (as CaCO3) | mg/L | 9/5/2008 | 2340B | 10 | **300** |
| Nitrate (as N) | mg/L | 8/28/2008 11:21:00 AM | 353.2 | 0.010 | **0.066** |
| Nitrite (as N) | mg/L | 8/28/2008 11:21:00 AM | 353.2 | 0.010 | < 0.010 |
| Oil & Grease | mg/L | 9/5/2008 12:04:00 PM | 1664A | 3.0 | **3.1** |
| Phosphorus, Orthophosphate (as P) | mg/L | 8/28/2008 2:22:05 PM | 300.0 | 0.10 | < 0.10 |
| Settleable Solids | ml/L | 8/28/2008 10:30:00 AM | 2540F | 0.10 | < 0.10 |
| Sulfate | mg/L | 8/28/2008 5:28:47 PM | 300.0 | 15 | **120** |
| TDS | mg/L | 8/28/2008 2:00:00 PM | 160.1 | 20 | **490** |
| TSS | mg/L | 8/28/2008 4:15:00 PM | 2540D | 3.0 | **5.0** |



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Kyle F. Gross
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Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

**Dept:** ME

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-42125 | Arsenic | mg/L | 6020 | 0.2204 | 0.2 | 0 | 110 | 85-115 | | | | 8/28/2008 |
| LCS-42125 | Cadmium | mg/L | 6020 | 0.2085 | 0.2 | 0 | 104 | 85-115 | | | | 8/28/2008 |
| LCS-42125 | Copper | mg/L | 6020 | 0.2117 | 0.2 | 0 | 106 | 85-115 | | | | 8/28/2008 |
| LCS-42125 | Lead | mg/L | 6020 | 0.2132 | 0.2 | 0 | 107 | 85-115 | | | | 8/28/2008 |
| LCS-42125 | Manganese | mg/L | 6020 | 0.2129 | 0.2 | 0 | 106 | 85-115 | | | | 8/28/2008 |
| LCS-42125 | Selenium | mg/L | 6020 | 0.1995 | 0.2 | 0 | 99.7 | 85-115 | | | | 8/28/2008 |
| LCS-42125 | Zinc | mg/L | 6020 | 1.025 | 1 | 0 | 102 | 85-115 | | | | 8/28/2008 |
| LCS-42126 | Iron | mg/L | 6010B | 1.060 | 1 | 0 | 106 | 75-125 | | | | 9/5/2008 |
| LCS-42126 | Manganese | mg/L | 6010B | 0.2120 | 0.2 | 0 | 106 | 75-125 | | | | 9/5/2008 |
| LCS-42125 | Aluminum | mg/L | 6010B | 1.089 | 1 | 0 | 109 | 75-125 | | | | 9/5/2008 |
| LCS-42125 | Boron | mg/L | 6010B | 1.104 | 1 | 0 | 110 | 75-125 | | | | 9/5/2008 |
| LCS-42125 | Calcium | mg/L | 6010B | 10.42 | 10 | 0 | 104 | 75-125 | | | | 9/5/2008 |
| LCS-42125 | Iron | mg/L | 6010B | 1.002 | 1 | 0 | 100 | 75-125 | | | | 9/5/2008 |
| LCS-42125 | Magnesium | mg/L | 6010B | 10.50 | 10 | 0 | 105 | 75-125 | | | | 9/5/2008 |
| LCS-42125 | Molybdenum | mg/L | 6010B | 0.2124 | 0.2 | 0 | 106 | 75-125 | | | | 9/5/2008 |
| LCS-42125 | Potassium | mg/L | 6010B | 10.92 | 10 | 0 | 109 | 75-125 | | | | 9/5/2008 |
| LCS-42125 | Sodium | mg/L | 6010B | 10.99 | 10 | 0 | 110 | 75-125 | | | | 9/5/2008 |



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Kyle F. Gross
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Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

**Dept:** ME
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-42125 | Arsenic | mg/L | 6020 | < 0.00060 | | | | - | | | | 8/28/2008 |
| MB-42125 | Cadmium | mg/L | 6020 | < 0.00018 | | | | - | | | | 8/28/2008 |
| MB-42125 | Copper | mg/L | 6020 | < 0.00080 | | | | - | | | | 8/28/2008 |
| MB-42125 | Lead | mg/L | 6020 | < 0.00040 | | | | - | | | | 8/28/2008 |
| MB-42125 | Manganese | mg/L | 6020 | < 0.0012 | | | | - | | | | 8/28/2008 |
| MB-42125 | Selenium | mg/L | 6020 | < 0.00080 | | | | - | | | | 8/28/2008 |
| MB-42125 | Zinc | mg/L | 6020 | < 0.0050 | | | | - | | | | 8/28/2008 |
| MB-42126 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 9/5/2008 |
| MB-42126 | Manganese | mg/L | 6010B | < 0.0050 | | | | - | | | | 9/5/2008 |
| MB-42125 | Aluminum | mg/L | 6010B | < 0.10 | | | | - | | | | 9/5/2008 |
| MB-42125 | Boron | mg/L | 6010B | < 0.50 | | | | - | | | | 9/5/2008 |
| MB-42125 | Calcium | mg/L | 6010B | < 1.0 | | | | - | | | | 9/5/2008 |
| MB-42125 | Iron | mg/L | 6010B | < 0.050 | | | | - | | | | 9/5/2008 |
| MB-42125 | Magnesium | mg/L | 6010B | < 1.0 | | | | - | | | | 9/5/2008 |
| MB-42125 | Molybdenum | mg/L | 6010B | < 0.040 | | | | - | | | | 9/5/2008 |
| MB-42125 | Potassium | mg/L | 6010B | < 1.0 | | | | - | | | | 9/5/2008 |
| MB-42125 | Sodium | mg/L | 6010B | < 1.0 | | | | - | | | | 9/5/2008 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

**Dept:** ME

**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L85972-01EMS | Arsenic | mg/L | 6020 | 0.2170 | 0.2 | 0.000924 | 108 | 70-130 | | | | 8/28/2008 |
| L85972-01EMS | Cadmium | mg/L | 6020 | 0.2036 | 0.2 | 0 | 102 | 70-130 | | | | 8/28/2008 |
| L85972-01EMS | Copper | mg/L | 6020 | 0.1997 | 0.2 | 0.002185 | 98.8 | 70-130 | | | | 8/28/2008 |
| L85972-01EMS | Lead | mg/L | 6020 | 0.2055 | 0.2 | 0.001106 | 102 | 70-130 | | | | 8/28/2008 |
| L85972-01EMS | Manganese | mg/L | 6020 | 0.2513 | 0.2 | 0.05289 | 99.2 | 70-130 | | | | 8/28/2008 |
| L85972-01EMS | Selenium | mg/L | 6020 | 0.1985 | 0.2 | 0.000591 | 99.0 | 70-130 | | | | 8/28/2008 |
| L85972-01EMS | Zinc | mg/L | 6020 | 1.006 | 1 | 0 | 101 | 70-130 | | | | 8/28/2008 |
| L85972-01FMS | Iron | mg/L | 6010B | 2.490 | 1 | 1.4 | 109 | 75-125 | | | | 9/5/2008 |
| L85972-01FMS | Manganese | mg/L | 6010B | 0.4230 | 0.2 | 0.218 | 102 | 75-125 | | | | 9/5/2008 |
| L85972-01EMS | Aluminum | mg/L | 6010B | 1.028 | 1 | 0 | 103 | 75-125 | | | | 9/5/2008 |
| L85972-01EMS | Boron | mg/L | 6010B | 1.153 | 1 | 0.06632 | 109 | 75-125 | | | | 9/5/2008 |
| L85972-01EMS | Iron | mg/L | 6010B | 0.9922 | 1 | 0.04336 | 94.9 | 75-125 | | | | 9/5/2008 |
| L85972-01EMS | Magnesium | mg/L | 6010B | 21.71 | 10 | 12.49 | 92.2 | 75-125 | | | | 9/5/2008 |
| L85972-01EMS | Molybdenum | mg/L | 6010B | 0.2110 | 0.2 | 0 | 105 | 75-125 | | | | 9/5/2008 |
| L85972-01EMS | Potassium | mg/L | 6010B | 20.25 | 10 | 10.23 | 100 | 75-125 | | | | 9/5/2008 |
| L85972-01EMS | Calcium | mg/L | 6010B | 64.18 | 10 | 57.5 | 66.8 | 75-125 | | | 2 | 9/5/2008 |
| L85972-01EMS | Sodium | mg/L | 6010B | 30.32 | 10 | 21.57 | 87.5 | 75-125 | | | | 9/5/2008 |

[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

**Dept:** ME

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L85972-01EMSD | Arsenic | mg/L | 6020 | 0.2241 | 0.2 | 0.000924 | 112 | 70-130 | 3.22 | 20 | | 8/28/2008 |
| L85972-01EMSD | Cadmium | mg/L | 6020 | 0.2090 | 0.2 | 0 | 104 | 70-130 | 2.62 | 20 | | 8/28/2008 |
| L85972-01EMSD | Copper | mg/L | 6020 | 0.2053 | 0.2 | 0.002185 | 102 | 70-130 | 2.77 | 20 | | 8/28/2008 |
| L85972-01EMSD | Lead | mg/L | 6020 | 0.2096 | 0.2 | 0.001106 | 104 | 70-130 | 1.99 | 20 | | 8/28/2008 |
| L85972-01EMSD | Manganese | mg/L | 6020 | 0.2581 | 0.2 | 0.05289 | 103 | 70-130 | 2.69 | 20 | | 8/28/2008 |
| L85972-01EMSD | Selenium | mg/L | 6020 | 0.2069 | 0.2 | 0.000591 | 103 | 70-130 | 4.11 | 20 | | 8/28/2008 |
| L85972-01EMSD | Zinc | mg/L | 6020 | 1.037 | 1 | 0 | 104 | 70-130 | 3.03 | 20 | | 8/28/2008 |
| L85972-01FMSD | Iron | mg/L | 6010B | 2.440 | 1 | 1.4 | 104 | 75-125 | 2.03 | 20 | | 9/5/2008 |
| L85972-01FMSD | Manganese | mg/L | 6010B | 0.4220 | 0.2 | 0.218 | 102 | 75-125 | 0.237 | 20 | | 9/5/2008 |
| L85972-01EMSD | Aluminum | mg/L | 6010B | 1.076 | 1 | 0 | 108 | 75-125 | 4.56 | 20 | | 9/5/2008 |
| L85972-01EMSD | Boron | mg/L | 6010B | 1.193 | 1 | 0.06632 | 113 | 75-125 | 3.39 | 20 | | 9/5/2008 |
| L85972-01EMSD | Iron | mg/L | 6010B | 1.066 | 1 | 0.04336 | 102 | 75-125 | 7.18 | 20 | | 9/5/2008 |
| L85972-01EMSD | Magnesium | mg/L | 6010B | 22.53 | 10 | 12.49 | 100 | 75-125 | 3.73 | 20 | | 9/5/2008 |
| L85972-01EMSD | Molybdenum | mg/L | 6010B | 0.2123 | 0.2 | 0 | 106 | 75-125 | 0.614 | 20 | | 9/5/2008 |
| L85972-01EMSD | Potassium | mg/L | 6010B | 21.11 | 10 | 10.23 | 109 | 75-125 | 4.13 | 20 | | 9/5/2008 |
| L85972-01EMSD | Calcium | mg/L | 6010B | 67.41 | 10 | 57.5 | 99.2 | 75-125 | 4.91 | 20 | | 9/5/2008 |
| L85972-01EMSD | Sodium | mg/L | 6010B | 31.40 | 10 | 21.57 | 98.3 | 75-125 | 3.49 | 20 | | 9/5/2008 |



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

**Dept:** WC

**SampType:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L85933-06DDUP | TDS | mg/L | 160.1 | 1776 | 0 | 1728 | | - | 2.74 | 20 | | 8/28/2008 |
| L85972-05ADUP | TDS | mg/L | 160.1 | 492.0 | 0 | 488 | | - | 0.816 | 20 | | 8/28/2008 |
| L85962-02ADUP | TSS | mg/L | 2540D | 4.000 | 0 | 3 | | - | 28.6 | 20 | # | 8/28/2008 |
| L85972-02ADUP | TSS | mg/L | 2540D | 4.000 | 0 | 3 | | - | 28.6 | 20 | # | 8/28/2008 |
| L85973-03JDUP | TSS | mg/L | 2540D | 296.0 | 0 | 288 | | - | 2.74 | 20 | | 8/28/2008 |

# - High RPD due to low analyte concentration. In this range, high RPDs are expected.



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

**Dept:** WC

**SampType:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R85943 | Alkalinity,(As CaCO3) | mg/L | 2320B | 49880 | 50000 | 0 | 99.8 | 90-110 | | | | 8/28/2008 |
| LCS-R85971 | Chloride | mg/L | 300.0 | 5.465 | 5 | 0 | 109 | 90-110 | | | | 8/28/2008 |
| LCS-R85971 | Phosphorus, Orthophosphate (as P | mg/L | 300.0 | 5.316 | 5 | 0 | 106 | 90-110 | | | | 8/28/2008 |
| LCS-R85971 | Sulfate | mg/L | 300.0 | 5.446 | 5 | 0 | 109 | 90-110 | | | | 8/28/2008 |
| LCS-R85945 | Acidity | mg/L | 2310B | 22.00 | 20 | 0 | 110 | 80-120 | | | | 8/29/2008 |
| LCS-42128 | Ammonia (as N) | mg/L | 350.1 | 1.033 | 1 | 0 | 103 | 90-110 | | | | 8/29/2008 |
| LCS-85907 | Nitrite (as N) | mg/L | 353.2 | 1.048 | 1 | 0 | 105 | 90-110 | | | | 8/28/2008 |
| LCS-R85915 | Nitrate (as N) | mg/L | 353.2 | 0.9678 | 1 | 0 | 96.8 | 90-110 | | | | 8/28/2008 |
| LCS-86268 | Oil & Grease | mg/L | 1664A | 37.90 | 40 | 0 | 94.8 | 78-114 | | | | 9/5/2008 |
| LCS-R86006 | TDS | mg/L | 160.1 | 198.0 | 205 | 0 | 96.6 | 80-120 | | | | 8/28/2008 |
| LCS-R86007 | TDS | mg/L | 160.1 | 200.0 | 205 | 0 | 97.6 | 80-120 | | | | 8/28/2008 |
| LCS-R85965 | TSS | mg/L | 2540D | 97.00 | 100 | 0 | 97.0 | 80-120 | | | | 8/28/2008 |



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Jose Rocha
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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

**Dept:** WC
**SampType:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R85943 | Alkalinity,(As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 8/28/2008 |
| MB-R85943 | Bicarbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 8/28/2008 |
| MB-R85943 | Carbonate (As CaCO3) | mg/L | 2320B | < 10 | | | | - | | | | 8/28/2008 |
| MB-R85971 | Chloride | mg/L | 300.0 | < 0.10 | | | | - | | | | 8/28/2008 |
| MB-R85971 | Phosphorus, Orthophosphate (as P | mg/L | 300.0 | < 0.10 | | | | - | | | | 8/28/2008 |
| MB-R85971 | Sulfate | mg/L | 300.0 | < 0.75 | | | | - | | | | 8/28/2008 |
| MB-R85945 | Acidity | mg/L | 2310B | < 15 | | | | - | | | | 8/29/2008 |
| MB-42128 | Ammonia (as N) | mg/L | 350.1 | < 0.050 | | | | - | | | | 8/29/2008 |
| MB-85907 | Nitrite (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 8/28/2008 |
| MBLK-R85915 | Nitrate (as N) | mg/L | 353.2 | < 0.010 | | | | - | | | | 8/28/2008 |
| MB-86268 | Oil & Grease | mg/L | 1664A | < 3.0 | | | | - | | | | 9/5/2008 |
| MB-R86006 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 8/28/2008 |
| MB-R86007 | TDS | mg/L | 160.1 | < 10 | | | | - | | | | 8/28/2008 |
| MB-R85965 | TSS | mg/L | 2540D | < 3.0 | | | | - | | | | 8/28/2008 |



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Kyle F. Gross
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Jose Rocha
QA Officer

# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

**Dept:** WC
**SampType:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L85972-01BMS | Alkalinity,(As CaCO3) | mg/L | 2320B | 285.0 | 100 | 184 | 101 | 80-120 | | | | 8/28/2008 |
| L85972-01BMS | Chloride | mg/L | 300.0 | 126.6 | 100 | 24.39 | 102 | 90-110 | | | | 8/28/2008 |
| L85972-01BMS | Phosphorus, Orthophosphate (as P | mg/L | 300.0 | 5.127 | 5.25 | 0 | 97.7 | 90-110 | | | | 8/28/2008 |
| L85972-01BMS | Sulfate | mg/L | 300.0 | 14.19 | 5.25 | 8.728 | 104 | 90-110 | | | | 8/28/2008 |
| L85972-01BMS | Acidity | mg/L | 2310B | 48.00 | 50 | 0 | 96.0 | 80-120 | | | | 8/29/2008 |
| L85972-02DMS | Ammonia (as N) | mg/L | 350.1 | 1.111 | 1 | 0.0904 | 102 | 90-110 | | | | 8/29/2008 |
| L85972-01BMS | Nitrite (as N) | mg/L | 353.2 | 1.086 | 1 | 0 | 109 | 90-110 | | | | 8/28/2008 |
| L85972-01BMS | Nitrate (as N) | mg/L | 353.2 | 0.9360 | 1 | 0.0092 | 92.7 | 90-110 | | | | 8/28/2008 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

**Dept:** WC

**SampType:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L85972-01BMSD | Alkalinity,(As CaCO3) | mg/L | 2320B | 289.0 | 100 | 184 | 105 | 80-120 | 1.39 | 10 | | 8/28/2008 |
| L85972-01BMSD | Chloride | mg/L | 300.0 | 126.2 | 100 | 24.39 | 102 | 90-110 | 0.324 | 20 | | 8/28/2008 |
| L85972-01BMSD | Phosphorus, Orthophosphate (as P | mg/L | 300.0 | 5.139 | 5.25 | 0 | 97.9 | 90-110 | 0.233 | 20 | | 8/28/2008 |
| L85972-01BMSD | Sulfate | mg/L | 300.0 | 14.18 | 5.25 | 8.728 | 104 | 90-110 | 0.127 | 20 | | 8/28/2008 |
| L85972-01BMSD | Acidity | mg/L | 2310B | 50.00 | 50 | 0 | 100 | 80-120 | 4.08 | 20 | | 8/29/2008 |
| L85972-02DMSD | Ammonia (as N) | mg/L | 350.1 | 1.087 | 1 | 0.0904 | 99.6 | 90-110 | 2.18 | 10 | | 8/29/2008 |
| L85972-01BMSD | Nitrite (as N) | mg/L | 353.2 | 1.084 | 1 | 0 | 108 | 90-110 | 0.184 | 10 | | 8/28/2008 |
| L85972-01BMSD | Nitrate (as N) | mg/L | 353.2 | 0.9374 | 1 | 0.0092 | 92.8 | 90-110 | 0.149 | 10 | | 8/28/2008 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

**Dept:** WC

**SampType:** QCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCS-86268 | Oil & Grease | mg/L | 1664A | 36.70 | 40 | 0 | 91.8 | 79-114 | | | | 9/5/2008 |



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# QC SUMMARY REPORT

CLIENT: Carbon Resources
Work Order: L85972
Project: Scofield Baseline

**Dept:** WC
**SampType:** QCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| QCSD-86268 | Oil & Grease | mg/L | 1664A | 36.60 | 40 | 0 | 91.5 | 78-114 | 0.273 | 18 | | 9/5/2008 |



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# American West Analytical Labs

## WORK ORDER Summary

*27-Aug-08*

**Work Order** L85972

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+; EDD report. HOK-DB SB

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L85972-01A | Aspen Spring | 8/26/2008 3:50:00 PM | 8/27/2008 | 9/11/2008 | Aqueous | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 9/11/2008 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 9/11/2008 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L85972-01B | | | | 9/11/2008 | | 2320B-ALK-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | 300.0-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | ACIDITY-W-2310B | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | NO2-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | NO3-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | PO4-O | aug 27 - wc | 1 |
| L85972-01C | | | | 9/11/2008 | | OGB-W | OGBFridge | 1 |
| L85972-01D | | | | 9/11/2008 | | NH3-W | aug 27 - nh3 | 1 |
| | | | | 9/11/2008 | | NH3-W-PREP | aug 27 - nh3 | 1 |
| L85972-01E | | | | 9/11/2008 | Aqueous-Dissolved | 3005A-Diss | aug 27 - dis met | 1 |
| | | | | 9/11/2008 | | 6020-W-DISS | aug 27 - dis met | 1 |
| | | | | 9/11/2008 | | HARD | aug 27 - dis met | 1 |
| | | | | 9/11/2008 | | ICP-W-DIS | aug 27 - dis met | 1 |
| L85972-01F | | | | 9/11/2008 | Aqueous | 3005A-ICPMS | aug 27 - met | 1 |
| | | | | 9/11/2008 | | ICP-W | aug 27 - met | 1 |
| L85972-02A | Sulfur Spring | 8/26/2008 5:15:00 PM | | 9/11/2008 | | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 9/11/2008 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 9/11/2008 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L85972-02B | | | | 9/11/2008 | | 2320B-ALK-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | 300.0-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | ACIDITY-W-2310B | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | NO2-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | NO3-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | PO4-O | aug 27 - wc | 1 |
| L85972-02C | | | | 9/11/2008 | | OGB-W | OGBFridge | 1 |

# WORK ORDER Summary

*27-Aug-08*

**Work Order** L85972

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+; EDD report.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L85972-02D | Sulfur Spring | 8/26/2008 5:15:00 PM | 8/27/2008 | 9/11/2008 | Aqueous | NH3-W | aug 27 - nh3 | 1 |
| | | | | 9/11/2008 | | NH3-W-PREP | aug 27 - nh3 | 1 |
| L85972-02E | | | | 9/11/2008 | Aqueous-Dissolved | 3005A-Diss | aug 27 - dis met | 1 |
| | | | | 9/11/2008 | | 6020-W-DISS | aug 27 - dis met | 1 |
| | | | | 9/11/2008 | | HARD | aug 27 - dis met | 1 |
| | | | | 9/11/2008 | | ICP-W-DIS | aug 27 - dis met | 1 |
| L85972-02F | | | | 9/11/2008 | Aqueous | 3005A-ICPMS | aug 27 - met | 1 |
| | | | | 9/11/2008 | | ICP-W | aug 27 - met | 1 |
| L85972-03A | RES-1 | 8/26/2008 6:20:00 PM | | 9/11/2008 | | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 9/11/2008 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 9/11/2008 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L85972-03B | | | | 9/11/2008 | | 2320B-ALK-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | 300.0-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | ACIDITY-W-2310B | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | NO2-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | NO3-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | PO4-O | aug 27 - wc | 1 |
| L85972-03C | | | | 9/11/2008 | | OGB-W | OGBFridge | 1 |
| L85972-03D | | | | 9/11/2008 | | NH3-W | aug 27 - nh3 | 1 |
| | | | | 9/11/2008 | | NH3-W-PREP | aug 27 - nh3 | 1 |
| L85972-03E | | | | 9/11/2008 | Aqueous-Dissolved | 3005A-Diss | aug 27 - dis met | 1 |
| | | | | 9/11/2008 | | 6020-W-DISS | aug 27 - dis met | 1 |
| | | | | 9/11/2008 | | HARD | aug 27 - dis met | 1 |
| | | | | 9/11/2008 | | ICP-W-DIS | aug 27 - dis met | 1 |
| L85972-03F | | | | 9/11/2008 | Aqueous | 3005A-ICPMS | aug 27 - met | 1 |
| | | | | 9/11/2008 | | ICP-W | aug 27 - met | 1 |
| L85972-04A | Miller Outlet | 8/26/2008 6:00:00 PM | | 9/11/2008 | | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 9/11/2008 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 9/11/2008 | | TSS-W-2540D | ww - tss/tds/ss | 1 |

# WORK ORDER Summary

*27-Aug-08*

**Work Order** L85972

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+; EDD report.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L85972-04B | Miller Outlet | 8/26/2008 6:00:00 PM | 8/27/2008 | 9/11/2008 | Aqueous | 2320B-ALK-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | 300.0-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | ACIDITY-W-2310B | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | NO2-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | NO3-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | PO4-O | aug 27 - wc | 1 |
| L85972-04C | | | | 9/11/2008 | | OGB-W | OGBFridge | 1 |
| L85972-04D | | | | 9/11/2008 | | NH3-W | aug 27 - nh3 | 1 |
| | | | | 9/11/2008 | | NH3-W-PREP | aug 27 - nh3 | 1 |
| L85972-04E | | | | 9/11/2008 | Aqueous-Dissolved | 3005A-Diss | aug 27 - dis met | 1 |
| | | | | 9/11/2008 | | 6020-W-DISS | aug 27 - dis met | 1 |
| | | | | 9/11/2008 | | HARD | aug 27 - dis met | 1 |
| | | | | 9/11/2008 | | ICP-W-DIS | aug 27 - dis met | 1 |
| L85972-04F | | | | 9/11/2008 | Aqueous | 3005A-ICPMS | aug 27 - met | 1 |
| | | | | 9/11/2008 | | ICP-W | aug 27 - met | 1 |
| L85972-05A | Mud Creek | 8/26/2008 6:40:00 PM | | 9/11/2008 | | SS-W-2540F | ww - tss/tds/ss | 1 |
| | | | | 9/11/2008 | | TDS-W | ww - tss/tds/ss | 1 |
| | | | | 9/11/2008 | | TSS-W-2540D | ww - tss/tds/ss | 1 |
| L85972-05B | | | | 9/11/2008 | | 2320B-ALK-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | 300.0-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | ACIDITY-W-2310B | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | NO2-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | NO3-W | aug 27 - wc | 1 |
| | | | | 9/11/2008 | | PO4-O | aug 27 - wc | 1 |
| L85972-05C | | | | 9/11/2008 | | OGB-W | OGBFridge | 1 |
| L85972-05D | | | | 9/11/2008 | | NH3-W | aug 27 - nh3 | 1 |
| | | | | 9/11/2008 | | NH3-W-PREP | aug 27 - nh3 | 1 |
| L85972-05E | | | | 9/11/2008 | Aqueous-Dissolved | 3005A-Diss | aug 27 - dis met | 1 |
| | | | | 9/11/2008 | | 6020-W-DISS | aug 27 - dis met | 1 |

# WORK ORDER Summary

*27-Aug-08*

**Work Order** L85972

**Client ID:** CAR300 **QC Level:** 2+

**Project:** Scofield Baseline **Location:** **Contact:** Brad Lindsay

**Comments:** QCLevel: 2+; EDD report.

| Sample ID | Client Sample ID | Collection Date | Date Received | Date Due | Matrix | Test Code | Storage | |
|---|---|---|---|---|---|---|---|---|
| L85972-05E | Mud Creek | 8/26/2008 6:40:00 PM | 8/27/2008 | 9/11/2008 | Aqueous-Dissolved | HARD | aug 27 - dis met | 1 |
| | | | | 9/11/2008 | | ICP-W-DIS | aug 27 - dis met | 1 |
| L85972-05F | | | | 9/11/2008 | Aqueous | 3005A-ICPMS | aug 27 - met | 1 |
| | | | | 9/11/2008 | | ICP-W | aug 27 - met | 1 |

Client CARBON RESOURCES c/o ROCK LOGIC

Address P.O. BOX 544

CEDAREDGE (City) CO (State) 81413 (Zip)

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGICCONSULTING@GMAIL.COM

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY


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# CHAIN OF CUSTODY

Lab Sample Set # 85972

Page 1 of 1

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day (Standard)

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TABLE 3 ✓ | QC LEVEL 1 2 2+ 3 3+ 4 | COMMENTS |
|---|---|---|---|---|---|---|
| ASPEN SPRING | 8-26-08/15:50 | W | 6 | ✓ | | |
| SULFUR SPRING | / 17:15 | | | | | |
| RES-1 | / 18:20 | | | | | |
| MILLER OUTLET | / 18:00 | | | | | |
| MUD CREEK | / 18:40 | | | | | |

**LABORATORY USE ONLY**

SAMPLES WERE:
1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes: on ice

3 Temperature 1.9°

4 Received Broken/Leaking (Improperly Sealed) Y (N)
Notes:

5 Properly Preserved (Y) N
Notes:

6 Received Within Holding Times (Y) N
Notes:

COC Tape Was:

1 Present on Outer Package Y (N) NA

2 Unbroken on Outer Package Y N (NA)

3 Present on Sample Y (N) NA

4 Unbroken on Sample Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record? Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME: BRAD LINDSAY | Time: 17:00 | PRINT NAME: Samantha Broadhead |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |

Special Instructions:

DID NOT FIELD FILTER

PLEASE MAIL RESULTS

& E-MAIL .XLS & .PDF

THANKS

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

LABORATORY MEASUREMENTS

| | | | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 85972

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | ✓ | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Scofield Baseline

Dear Brad Lindsay:

Lab Set ID: 1006480

American West Analytical Laboratories received 5 sample(s) on 6/25/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit.

Thank You,

Approved by: _____
Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

AMERICAN WEST ANALYTICAL LABORATORIES

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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1006480-001
**Client Sample ID:** Aspen Spring
**Collection Date:** 6/23/2010 1820h
**Received Date:** 6/25/2010 935h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 6/25/2010 1540h | 6/28/2010 1522h | SW6010C | 0.10 | **4.8** | |
| Manganese | mg/L | 6/25/2010 1540h | 6/25/2010 2216h | SW6020A | 0.0012 | **0.15** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1006480-002
**Client Sample ID:** Sulfur Spring
**Collection Date:** 6/23/2010 1930h
**Received Date:** 6/25/2010 935h


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e-mail: awal@awal-labs.com


## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 6/25/2010 1540h | 6/28/2010 1537h | SW6010C | 0.10 | < 0.10 | |
| Manganese | mg/L | 6/25/2010 1540h | 6/25/2010 2305h | SW6020A | 0.0012 | **0.029** | |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1006480-003
**Client Sample ID:** RES-1
**Collection Date:** 6/23/2010 1955h
**Received Date:** 6/25/2010 935h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 6/25/2010 1540h | 6/28/2010 1541h | SW6010C | 0.10 | < 0.10 | |
| Manganese | mg/L | 6/25/2010 1540h | 6/25/2010 2311h | SW6020A | 0.0012 | **0.027** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1006480-004
**Client Sample ID:** Miller Outlet
**Collection Date:** 6/23/2010 2030h
**Received Date:** 6/25/2010 935h


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e-mail: awal@awal-labs.com


## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 6/25/2010 1540h | 6/28/2010 1545h | SW6010C | 0.10 | **1.4** | |
| Manganese | mg/L | 6/25/2010 1540h | 6/25/2010 2317h | SW6020A | 0.0012 | **0.075** | |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1006480-005
**Client Sample ID:** Mud Creek
**Collection Date:** 6/23/2010 2100h
**Received Date:** 6/25/2010 935h


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## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 6/25/2010 1540h | 6/28/2010 1549h | SW6010C | 0.10 | **0.28** | |
| Manganese | mg/L | 6/25/2010 1540h | 6/25/2010 2323h | SW6020A | 0.0012 | **0.023** | |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1006480-001
**Client Sample ID:** Aspen Spring
**Collection Date:** 6/23/2010 1820h
**Received Date:** 6/25/2010 935h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 6/25/2010 1538h | 6/28/2010 1822h | SW6010C | 0.10 | < 0.10 | |
| Arsenic | mg/L | 6/25/2010 1538h | 6/28/2010 2256h | SW6020A | 0.00060 | **0.0034** | |
| Boron | mg/L | 6/25/2010 1538h | 6/28/2010 1822h | SW6010C | 0.50 | < 0.50 | |
| Cadmium | mg/L | 6/25/2010 1538h | 6/28/2010 2256h | SW6020A | 0.00018 | < 0.00018 | |
| Calcium | mg/L | 6/25/2010 1538h | 6/28/2010 1822h | SW6010C | 1.0 | **44** | |
| Copper | mg/L | 6/25/2010 1538h | 6/28/2010 2256h | SW6020A | 0.00080 | **0.00095** | |
| Iron | mg/L | 6/25/2010 1538h | 6/28/2010 1822h | SW6010C | 0.10 | **1.1** | |
| Lead | mg/L | 6/25/2010 1538h | 6/28/2010 2256h | SW6020A | 0.00040 | < 0.00040 | |
| Magnesium | mg/L | 6/25/2010 1538h | 6/28/2010 1822h | SW6010C | 1.0 | **9.1** | |
| Manganese | mg/L | 6/25/2010 1538h | 6/28/2010 2256h | SW6020A | 0.0012 | **0.0066** | |
| Molybdenum | mg/L | 6/25/2010 1538h | 6/28/2010 1822h | SW6010C | 0.020 | < 0.020 | |
| Potassium | mg/L | 6/25/2010 1538h | 6/28/2010 1822h | SW6010C | 1.0 | **12** | |
| Selenium | mg/L | 6/25/2010 1538h | 6/28/2010 2256h | SW6020A | 0.00080 | **0.0013** | |
| Sodium | mg/L | 6/25/2010 1538h | 6/28/2010 1822h | SW6010C | 1.0 | **5.8** | |
| Zinc | mg/L | 6/25/2010 1538h | 6/28/2010 2256h | SW6020A | 0.0050 | < 0.0050 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1006480-002
**Client Sample ID:** Sulfur Spring
**Collection Date:** 6/23/2010 1930h
**Received Date:** 6/25/2010 935h


**AMERICAN WEST ANALYTICAL LABORATORIES**

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 6/25/2010 1538h | 6/28/2010 1830h | SW6010C | 0.10 | < 0.10 | |
| Arsenic | mg/L | 6/25/2010 1538h | 6/28/2010 2302h | SW6020A | 0.00060 | < 0.00060 | |
| Boron | mg/L | 6/25/2010 1538h | 6/28/2010 1830h | SW6010C | 0.50 | < 0.50 | |
| Cadmium | mg/L | 6/25/2010 1538h | 6/28/2010 2302h | SW6020A | 0.00018 | < 0.00018 | |
| Calcium | mg/L | 6/25/2010 1538h | 6/28/2010 1811h | SW6010C | 10 | **86** | |
| Copper | mg/L | 6/25/2010 1538h | 6/28/2010 2302h | SW6020A | 0.00080 | < 0.00080 | |
| Iron | mg/L | 6/25/2010 1538h | 6/28/2010 1830h | SW6010C | 0.10 | < 0.10 | |
| Lead | mg/L | 6/25/2010 1538h | 6/28/2010 2302h | SW6020A | 0.00040 | < 0.00040 | |
| Magnesium | mg/L | 6/25/2010 1538h | 6/28/2010 1830h | SW6010C | 1.0 | **35** | 1 |
| Manganese | mg/L | 6/25/2010 1538h | 6/28/2010 2302h | SW6020A | 0.0012 | **0.030** | |
| Molybdenum | mg/L | 6/25/2010 1538h | 6/28/2010 1830h | SW6010C | 0.020 | < 0.020 | |
| Potassium | mg/L | 6/25/2010 1538h | 6/28/2010 1830h | SW6010C | 1.0 | **5.0** | |
| Selenium | mg/L | 6/25/2010 1538h | 6/28/2010 2302h | SW6020A | 0.00080 | < 0.00080 | |
| Sodium | mg/L | 6/25/2010 1538h | 6/28/2010 1830h | SW6010C | 1.0 | **8.5** | |
| Zinc | mg/L | 6/25/2010 1538h | 6/28/2010 2302h | SW6020A | 0.0050 | < 0.0050 | |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*
*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1006480-003
**Client Sample ID:** RES-1
**Collection Date:** 6/23/2010 1955h
**Received Date:** 6/25/2010 935h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 6/25/2010 1538h | 6/28/2010 1727h | SW6010C | 0.10 | < 0.10 | |
| Arsenic | mg/L | 6/25/2010 1538h | 6/28/2010 2333h | SW6020A | 0.00060 | **0.00071** | |
| Boron | mg/L | 6/25/2010 1538h | 6/28/2010 1727h | SW6010C | 0.50 | < 0.50 | |
| Cadmium | mg/L | 6/25/2010 1538h | 6/28/2010 2333h | SW6020A | 0.00018 | < 0.00018 | |
| Calcium | mg/L | 6/25/2010 1538h | 6/28/2010 1727h | SW6010C | 1.0 | **44** | |
| Copper | mg/L | 6/25/2010 1538h | 6/28/2010 2333h | SW6020A | 0.00080 | **0.0039** | |
| Iron | mg/L | 6/25/2010 1538h | 6/28/2010 1727h | SW6010C | 0.10 | < 0.10 | |
| Lead | mg/L | 6/25/2010 1538h | 6/28/2010 2333h | SW6020A | 0.00040 | < 0.00040 | |
| Magnesium | mg/L | 6/25/2010 1538h | 6/28/2010 1727h | SW6010C | 1.0 | **16** | |
| Manganese | mg/L | 6/25/2010 1538h | 6/28/2010 2333h | SW6020A | 0.0012 | **0.0069** | |
| Molybdenum | mg/L | 6/25/2010 1538h | 6/28/2010 1727h | SW6010C | 0.020 | < 0.020 | |
| Potassium | mg/L | 6/25/2010 1538h | 6/28/2010 1727h | SW6010C | 1.0 | **2.0** | |
| Selenium | mg/L | 6/25/2010 1538h | 6/28/2010 2333h | SW6020A | 0.00080 | < 0.00080 | |
| Sodium | mg/L | 6/25/2010 1538h | 6/28/2010 1727h | SW6010C | 1.0 | **11** | |
| Zinc | mg/L | 6/25/2010 1538h | 6/28/2010 2333h | SW6020A | 0.0050 | **0.019** | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1006480-004
**Client Sample ID:** Miller Outlet
**Collection Date:** 6/23/2010 2030h
**Received Date:** 6/25/2010 935h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 6/25/2010 1538h | 6/28/2010 1731h | SW6010C | 0.10 | < 0.10 | |
| Arsenic | mg/L | 6/25/2010 1538h | 6/28/2010 2339h | SW6020A | 0.00060 | **0.00071** | |
| Boron | mg/L | 6/25/2010 1538h | 6/28/2010 1731h | SW6010C | 0.50 | < 0.50 | |
| Cadmium | mg/L | 6/25/2010 1538h | 6/28/2010 2339h | SW6020A | 0.00018 | < 0.00018 | |
| Calcium | mg/L | 6/25/2010 1538h | 6/28/2010 1642h | SW6010C | 10 | **66** | |
| Copper | mg/L | 6/25/2010 1538h | 6/28/2010 2339h | SW6020A | 0.00080 | **0.0014** | |
| Iron | mg/L | 6/25/2010 1538h | 6/28/2010 1731h | SW6010C | 0.10 | < 0.10 | |
| Lead | mg/L | 6/25/2010 1538h | 6/28/2010 2339h | SW6020A | 0.00040 | < 0.00040 | |
| Magnesium | mg/L | 6/25/2010 1538h | 6/28/2010 1731h | SW6010C | 1.0 | **16** | |
| Manganese | mg/L | 6/25/2010 1538h | 6/28/2010 2339h | SW6020A | 0.0012 | **0.0013** | |
| Molybdenum | mg/L | 6/25/2010 1538h | 6/28/2010 1731h | SW6010C | 0.020 | < 0.020 | |
| Potassium | mg/L | 6/25/2010 1538h | 6/28/2010 1731h | SW6010C | 1.0 | **2.3** | |
| Selenium | mg/L | 6/25/2010 1538h | 6/28/2010 2339h | SW6020A | 0.00080 | < 0.00080 | |
| Sodium | mg/L | 6/25/2010 1538h | 6/28/2010 1731h | SW6010C | 1.0 | **6.5** | |
| Zinc | mg/L | 6/25/2010 1538h | 6/28/2010 2339h | SW6020A | 0.0050 | < 0.0050 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*




All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1006480-005
**Client Sample ID:** Mud Creek
**Collection Date:** 6/23/2010 2100h
**Received Date:** 6/25/2010 935h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 6/25/2010 1538h | 6/28/2010 1735h | SW6010C | 0.10 | < 0.10 | |
| Arsenic | mg/L | 6/25/2010 1538h | 6/28/2010 2345h | SW6020A | 0.00060 | < 0.00060 | |
| Boron | mg/L | 6/25/2010 1538h | 6/28/2010 1735h | SW6010C | 0.50 | < 0.50 | |
| Cadmium | mg/L | 6/25/2010 1538h | 6/28/2010 2345h | SW6020A | 0.00018 | < 0.00018 | |
| Calcium | mg/L | 6/25/2010 1538h | 6/28/2010 1735h | SW6010C | 1.0 | **50** | |
| Copper | mg/L | 6/25/2010 1538h | 6/28/2010 2345h | SW6020A | 0.00080 | **0.0011** | |
| Iron | mg/L | 6/25/2010 1538h | 6/28/2010 1735h | SW6010C | 0.10 | < 0.10 | |
| Lead | mg/L | 6/25/2010 1538h | 6/28/2010 2345h | SW6020A | 0.00040 | < 0.00040 | |
| Magnesium | mg/L | 6/25/2010 1538h | 6/28/2010 1735h | SW6010C | 1.0 | **23** | |
| Manganese | mg/L | 6/25/2010 1538h | 6/28/2010 2345h | SW6020A | 0.0012 | **0.010** | |
| Molybdenum | mg/L | 6/25/2010 1538h | 6/28/2010 1735h | SW6010C | 0.020 | < 0.020 | |
| Potassium | mg/L | 6/25/2010 1538h | 6/28/2010 1735h | SW6010C | 1.0 | **4.2** | |
| Selenium | mg/L | 6/25/2010 1538h | 6/28/2010 2345h | SW6020A | 0.00080 | < 0.00080 | |
| Sodium | mg/L | 6/25/2010 1538h | 6/28/2010 1735h | SW6010C | 1.0 | **24** | |
| Zinc | mg/L | 6/25/2010 1538h | 6/28/2010 2345h | SW6020A | 0.0050 | < 0.0050 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1006480-001
**Client Sample ID:** Aspen Spring
**Collection Date:** 6/23/2010 1820h
**Received Date:** 6/25/2010 935h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 6/28/2010 820h | A2310B | 15 | < 15 | |
| Alkalinity (as CaCO3) | mg/L | | 6/28/2010 1000h | A2320B | 20 | **150** | |
| Ammonia (as N) | mg/L | 6/28/2010 1638h | 6/29/2010 852h | E350.1 | 0.050 | **0.15** | |
| Bicarbonate (as CaCO3) | mg/L | | 6/28/2010 1000h | A2320B | 20 | **150** | |
| Carbonate (as CaCO3) | mg/L | | 6/28/2010 1000h | A2320B | 10 | < 10 | |
| Chloride | mg/L | | 6/29/2010 2206h | E300.0 | 1.0 | **18** | |
| Hardness (as CaCO3) | mg/L | | 6/28/2010 000h | A2340B | 10 | **150** | |
| Nitrate (as N) | mg/L | | 6/25/2010 1533h | E353.2 | 0.010 | < 0.010 | |
| Nitrite (as N) | mg/L | | 6/25/2010 1533h | E353.2 | 0.010 | **0.021** | |
| Oil & Grease | mg/L | | 6/30/2010 1314h | E1664A | 3.0 | < 3.0 | |
| pH @ 25° C | pH Units | | 6/25/2010 1830h | A4500-H+B | 1.00 | **7.71** | H |
| Phosphate, Total Ortho (as P) | mg/L | | 6/25/2010 1218h | E365.1 | 0.050 | < 0.050 | 1 |
| Settleable Solids | mL/L | | 6/25/2010 1120h | A2540F | 0.10 | < 0.10 | |
| Sulfate | mg/L | | 6/29/2010 2206h | E300.0 | 7.5 | **9.9** | |
| Total Dissolved Solids | mg/L | | 6/25/2010 1400h | A2540C | 20 | **220** | |
| Total Suspended Solids | mg/L | | 6/25/2010 1630h | A2540D | 3.0 | **13** | |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*

*H - Sample was received outside of the holding time.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Scofield Baseline
**Lab Sample ID:** 1006480-002
**Client Sample ID:** Sulfur Spring
**Collection Date:** 6/23/2010 1930h
**Received Date:** 6/25/2010 935h

**Contact:** Brad Lindsay


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 6/28/2010 820h | A2310B | 15 | < 15 | |
| Alkalinity (as CaCO3) | mg/L | | 6/28/2010 1000h | A2320B | 40 | **350** | |
| Ammonia (as N) | mg/L | 6/28/2010 1638h | 6/29/2010 855h | E350.1 | 0.050 | **0.21** | |
| Bicarbonate (as CaCO3) | mg/L | | 6/28/2010 1000h | A2320B | 40 | **350** | |
| Carbonate (as CaCO3) | mg/L | | 6/28/2010 1000h | A2320B | 10 | < 10 | |
| Chloride | mg/L | | 6/29/2010 2315h | E300.0 | 1.0 | **6.5** | |
| Hardness (as CaCO3) | mg/L | | 6/28/2010 000h | A2340B | 100 | **360** | |
| Nitrate (as N) | mg/L | | 6/25/2010 1540h | E353.2 | 0.010 | < 0.010 | |
| Nitrite (as N) | mg/L | | 6/25/2010 1540h | E353.2 | 0.010 | < 0.010 | |
| Oil & Grease | mg/L | | 6/30/2010 1314h | E1664A | 3.0 | < 3.0 | |
| pH @ 25° C | pH Units | | 6/25/2010 1830h | A4500-H+B | 1.00 | **7.30** | H |
| Phosphate, Total Ortho (as P) | mg/L | | 6/25/2010 1220h | E365.1 | 0.050 | < 0.050 | |
| Settleable Solids | mL/L | | 6/25/2010 1120h | A2540F | 0.10 | < 0.10 | |
| Sulfate | mg/L | | 6/29/2010 2315h | E300.0 | 7.5 | **44** | |
| Total Dissolved Solids | mg/L | | 6/25/2010 1400h | A2540C | 20 | **370** | |
| Total Suspended Solids | mg/L | | 6/25/2010 1630h | A2540D | 3.0 | < 3.0 | |

*H - Sample was received outside of the holding time.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1006480-003
**Client Sample ID:** RES-1
**Collection Date:** 6/23/2010 1955h
**Received Date:** 6/25/2010 935h


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Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 6/28/2010 820h | A2310B | 15 | < 15 | |
| Alkalinity (as CaCO3) | mg/L | | 6/28/2010 1000h | A2320B | 20 | **170** | |
| Ammonia (as N) | mg/L | 6/28/2010 1638h | 6/29/2010 856h | E350.1 | 0.050 | **0.089** | |
| Bicarbonate (as CaCO3) | mg/L | | 6/28/2010 1000h | A2320B | 20 | **160** | |
| Carbonate (as CaCO3) | mg/L | | 6/28/2010 1000h | A2320B | 20 | < 20 | |
| Chloride | mg/L | | 6/29/2010 2339h | E300.0 | 1.0 | **8.3** | |
| Hardness (as CaCO3) | mg/L | | 6/28/2010 000h | A2340B | 10 | **180** | |
| Nitrate (as N) | mg/L | | 6/25/2010 1541h | E353.2 | 0.010 | < 0.010 | |
| Nitrite (as N) | mg/L | | 6/25/2010 1541h | E353.2 | 0.010 | < 0.010 | |
| Oil & Grease | mg/L | | 6/30/2010 1314h | E1664A | 3.0 | < 3.0 | |
| pH @ 25° C | pH Units | | 6/25/2010 1830h | A4500-H+B | 1.00 | **8.50** | H |
| Phosphate, Total Ortho (as P) | mg/L | | 6/25/2010 1221h | E365.1 | 0.050 | < 0.050 | |
| Settleable Solids | mL/L | | 6/25/2010 1120h | A2540F | 0.10 | < 0.10 | |
| Sulfate | mg/L | | 6/29/2010 2339h | E300.0 | 7.5 | **30** | |
| Total Dissolved Solids | mg/L | | 6/25/2010 1400h | A2540C | 20 | **200** | |
| Total Suspended Solids | mg/L | | 6/25/2010 1630h | A2540D | 3.0 | **11** | |

*H - Sample was received outside of the holding time.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1006480-004
**Client Sample ID:** Miller Outlet
**Collection Date:** 6/23/2010 2030h
**Received Date:** 6/25/2010 935h


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Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 6/28/2010 820h | A2310B | 15 | < 15 | |
| Alkalinity (as CaCO3) | mg/L | | 6/28/2010 1000h | A2320B | 20 | **210** | |
| Ammonia (as N) | mg/L | 6/28/2010 1638h | 6/29/2010 858h | E350.1 | 0.050 | **0.084** | |
| Bicarbonate (as CaCO3) | mg/L | | 6/28/2010 1000h | A2320B | 20 | **210** | |
| Carbonate (as CaCO3) | mg/L | | 6/28/2010 1000h | A2320B | 10 | < 10 | |
| Chloride | mg/L | | 6/30/2010 002h | E300.0 | 1.0 | **10** | |
| Hardness (as CaCO3) | mg/L | | 6/28/2010 000h | A2340B | 100 | **230** | |
| Nitrate (as N) | mg/L | | 6/25/2010 1549h | E353.2 | 0.010 | **0.048** | |
| Nitrite (as N) | mg/L | | 6/25/2010 1549h | E353.2 | 0.010 | < 0.010 | |
| Oil & Grease | mg/L | | 6/30/2010 1314h | E1664A | 3.0 | < 3.0 | |
| pH @ 25° C | pH Units | | 6/25/2010 1830h | A4500-H+B | 1.00 | **8.29** | H |
| Phosphate, Total Ortho (as P) | mg/L | | 6/25/2010 1222h | E365.1 | 0.050 | < 0.050 | |
| Settleable Solids | mL/L | | 6/25/2010 1120h | A2540F | 0.10 | **0.20** | |
| Sulfate | mg/L | | 6/30/2010 002h | E300.0 | 7.5 | **22** | |
| Total Dissolved Solids | mg/L | | 6/25/2010 1400h | A2540C | 20 | **240** | |
| Total Suspended Solids | mg/L | | 6/25/2010 1630h | A2540D | 3.0 | **86** | |

*H - Sample was received outside of the holding time.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Scofield Baseline
**Lab Sample ID:** 1006480-005
**Client Sample ID:** Mud Creek
**Collection Date:** 6/23/2010 2100h
**Received Date:** 6/25/2010 935h

**Contact:** Brad Lindsay


**AMERICAN WEST ANALYTICAL LABORATORIES**

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 6/28/2010 820h | A2310B | 15 | < 15 | |
| Alkalinity (as CaCO3) | mg/L | | 6/28/2010 1000h | A2320B | 20 | **200** | |
| Ammonia (as N) | mg/L | 6/28/2010 1638h | 6/29/2010 859h | E350.1 | 0.050 | **0.12** | |
| Bicarbonate (as CaCO3) | mg/L | | 6/28/2010 1000h | A2320B | 20 | **190** | |
| Carbonate (as CaCO3) | mg/L | | 6/28/2010 1000h | A2320B | 20 | < 20 | |
| Chloride | mg/L | | 6/30/2010 112h | E300.0 | 1.0 | **13** | |
| Hardness (as CaCO3) | mg/L | | 6/28/2010 000h | A2340B | 10 | **220** | |
| Nitrate (as N) | mg/L | | 6/25/2010 1550h | E353.2 | 0.010 | **0.17** | |
| Nitrite (as N) | mg/L | | 6/25/2010 1550h | E353.2 | 0.010 | < 0.010 | |
| Oil & Grease | mg/L | | 6/30/2010 1314h | E1664A | 3.0 | < 3.0 | |
| pH @ 25° C | pH Units | | 6/25/2010 1830h | A4500-H+B | 1.00 | **8.49** | H |
| Phosphate, Total Ortho (as P) | mg/L | | 6/25/2010 1223h | E365.1 | 0.050 | < 0.050 | |
| Settleable Solids | mL/L | | 6/25/2010 1120h | A2540F | 0.10 | < 0.10 | |
| Sulfate | mg/L | | 6/30/2010 112h | E300.0 | 7.5 | **69** | |
| Total Dissolved Solids | mg/L | | 6/25/2010 1400h | A2540C | 20 | **300** | |
| Total Suspended Solids | mg/L | | 6/25/2010 1630h | A2540D | 3.0 | **29** | |

*H - Sample was received outside of the holding time.*




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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1006480
**Project:** Scofield Baseline

**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-7235 | Aluminum | mg/L | SW6010C | 0.97 | 1.000 | 0 | 97.5 | 75-125 | | | | 6/28/2010 |
| LCS-7235 | Boron | mg/L | SW6010C | 0.96 | 1.000 | 0 | 96.4 | 75-125 | | | | 6/28/2010 |
| LCS-7235 | Calcium | mg/L | SW6010C | 9.8 | 10.00 | 0 | 97.6 | 75-125 | | | | 6/28/2010 |
| LCS-7235 | Iron | mg/L | SW6010C | 0.96 | 1.000 | 0 | 96.2 | 75-125 | | | | 6/28/2010 |
| LCS-7235 | Magnesium | mg/L | SW6010C | 9.5 | 10.00 | 0 | 94.9 | 75-125 | | | | 6/28/2010 |
| LCS-7235 | Molybdenum | mg/L | SW6010C | 0.19 | 0.2000 | 0 | 92.7 | 75-125 | | | | 6/28/2010 |
| LCS-7235 | Potassium | mg/L | SW6010C | 9.8 | 10.00 | 0 | 98.3 | 75-125 | | | | 6/28/2010 |
| LCS-7235 | Sodium | mg/L | SW6010C | 9.3 | 10.00 | 0 | 92.8 | 75-125 | | | | 6/28/2010 |
| LCS-7236 | Iron | mg/L | SW6010C | 1.0 | 1.000 | 0 | 101 | 75-125 | | | | 6/28/2010 |
| LCS-7235 | Arsenic | mg/L | SW6020A | 0.20 | 0.2000 | 0 | 100 | 85-115 | | | | 6/28/2010 |
| LCS-7235 | Cadmium | mg/L | SW6020A | 0.20 | 0.2000 | 0 | 99.8 | 85-115 | | | | 6/28/2010 |
| LCS-7235 | Copper | mg/L | SW6020A | 0.20 | 0.2000 | 0 | 100 | 85-115 | | | | 6/28/2010 |
| LCS-7235 | Lead | mg/L | SW6020A | 0.20 | 0.2000 | 0 | 101 | 85-115 | | | | 6/28/2010 |
| LCS-7235 | Manganese | mg/L | SW6020A | 0.20 | 0.2000 | 0 | 101 | 85-115 | | | | 6/28/2010 |
| LCS-7235 | Selenium | mg/L | SW6020A | 0.20 | 0.2000 | 0 | 99.5 | 85-115 | | | | 6/28/2010 |
| LCS-7235 | Zinc | mg/L | SW6020A | 1.0 | 1.000 | 0 | 100 | 85-115 | | | | 6/28/2010 |
| LCS-7236 | Manganese | mg/L | SW6020A | 0.20 | 0.2000 | 0 | 99.0 | 85-115 | | | | 6/25/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1006480
**Project:** Scofield Baseline

**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-7235 | Aluminum | mg/L | SW6010C | < 0.10 | | | | - | | | | 6/28/2010 |
| MB-7235 | Boron | mg/L | SW6010C | < 0.50 | | | | - | | | | 6/28/2010 |
| MB-7235 | Calcium | mg/L | SW6010C | < 1.0 | | | | - | | | | 6/28/2010 |
| MB-7235 | Iron | mg/L | SW6010C | < 0.10 | | | | - | | | | 6/28/2010 |
| MB-7235 | Magnesium | mg/L | SW6010C | < 1.0 | | | | - | | | | 6/28/2010 |
| MB-7235 | Molybdenum | mg/L | SW6010C | < 0.020 | | | | - | | | | 6/28/2010 |
| MB-7235 | Potassium | mg/L | SW6010C | < 1.0 | | | | - | | | | 6/28/2010 |
| MB-7235 | Sodium | mg/L | SW6010C | < 1.0 | | | | - | | | | 6/28/2010 |
| MB-7236 | Iron | mg/L | SW6010C | < 0.10 | | | | - | | | | 6/28/2010 |
| MB-7235 | Arsenic | mg/L | SW6020A | < 0.00060 | | | | - | | | | 6/28/2010 |
| MB-7235 | Cadmium | mg/L | SW6020A | < 0.00018 | | | | - | | | | 6/28/2010 |
| MB-7235 | Copper | mg/L | SW6020A | < 0.00080 | | | | - | | | | 6/28/2010 |
| MB-7235 | Lead | mg/L | SW6020A | < 0.00040 | | | | - | | | | 6/28/2010 |
| MB-7235 | Manganese | mg/L | SW6020A | < 0.0012 | | | | - | | | | 6/28/2010 |
| MB-7235 | Selenium | mg/L | SW6020A | < 0.00080 | | | | - | | | | 6/28/2010 |
| MB-7235 | Zinc | mg/L | SW6020A | < 0.0050 | | | | - | | | | 6/28/2010 |
| MB-7236 | Manganese | mg/L | SW6020A | < 0.0012 | | | | - | | | | 6/25/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1006480
**Project:** Scofield Baseline

**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1006480-002EMS | Aluminum | mg/L | SW6010C | 1.0 | 1.000 | 0 | 99.8 | 75-125 | | | | 6/28/2010 |
| 1006480-002EMS | Boron | mg/L | SW6010C | 1.1 | 1.000 | 0.04776 | 107 | 75-125 | | | | 6/28/2010 |
| 1006480-002EMS | Iron | mg/L | SW6010C | 1.0 | 1.000 | 0 | 100 | 75-125 | | | | 6/28/2010 |
| 1006480-002EMS | Magnesium | mg/L | SW6010C | 42 | 10.00 | 34.55 | 72.6 | 75-125 | | | [1] | 6/28/2010 |
| 1006480-002EMS | Molybdenum | mg/L | SW6010C | 0.20 | 0.2000 | 0 | 101 | 75-125 | | | | 6/28/2010 |
| 1006480-002EMS | Potassium | mg/L | SW6010C | 15 | 10.00 | 5.021 | 97.5 | 75-125 | | | | 6/28/2010 |
| 1006480-002EMS | Sodium | mg/L | SW6010C | 17 | 10.00 | 8.465 | 89.5 | 75-125 | | | | 6/28/2010 |
| 1006480-002EMS | Calcium | mg/L | SW6010C | 96 | 10.00 | 85.79 | 102 | 75-125 | | | | 6/28/2010 |
| 1006480-001FMS | Iron | mg/L | SW6010C | 6.0 | 1.000 | 4.809 | 118 | 75-125 | | | | 6/28/2010 |
| 1006480-002EMS | Arsenic | mg/L | SW6020A | 0.20 | 0.2000 | 0.0003180 | 102 | 70-130 | | | | 6/28/2010 |
| 1006480-002EMS | Cadmium | mg/L | SW6020A | 0.20 | 0.2000 | 0.00003000 | 99.7 | 70-130 | | | | 6/28/2010 |
| 1006480-002EMS | Copper | mg/L | SW6020A | 0.21 | 0.2000 | 0.0006360 | 103 | 70-130 | | | | 6/28/2010 |
| 1006480-002EMS | Lead | mg/L | SW6020A | 0.20 | 0.2000 | 0 | 97.9 | 70-130 | | | | 6/28/2010 |
| 1006480-002EMS | Manganese | mg/L | SW6020A | 0.23 | 0.2000 | 0.03044 | 99.4 | 70-130 | | | | 6/28/2010 |
| 1006480-002EMS | Selenium | mg/L | SW6020A | 0.20 | 0.2000 | 0.0001680 | 100 | 70-130 | | | | 6/28/2010 |
| 1006480-002EMS | Zinc | mg/L | SW6020A | 1.0 | 1.000 | 0 | 100 | 70-130 | | | | 6/28/2010 |
| 1006480-001FMS | Manganese | mg/L | SW6020A | 0.35 | 0.2000 | 0.1457 | 102 | 70-130 | | | | 6/25/2010 |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1006480
**Project:** Scofield Baseline

**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1006480-002EMSD | Aluminum | mg/L | SW6010C | 1.0 | 1.000 | 0 | 101 | 75-125 | 1.44 | 20 | | 6/28/2010 |
| 1006480-002EMSD | Boron | mg/L | SW6010C | 1.1 | 1.000 | 0.04776 | 109 | 75-125 | 1.76 | 20 | | 6/28/2010 |
| 1006480-002EMSD | Iron | mg/L | SW6010C | 1.0 | 1.000 | 0 | 101 | 75-125 | 0.749 | 20 | | 6/28/2010 |
| 1006480-002EMSD | Magnesium | mg/L | SW6010C | 43 | 10.00 | 34.55 | 83.4 | 75-125 | 2.54 | 20 | | 6/28/2010 |
| 1006480-002EMSD | Molybdenum | mg/L | SW6010C | 0.20 | 0.2000 | 0 | 101 | 75-125 | 0.163 | 20 | | 6/28/2010 |
| 1006480-002EMSD | Potassium | mg/L | SW6010C | 15 | 10.00 | 5.021 | 101 | 75-125 | 2.47 | 20 | | 6/28/2010 |
| 1006480-002EMSD | Sodium | mg/L | SW6010C | 18 | 10.00 | 8.465 | 93.5 | 75-125 | 2.24 | 20 | | 6/28/2010 |
| 1006480-002EMSD | Calcium | mg/L | SW6010C | 98 | 10.00 | 85.79 | 125 | 75-125 | 2.38 | 20 | | 6/28/2010 |
| 1006480-001FMSD | Iron | mg/L | SW6010C | 5.7 | 1.000 | 4.809 | 90.8 | 75-125 | 4.66 | 20 | | 6/28/2010 |
| 1006480-002EMSD | Arsenic | mg/L | SW6020A | 0.20 | 0.2000 | 0.0003180 | 101 | 70-130 | 0.614 | 20 | | 6/28/2010 |
| 1006480-002EMSD | Cadmium | mg/L | SW6020A | 0.20 | 0.2000 | 0.00003000 | 99.1 | 70-130 | 0.590 | 20 | | 6/28/2010 |
| 1006480-002EMSD | Copper | mg/L | SW6020A | 0.21 | 0.2000 | 0.0006360 | 103 | 70-130 | 0.0825 | 20 | | 6/28/2010 |
| 1006480-002EMSD | Lead | mg/L | SW6020A | 0.20 | 0.2000 | 0 | 97.8 | 70-130 | 0.122 | 20 | | 6/28/2010 |
| 1006480-002EMSD | Manganese | mg/L | SW6020A | 0.23 | 0.2000 | 0.03044 | 99.6 | 70-130 | 0.183 | 20 | | 6/28/2010 |
| 1006480-002EMSD | Selenium | mg/L | SW6020A | 0.20 | 0.2000 | 0.0001680 | 102 | 70-130 | 1.87 | 20 | | 6/28/2010 |
| 1006480-002EMSD | Zinc | mg/L | SW6020A | 1.0 | 1.000 | 0 | 99.7 | 70-130 | 0.533 | 20 | | 6/28/2010 |
| 1006480-001FMSD | Manganese | mg/L | SW6020A | 0.35 | 0.2000 | 0.1457 | 101 | 70-130 | 0.256 | 20 | | 6/25/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1006480
**Project:** Scofield Baseline

**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1006480-001BDUP | pH @ 25° C | pH Units | A4500-H+B | 7.74 | | 7.710 | | - | 0.388 | 5 | H | 6/25/2010 |
| 1006475-005ADUP | Total Dissolved Solids | mg/L | A2540C | 3,700 | | 3,720 | | - | 0.750 | 20 | | 6/25/2010 |
| 1006480-005ADUP | Total Dissolved Solids | mg/L | A2540C | 290 | | 296.0 | | - | 1.36 | 20 | | 6/25/2010 |
| 1006480-002ADUP | Total Suspended Solids | mg/L | A2540D | < 3.0 | | 2.000 | | - | 0 | 20 | | 6/25/2010 |
| 1006497-001ADUP | Total Suspended Solids | mg/L | A2540D | 39 | | 38.00 | | - | 2.60 | 20 | | 6/25/2010 |

*H - Sample was received outside of the holding time.*



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1006480
**Project:** Scofield Baseline

**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R15964 | Chloride | mg/L | E300.0 | 4.8 | 5.000 | 0 | 96.7 | 90-110 | | | | 6/29/2010 |
| LCS-R15964 | Sulfate | mg/L | E300.0 | 5.2 | 5.000 | 0 | 103 | 90-110 | | | | 6/29/2010 |
| LCS-R15883 | Acidity | mg/L | A2310B | 52 | 50.00 | 0 | 104 | 80-120 | | | | 6/28/2010 |
| LCS-R15888 | Alkalinity (as CaCO3) | mg/L | A2320B | 51,000 | 50,000 | 0 | 102 | 90-110 | | | | 6/28/2010 |
| LCS-7255 | Ammonia (as N) | mg/L | E350.1 | 1.0 | 1.000 | 0 | 104 | 90-110 | | | | 6/29/2010 |
| LCS-R15860 | Nitrite (as N) | mg/L | E353.2 | 1.0 | 1.000 | 0 | 105 | 90-110 | | | | 6/25/2010 |
| LCS-R15861 | Nitrate (as N) | mg/L | E353.2 | 1.1 | 1.000 | 0 | 105 | 90-110 | | | | 6/25/2010 |
| LCS-R16017 | Oil & Grease | mg/L | E1664A | 40 | 40.00 | 2.500 | 93.3 | 78-114 | | | | 6/30/2010 |
| LCS-R15876 | pH @ 25° C | pH Units | A4500-H+B | 8.96 | 9.000 | 0 | 99.6 | 98-102 | | | | 6/25/2010 |
| LCS-R15848 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.90 | 1.000 | 0 | 90.3 | 90-110 | | | | 6/25/2010 |
| LCS-R15923 | Total Dissolved Solids | mg/L | A2540C | 190 | 205.0 | 0 | 93.7 | 80-120 | | | | 6/25/2010 |
| LCS-R15886 | Total Suspended Solids | mg/L | A2540D | 98 | 100.0 | 0 | 98.0 | 80-120 | | | | 6/25/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1006480
**Project:** Scofield Baseline

**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R15964 | Chloride | mg/L | E300.0 | < 0.10 | | | | - | | | | 6/29/2010 |
| MB-R15964 | Sulfate | mg/L | E300.0 | < 0.75 | | | | - | | | | 6/29/2010 |
| MB-R15883 | Acidity | mg/L | A2310B | < 15 | | | | - | | | | 6/28/2010 |
| MB-R15888 | Alkalinity (as CaCO3) | mg/L | A2320B | < 10 | | | | - | | | | 6/28/2010 |
| MB-R15888 | Bicarbonate (as CaCO3) | mg/L | A2320B | < 10 | | | | - | | | | 6/28/2010 |
| MB-R15888 | Carbonate (as CaCO3) | mg/L | A2320B | < 10 | | | | - | | | | 6/28/2010 |
| MB-7255 | Ammonia (as N) | mg/L | E350.1 | < 0.050 | | | | - | | | | 6/29/2010 |
| MB-R15860 | Nitrite (as N) | mg/L | E353.2 | < 0.010 | | | | - | | | | 6/25/2010 |
| MB-R15861 | Nitrate (as N) | mg/L | E353.2 | < 0.010 | | | | - | | | | 6/25/2010 |
| MB-R16017 | Oil & Grease | mg/L | E1664A | < 3.0 | | | | - | | | | 6/30/2010 |
| MB-R15848 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | < 0.050 | | | | - | | | | 6/25/2010 |
| MB-R15923 | Total Dissolved Solids | mg/L | A2540C | < 10 | | | | - | | | | 6/25/2010 |
| MB-R15886 | Total Suspended Solids | mg/L | A2540D | < 3.0 | | | | - | | | | 6/25/2010 |



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AMERICAN WEST ANALYTICAL LABORATORIES
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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1006480
**Project:** Scofield Baseline

**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1006496-003DMS | Chloride | mg/L | E300.0 | 670 | 500.0 | 175.3 | 99.4 | 90-110 | | | | 6/29/2010 |
| 1006443-001GMS | Chloride | mg/L | E300.0 | 1,200 | 500.0 | 705.2 | 100 | 90-110 | | | | 6/29/2010 |
| 1006480-001BMS | Chloride | mg/L | E300.0 | 67 | 50.00 | 18.21 | 98.1 | 90-110 | | | | 6/29/2010 |
| 1006480-001BMS | Sulfate | mg/L | E300.0 | 60 | 50.00 | 9.878 | 99.4 | 90-110 | | | | 6/29/2010 |
| 1006480-002BMS | Acidity | mg/L | A2310B | 50 | 50.00 | 0 | 100 | 80-120 | | | | 6/28/2010 |
| 1006480-001BMS | Alkalinity (as CaCO3) | mg/L | A2320B | 270 | 100.0 | 153.0 | 114 | 80-120 | | | | 6/28/2010 |
| 1006496-003DMS | Alkalinity (as CaCO3) | mg/L | A2320B | 610 | 200.0 | 415.0 | 98.5 | 80-120 | | | | 6/28/2010 |
| 1006480-001DMS | Ammonia (as N) | mg/L | E350.1 | 1.1 | 1.000 | 0.1466 | 99.2 | 90-110 | | | | 6/29/2010 |
| 1006480-001BMS | Nitrite (as N) | mg/L | E353.2 | 1.1 | 1.000 | 0.02090 | 108 | 90-110 | | | | 6/25/2010 |
| 1006480-001BMS | Nitrate (as N) | mg/L | E353.2 | 1.1 | 1.000 | 0 | 107 | 90-110 | | | | 6/25/2010 |
| 1006480-001BMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.87 | 1.000 | 0.02430 | 84.9 | 90-110 | | | 1 | 6/25/2010 |

*1 - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1006480
**Project:** Scofield Baseline

**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1006496-003DMSD | Chloride | mg/L | E300.0 | 670 | 500.0 | 175.3 | 99.1 | 90-110 | 0.259 | 20 | | 6/29/2010 |
| 1006443-001GMSD | Chloride | mg/L | E300.0 | 1,200 | 500.0 | 705.2 | 98.6 | 90-110 | 0.600 | 20 | | 6/29/2010 |
| 1006480-001BMSD | Chloride | mg/L | E300.0 | 67 | 50.00 | 18.21 | 98.3 | 90-110 | 0.174 | 20 | | 6/29/2010 |
| 1006480-001BMSD | Sulfate | mg/L | E300.0 | 60 | 50.00 | 9.878 | 99.4 | 90-110 | 0.00336 | 20 | | 6/29/2010 |
| 1006480-002BMSD | Acidity | mg/L | A2310B | 50 | 50.00 | 0 | 100 | 80-120 | 0 | 0 | | 6/28/2010 |
| 1006480-001BMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 270 | 100.0 | 153.0 | 114 | 80-120 | 0 | 10 | | 6/28/2010 |
| 1006496-003DMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 620 | 200.0 | 415.0 | 100 | 80-120 | 0.489 | 10 | | 6/28/2010 |
| 1006480-001DMSD | Ammonia (as N) | mg/L | E350.1 | 1.2 | 1.000 | 0.1466 | 105 | 90-110 | 4.63 | 10 | | 6/29/2010 |
| 1006480-001BMSD | Nitrite (as N) | mg/L | E353.2 | 1.1 | 1.000 | 0.02090 | 105 | 90-110 | 3.06 | 10 | | 6/25/2010 |
| 1006480-001BMSD | Nitrate (as N) | mg/L | E353.2 | 1.0 | 1.000 | 0 | 104 | 90-110 | 3.45 | 10 | | 6/25/2010 |
| 1006480-001BMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.84 | 1.000 | 0.02430 | 82.0 | 90-110 | 3.38 | 10 | [1] | 6/25/2010 |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# American West Analytical Laboratories

## WORK ORDER Summary

*25-Jun-10*

**Work Order:** 1006480
**WO Type:** Project

| | | | |
|---|---|---|---|
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay |
| **Project ID:** | CAR300-Scofield Baseline | **PM:** | |
| **Project:** | Scofield Baseline | **QC Level:** | LEVEL II+ |
| **ChkList Completed On:** | | **Completed By:** | |
| **ChkList Reviewed On:** | | **Reviewed By:** | |
| **WO Reviewed On:** | | **Reviewed By:** | |

**COMMENTS :**
QC 2+, EDD. Footnote report, pH received outside of hold;

DB

| Sample ID | Client Sample ID | Date Collected | Date Received | Date Due | Matrix | Test Code | Hld | MS | SEL | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1006480-001A | Aspen Spring | 6/23/2010 6:20:00 PM | 6/25/2010 9:35:00 AM | 7/12/2010 | Aqueous | SS-W-2540F | ☐ | ☐ | ☐ | ☐ | ww - ss/tss/tds |
| | | | | 7/12/2010 | | TDS-W-2540C | ☐ | ☐ | ☐ | ☐ | ww - ss/tss/tds |
| | | | | 7/12/2010 | | TSS-W-2540D | ☐ | ☐ | ☐ | ☐ | ww - ss/tss/tds |
| 1006480-001B | | | | 7/12/2010 | | 300.0-W | ☐ | ☐ | ☑ | ☐ | DF - wc |
| | SEL Analytes: CL SO4 | | | | | | | | | | |
| | | | | 7/12/2010 | | ACIDITY-W-2310B | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | ALK-W-2320B | ☐ | ☐ | ☑ | ☐ | DF - wc |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | | | |
| | | | | 7/12/2010 | | NO2-W-353.2 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | NO3-W-353.2 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | PH-4500H+B | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | PO4-O-365.1 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| 1006480-001C | | | | 7/12/2010 | | OGB-W-1664A | ☐ | ☐ | ☐ | ☐ | ogb |
| 1006480-001D | | | | 7/12/2010 | | NH3-W-350.1 | ☐ | ☐ | ☐ | ☐ | DF - nh3 |
| | | | | 7/12/2010 | | NH3-W-PR | ☐ | ☐ | ☐ | ☐ | DF - nh3 |
| 1006480-001E | | | | 7/12/2010 | | 3005A-DIS-PR | ☐ | ☐ | ☐ | ☐ | DF - dis met |
| | | | | 7/12/2010 | | 6010C-DIS | ☐ | ☐ | ☑ | ☐ | DF - dis met |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | | | |
| | | | | 7/12/2010 | | 6020-DIS | ☐ | ☐ | ☑ | ☐ | DF - dis met |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | | | |
| | | | | 7/12/2010 | | HARD-2340B | ☐ | ☐ | ☐ | ☐ | DF - dis met |
| 1006480-001F | | | | 7/12/2010 | | 3005A-ICPMS-PR | ☐ | ☐ | ☐ | ☐ | DF - total met |

# WORK ORDER Summary

*25-Jun-10*

**Work Order:** 1006480
**WO Type:** Project

| | | | |
|---|---|---|---|
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay |
| **Project ID:** | CAR300-Scofield Baseline | **PM:** | |
| **Project:** | Scofield Baseline | **QC Level:** | LEVEL II+ |
| **ChkList Completed On:** | | **Completed By** | |
| **ChkList Reviewed On:** | | **Reviewed By:** | |
| **WO Reviewed On:** | | **Reviewed By:** | |

**COMMENTS :**
QC 2+, EDD. Footnote report, pH received outside of hold;

| Sample ID | Client Sample ID | Date Collected | Date Received | Date Due | Matrix | Test Code | Hld | MS | SEL | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1006480-001F | Aspen Spring | 6/23/2010 6:20:00 PM | 6/25/2010 9:35:00 AM | 7/12/2010 | Aqueous | 6010C-W | ☐ | ☐ | ☑ | ☐ | DF - total met |
| | SEL Analytes: FE | | | | | | | | | | |
| | | | | 7/12/2010 | | 6020-W | ☐ | ☐ | ☑ | ☐ | DF - total met |
| | SEL Analytes: MN | | | | | | | | | | |
| 1006480-002A | Sulfur Spring | 6/23/2010 7:30:00 PM | | 7/12/2010 | | SS-W-2540F | ☐ | ☐ | ☐ | ☐ | ww - ss/tss/tds |
| | | | | 7/12/2010 | | TDS-W-2540C | ☐ | ☐ | ☐ | ☐ | ww - ss/tss/tds |
| | | | | 7/12/2010 | | TSS-W-2540D | ☐ | ☐ | ☐ | ☐ | ww - ss/tss/tds |
| 1006480-002B | | | | 7/12/2010 | | 300.0-W | ☐ | ☐ | ☑ | ☐ | DF - wc |
| | SEL Analytes: CL SO4 | | | | | | | | | | |
| | | | | 7/12/2010 | | ACIDITY-W-2310B | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | ALK-W-2320B | ☐ | ☐ | ☑ | ☐ | DF - wc |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | | | |
| | | | | 7/12/2010 | | NO2-W-353.2 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | NO3-W-353.2 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | PH-4500H+B | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | PO4-O-365.1 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| 1006480-002C | | | | 7/12/2010 | | OGB-W-1664A | ☐ | ☐ | ☐ | ☐ | ogb |
| 1006480-002D | | | | 7/12/2010 | | NH3-W-350.1 | ☐ | ☐ | ☐ | ☐ | DF - nh3 |
| | | | | 7/12/2010 | | NH3-W-PR | ☐ | ☐ | ☐ | ☐ | DF - nh3 |
| 1006480-002E | | | | 7/12/2010 | | 3005A-DIS-PR | ☐ | ☐ | ☐ | ☐ | DF - dis met |
| | | | | 7/12/2010 | | 6010C-DIS | ☐ | ☐ | ☑ | ☐ | DF - dis met |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | | | |
| | | | | 7/12/2010 | | 6020-DIS | ☐ | ☐ | ☑ | ☐ | DF - dis met |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | | | |

# WORK ORDER Summary

*25-Jun-10*

**Work Order:** 1006480

**WO Type:** Project

| | | | |
|---|---|---|---|
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay |
| **Project ID:** | CAR300-Scofield Baseline | **PM:** | |
| **Project:** | Scofield Baseline | **QC Level:** | LEVEL II+ |
| **ChkList Completed On:** | | **Completed By** | |
| **ChkList Reviewed On:** | | **Reviewed By:** | |
| **WO Reviewed On:** | | **Reviewed By:** | |

**COMMENTS :**

QC 2+, EDD. Footnote report, pH received outside of hold;

| Sample ID | Client Sample ID | Date Collected | Date Received | Date Due | Matrix | Test Code | Hld | MS | SEL | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1006480-002E | Sulfur Spring | 6/23/2010 7:30:00 PM | 6/25/2010 9:35:00 AM | 7/12/2010 | Aqueous | HARD-2340B | ☐ | ☐ | ☐ | ☐ | DF - dis met |
| 1006480-002F | | | | 7/12/2010 | | 3005A-ICPMS-PR | ☐ | ☐ | ☐ | ☐ | DF - total met |
| | | | | 7/12/2010 | | 6010C-W | ☐ | ☐ | ☑ | ☐ | DF - total met |
| | SEL Analytes: FE | | | | | | | | | | |
| | | | | 7/12/2010 | | 6020-W | ☐ | ☐ | ☑ | ☐ | DF - total met |
| | SEL Analytes: MN | | | | | | | | | | |
| 1006480-003A | RES-1 | 6/23/2010 7:55:00 PM | | 7/12/2010 | | SS-W-2540F | ☐ | ☐ | ☐ | ☐ | ww - ss/tss/tds |
| | | | | 7/12/2010 | | TDS-W-2540C | ☐ | ☐ | ☐ | ☐ | ww - ss/tss/tds |
| | | | | 7/12/2010 | | TSS-W-2540D | ☐ | ☐ | ☐ | ☐ | ww - ss/tss/tds |
| 1006480-003B | | | | 7/12/2010 | | 300.0-W | ☐ | ☐ | ☑ | ☐ | DF - wc |
| | SEL Analytes: CL SO4 | | | | | | | | | | |
| | | | | 7/12/2010 | | ACIDITY-W-2310B | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | ALK-W-2320B | ☐ | ☐ | ☑ | ☐ | DF - wc |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | | | |
| | | | | 7/12/2010 | | NO2-W-353.2 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | NO3-W-353.2 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | PH-4500H+B | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | PO4-O-365.1 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| 1006480-003C | | | | 7/12/2010 | | OGB-W-1664A | ☐ | ☐ | ☐ | ☐ | ogb |
| 1006480-003D | | | | 7/12/2010 | | NH3-W-350.1 | ☐ | ☐ | ☐ | ☐ | DF - nh3 |
| | | | | 7/12/2010 | | NH3-W-PR | ☐ | ☐ | ☐ | ☐ | DF - nh3 |
| 1006480-003E | | | | 7/12/2010 | | 3005A-DIS-PR | ☐ | ☐ | ☐ | ☐ | DF - dis met |
| | | | | 7/12/2010 | | 6010C-DIS | ☐ | ☐ | ☑ | ☐ | DF - dis met |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | | | |

# WORK ORDER Summary

*25-Jun-10*

**Work Order:** 1006480
**WO Type:** Project

| | | | |
|---|---|---|---|
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay |
| **Project ID:** | CAR300-Scofield Baseline | **PM:** | |
| **Project:** | Scofield Baseline | **QC Level:** | LEVEL II+ |
| **ChkList Completed On:** | | **Completed By** | |
| **ChkList Reviewed On:** | | **Reviewed By:** | |
| **WO Reviewed On:** | | **Reviewed By:** | |

**COMMENTS :**
QC 2+, EDD. Footnote report, pH received outside of hold;

| Sample ID | Client Sample ID | Date Collected | Date Received | Date Due | Matrix | Test Code | Hld | MS | SEL | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1006480-003E | RES-1 | 6/23/2010 7:55:00 PM | 6/25/2010 9:35:00 AM | 7/12/2010 | Aqueous | 6020-DIS | ☐ | ☐ | ☑ | ☐ | DF - dis met |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | | | |
| | | | | 7/12/2010 | | HARD-2340B | ☐ | ☐ | ☐ | ☐ | DF - dis met |
| 1006480-003F | | | | 7/12/2010 | | 3005A-ICPMS-PR | ☐ | ☐ | ☐ | ☐ | DF - total met |
| | | | | 7/12/2010 | | 6010C-W | ☐ | ☐ | ☑ | ☐ | DF - total met |
| | SEL Analytes: FE | | | | | | | | | | |
| | | | | 7/12/2010 | | 6020-W | ☐ | ☐ | ☑ | ☐ | DF - total met |
| | SEL Analytes: MN | | | | | | | | | | |
| 1006480-004A | Miller Outlet | 6/23/2010 8:30:00 PM | | 7/12/2010 | | SS-W-2540F | ☐ | ☐ | ☐ | ☐ | ww - ss/tss/tds |
| | | | | 7/12/2010 | | TDS-W-2540C | ☐ | ☐ | ☐ | ☐ | ww - ss/tss/tds |
| | | | | 7/12/2010 | | TSS-W-2540D | ☐ | ☐ | ☐ | ☐ | ww - ss/tss/tds |
| 1006480-004B | | | | 7/12/2010 | | 300.0-W | ☐ | ☐ | ☑ | ☐ | DF - wc |
| | SEL Analytes: CL SO4 | | | | | | | | | | |
| | | | | 7/12/2010 | | ACIDITY-W-2310B | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | ALK-W-2320B | ☐ | ☐ | ☑ | ☐ | DF - wc |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | | | |
| | | | | 7/12/2010 | | NO2-W-353.2 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | NO3-W-353.2 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | PH-4500H+B | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | PO4-O-365.1 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| 1006480-004C | | | | 7/12/2010 | | OGB-W-1664A | ☐ | ☐ | ☐ | ☐ | ogb |
| 1006480-004D | | | | 7/12/2010 | | NH3-W-350.1 | ☐ | ☐ | ☐ | ☐ | DF - nh3 |
| | | | | 7/12/2010 | | NH3-W-PR | ☐ | ☐ | ☐ | ☐ | DF - nh3 |
| 1006480-004E | | | | 7/12/2010 | | 3005A-DIS-PR | ☐ | ☐ | ☐ | ☐ | DF - dis met |

# WORK ORDER Summary

*25-Jun-10*

**Work Order:** 1006480
**WO Type:** Project

| | | | |
|---|---|---|---|
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay |
| **Project ID:** | CAR300-Scofield Baseline | **PM:** | |
| **Project:** | Scofield Baseline | **QC Level:** | LEVEL II+ |
| **ChkList Completed On:** | | **Completed By** | |
| **ChkList Reviewed On:** | | **Reviewed By:** | |
| **WO Reviewed On:** | | **Reviewed By:** | |

**COMMENTS :**
QC 2+, EDD. Footnote report, pH received outside of hold;

| Sample ID | Client Sample ID | Date Collected | Date Received | Date Due | Matrix | Test Code | Hld | MS | SEL | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1006480-004E | Miller Outlet | 6/23/2010 8:30:00 PM | 6/25/2010 9:35:00 AM | 7/12/2010 | Aqueous | 6010C-DIS | ☐ | ☐ | ☑ | ☐ | DF - dis met |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | | | |
| | | | | 7/12/2010 | | 6020-DIS | ☐ | ☐ | ☑ | ☐ | DF - dis met |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | | | |
| | | | | 7/12/2010 | | HARD-2340B | ☐ | ☐ | ☐ | ☐ | DF - dis met |
| 1006480-004F | | | | 7/12/2010 | | 3005A-ICPMS-PR | ☐ | ☐ | ☐ | ☐ | DF - total met |
| | | | | 7/12/2010 | | 6010C-W | ☐ | ☐ | ☑ | ☐ | DF - total met |
| | SEL Analytes: FE | | | | | | | | | | |
| | | | | 7/12/2010 | | 6020-W | ☐ | ☐ | ☑ | ☐ | DF - total met |
| | SEL Analytes: MN | | | | | | | | | | |
| 1006480-005A | Mud Creek | 6/23/2010 9:00:00 PM | | 7/12/2010 | | SS-W-2540F | ☐ | ☐ | ☐ | ☐ | ww - ss/tss/tds |
| | | | | 7/12/2010 | | TDS-W-2540C | ☐ | ☐ | ☐ | ☐ | ww - ss/tss/tds |
| | | | | 7/12/2010 | | TSS-W-2540D | ☐ | ☐ | ☐ | ☐ | ww - ss/tss/tds |
| 1006480-005B | | | | 7/12/2010 | | 300.0-W | ☐ | ☐ | ☑ | ☐ | DF - wc |
| | SEL Analytes: CL SO4 | | | | | | | | | | |
| | | | | 7/12/2010 | | ACIDITY-W-2310B | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | ALK-W-2320B | ☐ | ☐ | ☑ | ☐ | DF - wc |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | | | |
| | | | | 7/12/2010 | | NO2-W-353.2 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | NO3-W-353.2 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | PH-4500H+B | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/12/2010 | | PO4-O-365.1 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| 1006480-005C | | | | 7/12/2010 | | OGB-W-1664A | ☐ | ☐ | ☐ | ☐ | ogb |
| 1006480-005D | | | | 7/12/2010 | | NH3-W-350.1 | ☐ | ☐ | ☐ | ☐ | DF - nh3 |

# WORK ORDER Summary

*25-Jun-10*

**Work Order:** 1006480
**WO Type:** Project

| | | | |
|---|---|---|---|
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay |
| **Project ID:** | CAR300-Scofield Baseline | **PM:** | |
| **Project:** | Scofield Baseline | **QC Level:** | LEVEL II+ |
| **ChkList Completed On:** | | **Completed By** | |
| **ChkList Reviewed On:** | | **Reviewed By:** | |
| **WO Reviewed On:** | | **Reviewed By:** | |

**COMMENTS :**
QC 2+, EDD. Footnote report, pH received outside of hold;

| Sample ID | Client Sample ID | Date Collected | Date Received | Date Due | Matrix | Test Code | Hld | MS | SEL | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1006480-005D | Mud Creek | 6/23/2010 9:00:00 PM | 6/25/2010 9:35:00 AM | 7/12/2010 | Aqueous | NH3-W-PR | ☐ | ☐ | ☐ | ☐ | DF - nh3 |
| 1006480-005E | | | | 7/12/2010 | | 3005A-DIS-PR | ☐ | ☐ | ☐ | ☐ | DF - dis met |
| | | | | 7/12/2010 | | 6010C-DIS | ☐ | ☐ | ☑ | ☐ | DF - dis met |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | | | |
| | | | | 7/12/2010 | | 6020-DIS | ☐ | ☐ | ☑ | ☐ | DF - dis met |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | | | |
| | | | | 7/12/2010 | | HARD-2340B | ☐ | ☐ | ☐ | ☐ | DF - dis met |
| 1006480-005F | | | | 7/12/2010 | | 3005A-ICPMS-PR | ☐ | ☐ | ☐ | ☐ | DF - total met |
| | | | | 7/12/2010 | | 6010C-W | ☐ | ☐ | ☑ | ☐ | DF - total met |
| | SEL Analytes: FE | | | | | | | | | | |
| | | | | 7/12/2010 | | 6020-W | ☐ | ☐ | ☑ | ☐ | DF - total met |
| | SEL Analytes: MN | | | | | | | | | | |

Client CARBON RESOURCES c/o ROCK LOGIC
Address PO BOX 544
CEDAREDGE CO 81413
City State Zip
Phone 435-851-9044 Fax
Contact BRAD LINDSAY
E-mail ROCKLOGIC CONSULTING@GMAIL.com
Project Name SUFIELD BASELINE
Project Number/P.O.#
Sampler Name BRAD LINDSAY

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# CHAIN OF CUSTODY

Lab Sample Set # 1006480
Page of

Turn Around Time (Circle One)
1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TABLE 3 ATTACHED | PH | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ASPEN SPRING | 6/03/10 / 18:20 | W | 6 | ✓ | ✓ | | | | | | | | |
| SULFUR SPRING | / 19:30 | | | ✓ | ✓ | | | | | | | | |
| RES-1 | / 19:55 | | | ✓ | ✓ | | | | | | | | |
| MILLER OUTLET | / 20:30 | | | ✓ | ✓ | | | | | | | | |
| MUD CREEK | / 21:00 | | | ✓ | ✓ | | | | | | | | |

Please indicate tests needed below

LABORATORY USE ONLY

SAMPLES WERE:
1 Shipped or hand delivered
Notes: UPS
2 Ambient or (Chilled)
Notes:
3 Temperature 4.10
4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:
5 Properly Preserved
(Y) N
Notes:
6 Received Within Holding Times
Y (N)
Notes: pH out of hold

COC Tape Was:
1 Present on Outer Package
(Y) N NA
2 Unbroken on Outer Package
(Y) N NA
3 Present on Sample
Y (N) NA
4 Unbroken on Sample
Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME BRAD LINDSAY | Time 15:30 | PRINT NAME UPS |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date 6/5/10 | Received By: Signature |
| PRINT NAME | Time 935 | PRINT NAME Elma Haywood |

Special Instructions:
FILTER FOR DISSOLVED METALS

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 1006480

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | ~ | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Scofield Baseline

Dear Brad Lindsay: Lab Set ID: 1007245

American West Analytical Laboratories received 1 sample(s) on 7/16/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: _____
Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1007245-001
**Client Sample ID:** CR-10-11
**Collection Date:** 7/15/2010 0600h
**Received Date:** 7/16/2010 0945h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 7/19/2010 1727h | 7/21/2010 1746h | SW6010C | 0.100 | **0.648** | |
| Manganese | mg/L | 7/19/2010 1727h | 7/20/2010 1908h | SW6020A | 0.00120 | **0.00801** | |

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1007245-001
**Client Sample ID:** CR-10-11
**Collection Date:** 7/15/2010 0600h
**Received Date:** 7/16/2010 0945h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 7/16/2010 1825h | 7/20/2010 1627h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 7/16/2010 1825h | 7/19/2010 0202h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 7/16/2010 1825h | 7/20/2010 1627h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 7/16/2010 1825h | 7/19/2010 0202h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 7/16/2010 1825h | 7/20/2010 1558h | SW6010C | 10.0 | **77.9** | [2] |
| Copper | mg/L | 7/16/2010 1825h | 7/19/2010 0202h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 7/16/2010 1825h | 7/20/2010 1627h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 7/16/2010 1825h | 7/19/2010 0202h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 7/16/2010 1825h | 7/20/2010 1627h | SW6010C | 1.00 | **11.9** | |
| Manganese | mg/L | 7/16/2010 1825h | 7/19/2010 0202h | SW6020A | 0.00120 | **0.00213** | |
| Molybdenum | mg/L | 7/16/2010 1825h | 7/20/2010 1758h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 7/16/2010 1825h | 7/20/2010 1627h | SW6010C | 1.00 | < 1.00 | |
| Selenium | mg/L | 7/16/2010 1825h | 7/19/2010 0202h | SW6020A | 0.000800 | **0.00206** | |
| Sodium | mg/L | 7/16/2010 1825h | 7/20/2010 1627h | SW6010C | 1.00 | **11.4** | |
| Zinc | mg/L | 7/16/2010 1825h | 7/19/2010 0202h | SW6020A | 0.00500 | **0.0113** | |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*
*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1007245-001
**Client Sample ID:** CR-10-11
**Collection Date:** 7/15/2010 0600h
**Received Date:** 7/16/2010 0945h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 7/19/2010 0540h | A2310B | 15.0 | **50.0** | |
| Alkalinity (as CaCO3) | mg/L | | 7/19/2010 0610h | A2320B | 20.0 | **212** | |
| Ammonia (as N) | mg/L | 7/28/2010 1510h | 7/29/2010 0923h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 7/19/2010 0610h | A2320B | 20.0 | **212** | |
| Carbonate (as CaCO3) | mg/L | | 7/19/2010 0610h | A2320B | 10.0 | < 10.0 | |
| Chloride | mg/L | | 7/16/2010 1719h | E300.0 | 1.00 | **14.2** | |
| Hardness (as CaCO3) | mg/L | | 7/20/2010 | A2340B | 100 | **243** | |
| Nitrate (as N) | mg/L | | 7/16/2010 1732h | E353.2 | 0.100 | **2.54** | |
| Nitrite (as N) | mg/L | | 7/16/2010 1711h | E353.2 | 0.0100 | < 0.0100 | |
| Phosphate, Total Ortho (as P) | mg/L | | 7/16/2010 1535h | E365.1 | 0.0500 | **0.0584** | [1] |
| Sulfate | mg/L | | 7/16/2010 1719h | E300.0 | 7.50 | **27.4** | |
| Total Dissolved Solids | mg/L | | 7/16/2010 1330h | A2540C | 20.0 | **288** | |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*




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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007245
**Project:** Scofield Baseline

**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-7500 | Aluminum | mg/L | SW6010C | 1.01 | 1.000 | 0 | 101 | 75-125 | | | | 7/20/2010 |
| LCS-7500 | Boron | mg/L | SW6010C | 1.01 | 1.000 | 0 | 101 | 75-125 | | | | 7/20/2010 |
| LCS-7500 | Calcium | mg/L | SW6010C | 10.1 | 10.00 | 0 | 101 | 75-125 | | | | 7/20/2010 |
| LCS-7500 | Iron | mg/L | SW6010C | 0.975 | 1.000 | 0 | 97.5 | 75-125 | | | | 7/20/2010 |
| LCS-7500 | Magnesium | mg/L | SW6010C | 9.96 | 10.00 | 0 | 99.6 | 75-125 | | | | 7/20/2010 |
| LCS-7500 | Molybdenum | mg/L | SW6010C | 0.208 | 0.2000 | 0 | 104 | 75-125 | | | | 7/20/2010 |
| LCS-7500 | Potassium | mg/L | SW6010C | 10.2 | 10.00 | 0 | 102 | 75-125 | | | | 7/20/2010 |
| LCS-7500 | Sodium | mg/L | SW6010C | 10.1 | 10.00 | 0 | 101 | 75-125 | | | | 7/20/2010 |
| LCS-7525 | Iron | mg/L | SW6010C | 1.09 | 1.000 | 0 | 109 | 75-125 | | | | 7/21/2010 |
| LCS-7500 | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 7/19/2010 |
| LCS-7500 | Cadmium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 85-115 | | | | 7/19/2010 |
| LCS-7500 | Copper | mg/L | SW6020A | 0.198 | 0.2000 | 0.0003770 | 98.6 | 85-115 | | | | 7/19/2010 |
| LCS-7500 | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 7/19/2010 |
| LCS-7500 | Manganese | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 7/19/2010 |
| LCS-7500 | Selenium | mg/L | SW6020A | 0.197 | 0.2000 | 0 | 98.3 | 85-115 | | | | 7/19/2010 |
| LCS-7500 | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 85-115 | | | | 7/19/2010 |
| LCS-7525 | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 85-115 | | | | 7/20/2010 |
| LCS-7525 | Cadmium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 85-115 | | | | 7/20/2010 |
| LCS-7525 | Lead | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 102 | 85-115 | | | | 7/20/2010 |
| LCS-7525 | Manganese | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 101 | 85-115 | | | | 7/20/2010 |
| LCS-7525 | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.8 | 85-115 | | | | 7/20/2010 |
| LCS-7525 | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 85-115 | | | | 7/20/2010 |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007245
**Project:** Scofield Baseline

**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-7500 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 7/20/2010 |
| MB-7500 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 7/20/2010 |
| MB-7500 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 7/20/2010 |
| MB-7500 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 7/20/2010 |
| MB-7500 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 7/20/2010 |
| MB-7500 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 7/20/2010 |
| MB-7500 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 7/20/2010 |
| MB-7500 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 7/20/2010 |
| MB-7525 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 7/21/2010 |
| MB-7500 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 7/19/2010 |
| MB-7500 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 7/19/2010 |
| MB-7500 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 7/19/2010 |
| MB-7500 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 7/19/2010 |
| MB-7500 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 7/19/2010 |
| MB-7500 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 7/19/2010 |
| MB-7500 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 7/19/2010 |
| MB-7525 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 7/20/2010 |
| MB-7525 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 7/20/2010 |
| MB-7525 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 7/20/2010 |
| MB-7525 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 7/20/2010 |
| MB-7525 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 7/20/2010 |
| MB-7525 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 7/20/2010 |



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007245
**Project:** Scofield Baseline

**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1007245-001CMS | Aluminum | mg/L | SW6010C | 0.897 | 1.000 | 0 | 89.7 | 75-125 | | | | 7/20/2010 |
| 1007245-001CMS | Boron | mg/L | SW6010C | 1.16 | 1.000 | 0.04860 | 111 | 75-125 | | | | 7/20/2010 |
| 1007245-001CMS | Iron | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 75-125 | | | | 7/20/2010 |
| 1007245-001CMS | Magnesium | mg/L | SW6010C | 22.5 | 10.00 | 11.90 | 106 | 75-125 | | | | 7/20/2010 |
| 1007245-001CMS | Potassium | mg/L | SW6010C | 12.2 | 10.00 | 0.9660 | 112 | 75-125 | | | | 7/20/2010 |
| 1007245-001CMS | Sodium | mg/L | SW6010C | 22.2 | 10.00 | 11.40 | 108 | 75-125 | | | | 7/20/2010 |
| 1007245-001CMS | Calcium | mg/L | SW6010C | 90.6 | 10.00 | 77.90 | 127 | 75-125 | | | 2 | 7/20/2010 |
| 1007245-001CMS | Molybdenum | mg/L | SW6010C | 0.203 | 0.2000 | 0 | 101 | 75-125 | | | | 7/20/2010 |
| 1007230-019AMS | Iron | mg/L | SW6010C | 386 | 10.00 | 384.0 | 20.0 | 75-125 | | | 2 | 7/21/2010 |
| 1007245-001DMS | Iron | mg/L | SW6010C | 1.78 | 1.000 | 0.6480 | 113 | 75-125 | | | | 7/21/2010 |
| 1007232-001AMS | Zinc | mg/L | SW6020A | 1.35 | 1.000 | 0.3742 | 97.8 | 70-130 | | | | 7/19/2010 |
| 1007245-001CMS | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0.0004450 | 99.9 | 70-130 | | | | 7/19/2010 |
| 1007245-001CMS | Cadmium | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 70-130 | | | | 7/19/2010 |
| 1007245-001CMS | Copper | mg/L | SW6020A | 0.195 | 0.2000 | 0.0007930 | 97.3 | 70-130 | | | | 7/19/2010 |
| 1007245-001CMS | Lead | mg/L | SW6020A | 0.204 | 0.2000 | 0.0001090 | 102 | 70-130 | | | | 7/19/2010 |
| 1007245-001CMS | Manganese | mg/L | SW6020A | 0.204 | 0.2000 | 0.002132 | 101 | 70-130 | | | | 7/19/2010 |
| 1007245-001CMS | Selenium | mg/L | SW6020A | 0.199 | 0.2000 | 0.002057 | 98.6 | 70-130 | | | | 7/19/2010 |
| 1007245-001CMS | Zinc | mg/L | SW6020A | 1.00 | 1.000 | 0.01130 | 98.9 | 70-130 | | | | 7/19/2010 |
| 1007245-001DMS | Arsenic | mg/L | SW6020A | 0.198 | 0.2000 | 0.0006200 | 98.8 | 70-130 | | | | 7/20/2010 |
| 1007245-001DMS | Cadmium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 70-130 | | | | 7/20/2010 |
| 1007245-001DMS | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0.0005700 | 100 | 70-130 | | | | 7/20/2010 |
| 1007245-001DMS | Manganese | mg/L | SW6020A | 0.206 | 0.2000 | 0.008008 | 99.0 | 70-130 | | | | 7/20/2010 |
| 1007245-001DMS | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0.001574 | 99.1 | 70-130 | | | | 7/20/2010 |
| 1007245-001DMS | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0.01288 | 99.3 | 70-130 | | | | 7/20/2010 |



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007245
**Project:** Scofield Baseline

**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1007230-019AMS | Manganese | mg/L | SW6020A | 4,130 | 2.000 | 4,209 | -3,990 | 70-130 | | | [2] | 7/20/2010 |
| 1007230-019AMS | Zinc | mg/L | SW6020A | 411 | 10.00 | 411.0 | -4.41 | 70-130 | | | [2] | 7/20/2010 |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007245
**Project:** Scofield Baseline

**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1007245-001CMSD | Aluminum | mg/L | SW6010C | 0.963 | 1.000 | 0 | 96.3 | 75-125 | 7.10 | 20 | | 7/20/2010 |
| 1007245-001CMSD | Boron | mg/L | SW6010C | 1.16 | 1.000 | 0.04860 | 111 | 75-125 | 0 | 20 | | 7/20/2010 |
| 1007245-001CMSD | Iron | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 75-125 | 0.948 | 20 | | 7/20/2010 |
| 1007245-001CMSD | Magnesium | mg/L | SW6010C | 22.2 | 10.00 | 11.90 | 103 | 75-125 | 1.34 | 20 | | 7/20/2010 |
| 1007245-001CMSD | Potassium | mg/L | SW6010C | 12.2 | 10.00 | 0.9660 | 112 | 75-125 | 0 | 20 | | 7/20/2010 |
| 1007245-001CMSD | Sodium | mg/L | SW6010C | 21.9 | 10.00 | 11.40 | 105 | 75-125 | 1.36 | 20 | | 7/20/2010 |
| 1007245-001CMSD | Calcium | mg/L | SW6010C | 90.3 | 10.00 | 77.90 | 124 | 75-125 | 0.332 | 20 | | 7/20/2010 |
| 1007245-001CMSD | Molybdenum | mg/L | SW6010C | 0.203 | 0.2000 | 0 | 101 | 75-125 | 0.126 | 20 | | 7/20/2010 |
| 1007230-019AMSD | Iron | mg/L | SW6010C | 381 | 10.00 | 384.0 | -30.0 | 75-125 | 1.30 | 20 | 2 | 7/21/2010 |
| 1007245-001DMSD | Iron | mg/L | SW6010C | 1.78 | 1.000 | 0.6480 | 113 | 75-125 | 0 | 20 | | 7/21/2010 |
| 1007232-001AMSD | Zinc | mg/L | SW6020A | 1.38 | 1.000 | 0.3742 | 101 | 70-130 | 1.96 | 20 | | 7/19/2010 |
| 1007245-001CMSD | Arsenic | mg/L | SW6020A | 0.199 | 0.2000 | 0.0004450 | 99.5 | 70-130 | 0.437 | 20 | | 7/19/2010 |
| 1007245-001CMSD | Cadmium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 70-130 | 0.594 | 20 | | 7/19/2010 |
| 1007245-001CMSD | Copper | mg/L | SW6020A | 0.193 | 0.2000 | 0.0007930 | 96.2 | 70-130 | 1.20 | 20 | | 7/19/2010 |
| 1007245-001CMSD | Lead | mg/L | SW6020A | 0.202 | 0.2000 | 0.0001090 | 101 | 70-130 | 0.922 | 20 | | 7/19/2010 |
| 1007245-001CMSD | Manganese | mg/L | SW6020A | 0.203 | 0.2000 | 0.002132 | 100 | 70-130 | 0.744 | 20 | | 7/19/2010 |
| 1007245-001CMSD | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.002057 | 99.9 | 70-130 | 1.27 | 20 | | 7/19/2010 |
| 1007245-001CMSD | Zinc | mg/L | SW6020A | 0.996 | 1.000 | 0.01130 | 98.4 | 70-130 | 0.507 | 20 | | 7/19/2010 |
| 1007245-001DMSD | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0006200 | 100 | 70-130 | 1.37 | 20 | | 7/20/2010 |
| 1007245-001DMSD | Cadmium | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 70-130 | 0.419 | 20 | | 7/20/2010 |
| 1007245-001DMSD | Lead | mg/L | SW6020A | 0.202 | 0.2000 | 0.0005700 | 101 | 70-130 | 0.350 | 20 | | 7/20/2010 |
| 1007245-001DMSD | Manganese | mg/L | SW6020A | 0.208 | 0.2000 | 0.008008 | 99.8 | 70-130 | 0.692 | 20 | | 7/20/2010 |
| 1007245-001DMSD | Selenium | mg/L | SW6020A | 0.199 | 0.2000 | 0.001574 | 98.7 | 70-130 | 0.421 | 20 | | 7/20/2010 |
| 1007245-001DMSD | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0.01288 | 100 | 70-130 | 0.735 | 20 | | 7/20/2010 |



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Kyle F. Gross
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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007245
**Project:** Scofield Baseline

**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1007230-019AMSD | Manganese | mg/L | SW6020A | 4,080 | 2.000 | 4,209 | -6,280 | 70-130 | 1.11 | 20 | 2 | 7/20/2010 |
| 1007230-019AMSD | Zinc | mg/L | SW6020A | 408 | 10.00 | 411.0 | -28.6 | 70-130 | 0.592 | 20 | 2 | 7/20/2010 |

*2 - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007245
**Project:** Scofield Baseline

**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1007213-001EDUP | Total Dissolved Solids | mg/L | A2540C | 620 | | 620.0 | | - | 0 | 5 | | 7/16/2010 |
| 1007245-001EDUP | Total Dissolved Solids | mg/L | A2540C | 304 | | 288.0 | | - | 5.41 | 5 | | 7/16/2010 |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007245
**Project:** Scofield Baseline

**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R16444 | Chloride | mg/L | E300.0 | 4.75 | 5.000 | 0 | 95.0 | 90-110 | | | | 7/16/2010 |
| LCS-R16444 | Sulfate | mg/L | E300.0 | 5.04 | 5.000 | 0 | 101 | 90-110 | | | | 7/16/2010 |
| LCS-R16439 | Acidity | mg/L | A2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | | | | 7/19/2010 |
| LCS-R16440 | Alkalinity (as CaCO3) | mg/L | A2320B | 49,900 | 50,000 | 0 | 99.8 | 90-110 | | | | 7/19/2010 |
| LCS-7611 | Ammonia (as N) | mg/L | E350.1 | 0.910 | 1.000 | 0 | 91.0 | 90-110 | | | | 7/27/2010 |
| LCS-7666 | Ammonia (as N) | mg/L | E350.1 | 0.946 | 1.000 | 0 | 94.6 | 90-110 | | | | 7/29/2010 |
| LCS-R16431 | Nitrite (as N) | mg/L | E353.2 | 1.03 | 1.000 | 0 | 103 | 90-110 | | | | 7/16/2010 |
| LCS-R16430 | Nitrate (as N) | mg/L | E353.2 | 0.995 | 1.000 | 0 | 99.5 | 90-110 | | | | 7/16/2010 |
| LCS-R16422 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.901 | 1.000 | 0 | 90.1 | 90-110 | | | | 7/16/2010 |
| LCS-R16479 | Total Dissolved Solids | mg/L | A2540C | 200 | 205.0 | 0 | 97.6 | 80-120 | | | | 7/16/2010 |



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Jose Rocha
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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007245
**Project:** Scofield Baseline

**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R16444 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | | 7/16/2010 |
| MB-R16444 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 7/16/2010 |
| MB-R16439 | Acidity | mg/L | A2310B | < 15.0 | | | | - | | | | 7/19/2010 |
| MB-R16440 | Alkalinity (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 7/19/2010 |
| MB-R16440 | Bicarbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 7/19/2010 |
| MB-R16440 | Carbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 7/19/2010 |
| MB-7611 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 7/27/2010 |
| MB-7666 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 7/29/2010 |
| MB-R16431 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 7/16/2010 |
| MB-R16430 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 7/16/2010 |
| MB-R16422 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | < 0.0500 | | | | - | | | | 7/16/2010 |
| MB-R16479 | Total Dissolved Solids | mg/L | A2540C | < 10.0 | | | | - | | | | 7/16/2010 |



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e-mail: awal@awal-labs.com, web: www.awal-labs.com

Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007245
**Project:** Scofield Baseline

**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1007245-001AMS | Chloride | mg/L | E300.0 | 62.7 | 50.00 | 14.22 | 96.9 | 90-110 | | | | 7/16/2010 |
| 1007245-001AMS | Sulfate | mg/L | E300.0 | 75.4 | 50.00 | 27.38 | 96.0 | 90-110 | | | | 7/16/2010 |
| 1007245-001AMS | Acidity | mg/L | A2310B | 102 | 50.00 | 50.00 | 104 | 80-120 | | | | 7/19/2010 |
| 1007213-001AMS | Acidity | mg/L | A2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | | | | 7/19/2010 |
| 1007245-001AMS | Alkalinity (as CaCO3) | mg/L | A2320B | 313 | 100.0 | 212.0 | 101 | 80-120 | | | | 7/19/2010 |
| 1007251-002AMS | Alkalinity (as CaCO3) | mg/L | A2320B | 320 | 100.0 | 222.0 | 98.0 | 80-120 | | | | 7/19/2010 |
| 1007310-005AMS | Ammonia (as N) | mg/L | E350.1 | 11.4 | 1.000 | 10.15 | 130 | 90-110 | | | 2 | 7/27/2010 |
| 1007311-005AMS | Ammonia (as N) | mg/L | E350.1 | 15.1 | 1.000 | 12.98 | 210 | 90-110 | | | 2 | 7/27/2010 |
| 1007245-001BMS | Ammonia (as N) | mg/L | E350.1 | 0.902 | 1.000 | 0 | 90.2 | 90-110 | | | | 7/29/2010 |
| 1007396-005AMS | Ammonia (as N) | mg/L | E350.1 | 6.96 | 1.000 | 4.895 | 206 | 90-110 | | | 1 | 7/29/2010 |
| 1007245-001AMS | Nitrite (as N) | mg/L | E353.2 | 0.972 | 1.000 | 0 | 97.2 | 90-110 | | | | 7/16/2010 |
| 1007245-001AMS | Nitrate (as N) | mg/L | E353.2 | 13.5 | 10.00 | 2.544 | 110 | 90-110 | | | | 7/16/2010 |
| 1007245-001AMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.923 | 1.000 | 0.05840 | 86.5 | 90-110 | | | 1 | 7/16/2010 |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Kyle F. Gross
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QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007245
**Project:** Scofield Baseline

**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1007245-001AMSD | Chloride | mg/L | E300.0 | 62.5 | 50.00 | 14.22 | 96.5 | 90-110 | 0.286 | 20 | | 7/16/2010 |
| 1007245-001AMSD | Sulfate | mg/L | E300.0 | 75.3 | 50.00 | 27.38 | 95.8 | 90-110 | 0.125 | 20 | | 7/16/2010 |
| 1007245-001AMSD | Acidity | mg/L | A2310B | 100 | 50.00 | 50.00 | 100 | 80-120 | 1.98 | 0 | | 7/19/2010 |
| 1007213-001AMSD | Acidity | mg/L | A2310B | 54.0 | 50.00 | 0 | 108 | 80-120 | 7.69 | 0 | | 7/19/2010 |
| 1007245-001AMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 312 | 100.0 | 212.0 | 100 | 80-120 | 0.320 | 10 | | 7/19/2010 |
| 1007251-002AMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 322 | 100.0 | 222.0 | 100 | 80-120 | 0.623 | 10 | | 7/19/2010 |
| 1007310-005AMSD | Ammonia (as N) | mg/L | E350.1 | 11.3 | 1.000 | 10.15 | 115 | 90-110 | 1.31 | 10 | [2] | 7/27/2010 |
| 1007311-005AMSD | Ammonia (as N) | mg/L | E350.1 | 15.0 | 1.000 | 12.98 | 197 | 90-110 | 0.920 | 10 | [2] | 7/27/2010 |
| 1007245-001BMSD | Ammonia (as N) | mg/L | E350.1 | 0.931 | 1.000 | 0 | 93.1 | 90-110 | 3.22 | 10 | | 7/29/2010 |
| 1007396-005AMSD | Ammonia (as N) | mg/L | E350.1 | 6.98 | 1.000 | 4.895 | 209 | 90-110 | 0.346 | 10 | [1] | 7/29/2010 |
| 1007245-001AMSD | Nitrite (as N) | mg/L | E353.2 | 0.980 | 1.000 | 0 | 98.0 | 90-110 | 0.738 | 10 | | 7/16/2010 |
| 1007245-001AMSD | Nitrate (as N) | mg/L | E353.2 | 13.3 | 10.00 | 2.544 | 108 | 90-110 | 1.53 | 10 | | 7/16/2010 |
| 1007245-001AMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.970 | 1.000 | 0.05840 | 91.1 | 90-110 | 4.91 | 10 | | 7/16/2010 |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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# American West Analytical Laboratories

## WORK ORDER Summary

*16-Jul-10*

**Work Order:** 1007245

**WO Type:** Project

| | | | |
|---|---|---|---|
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay |
| **Project ID:** | CAR300-Scofield Baseline | **PM:** | |
| **Project:** | Scofield Baseline | **QC Level:** | LEVEL II+ |
| **ChkList Completed On:** | | **Completed By** | |
| **ChkList Reviewed On:** | | **Reviewed By:** | |
| **WO Reviewed On:** | | **Reviewed By:** | |

**COMMENTS :** QC 2+, EDD; DB

| Sample ID | Client Sample ID | Date Collected | Date Received | Date Due | Matrix | Test Code | Hld | MS | SEL | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1007245-001A | CR-10-11 | 7/15/2010 6:00:00 AM | 7/16/2010 9:45:00 AM | 8/2/2010 | Aqueous | 300.0-W | ☐ | ☐ | ☑ | ☐ | DF - wc |
| | SEL Analytes: CL SO4 | | | | | | | | | | |
| | | | | 8/2/2010 | | ACIDITY-W-2310B | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 8/2/2010 | | ALK-W-2320B | ☐ | ☐ | ☑ | ☐ | DF - wc |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | | | |
| | | | | 8/2/2010 | | NO2-W-353.2 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 8/2/2010 | | NO3-W-353.2 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 8/2/2010 | | PO4-O-365.1 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| 1007245-001B | | | | 8/2/2010 | | NH3-W-350.1 | ☐ | ☐ | ☐ | ☐ | DF - nh3 |
| | | | | 8/2/2010 | | NH3-W-PR | ☐ | ☐ | ☐ | ☐ | DF - nh3 |
| 1007245-001C | | | | 8/2/2010 | | 3005A-DIS-PR | ☐ | ☐ | ☐ | ☐ | DF - dis met |
| | | | | 8/2/2010 | | 6010C-DIS | ☐ | ☐ | ☑ | ☐ | DF - dis met |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | | | |
| | | | | 8/2/2010 | | 6020-DIS | ☐ | ☐ | ☑ | ☐ | DF - dis met |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | | | |
| | | | | 8/2/2010 | | HARD-2340B | ☐ | ☐ | ☐ | ☐ | DF - dis met |
| 1007245-001D | | | | 8/2/2010 | | 3005A-ICPMS-PR | ☐ | ☐ | ☐ | ☐ | DF - total met |
| | | | | 8/2/2010 | | 6010C-W | ☐ | ☐ | ☑ | ☐ | DF - total met |
| | SEL Analytes: FE | | | | | | | | | | |
| | | | | 8/2/2010 | | 6020-W | ☐ | ☐ | ☑ | ☐ | DF - total met |
| | SEL Analytes: MN | | | | | | | | | | |
| 1007245-001E | | | | 8/2/2010 | | TDS-W-2540C | ☐ | ☐ | ☐ | ☐ | ww - tds |

Client Carbon Resources & Rockies

Address P.O. Box 594

Cedaredge CO 81413
City State Zip

Phone 435-859-9044 Fax

Contact Brad Lindsay

E-mail rockiesconsulting@gmail.com

Project Name Seaford Baseline

Project Number/P.O.#

Sampler Name Greg Hunt

AMERICAN WEST ANALYTICAL LABORATORIES
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Salt Lake City, Utah 84115

# CHAIN OF CUSTODY

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Lab Sample Set # 1007245

Page _____ of _____

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day (Standard)

| Sample ID | Date/Time Collected | Matrix (Ground Water) | Number of Containers (Total) | TESTS REQUIRED: Table 4 | TESTS REQUIRED: Uncid'd of as Fe | COMMENTS |
|---|---|---|---|---|---|---|
| CR-10-11 | 7-15-10 @ 6:00 | | | X | | |

QC LEVEL: 1 2 2+ 3 3+ 4

**LABORATORY USE ONLY**

SAMPLES WERE:
1 Shipped or hand delivered (UPS)
2 Ambient or Chilled (on ice)
3 Temperature 14°
4 Received Broken/Leaking (Improperly Sealed) Y (N)
5 Properly Preserved Y N; Checked at Bench Y N
6 Received Within Holding Times (Y) N

Notes:

COC Tape Was:
1 Present on Outer Package (Y) N NA
2 Unbroken on Outer Package (Y) N NA
3 Present on Sample Y (N) NA
4 Unbroken on Sample Y N (NA)

Discrepancies Between Sample Labels and COC Record? Y N

Notes:

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME Greg Hunt | Time 14:45 | PRINT NAME UPS | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time DBT 7/16/10 |
| Relinquished By: Signature | Date | Received By: Signature | Date 7/15/10 |
| PRINT NAME | Time | PRINT NAME Denise Brunn | Time 9:45 |

Special Instructions:

PLEASE FILTER

# Table 4: Ground-Water Monitoring Parameters
## Minimum Requirements and Recommendations
## Baseline, Operational, and Postmining

| | | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|---|
| + | * | - | Water level or Flow | Depth, Flow |
| + | * | - | pH | Standard units |
| + | * | - | Specific Conductivity | umhos/cm @ 25° C |
| | * | - | Temperature | °C |

| | | | LABORATORY MEASUREMENTS | REPORTED AS |
|---|---|---|---|---|
| + | * | - | Total Dissolved Solids | mg/l |
| | * | - | Total Hardness ($CaCO_3$) | mg/l |
| | * | - | Total Alkalinity | mg/l |
| | | - | Acidity | mg/l |
| | | - | Aluminum (Dissolved) | mg/l |
| | | - | Arsenic (Dissolved) | mg/l |
| | | - | Boron (Dissolved) | mg/l |
| | * | - | Carbonate | mg/l |
| | * | - | Bicarbonate | mg/l |
| | | - | Cadmium (Dissolved) | mg/l |
| | * | - | Calcium (Dissolved) | mg/l |
| | * | - | Chloride | mg/l |
| | | - | Copper (Dissolved) | mg/l |
| | * | - | Iron (Dissolved) | mg/l |
| + | * | - | Iron (Total) | mg/l |
| | | - | Lead (Dissolved) | mg/l |
| | * | - | Magnesium (Dissolved) | mg/l |
| | * | - | Manganese (Dissolved) | mg/l |
| + | * | - | Manganese (Total) | mg/l |
| | | - | Molybdenum (Dissolved) | mg/l |
| | | - | Ammonia | mg/l |
| | | - | Nitrates | mg/l |
| | | - | Nitrites | mg/l |
| | * | - | Potassium (Dissolved) | mg/l |
| | | - | Phosphate (Ortho) | mg/l |
| | | - | Selenium (Dissolved) | mg/l |
| | * | - | Sodium (Dissolved) | mg/l |
| | * | - | Sulfate | mg/l |
| | | - | Zinc (Dissolved) | mg/l |
| | * | - | Cations | meq/l |
| | * | - | Anions | meq/l |

\+ Parameters required for Baseline monitoring.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Postmining monitoring

Sample Set: 1007245

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Scofield Baseline

Dear Brad Lindsay:

Lab Set ID: 1007213

American West Analytical Laboratories received 1 sample(s) on 7/15/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: _____
Laboratory Director or designee



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# INORGANIC ANALYTICAL REPORT

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**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1007213-001
**Client Sample ID:** CR-10-12
**Collection Date:** 7/13/2010 2030h
**Received Date:** 7/15/2010 955h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 7/15/2010 1339h | 7/15/2010 1628h | SW6010C | 0.100 | **44.8** | [2] |
| Manganese | mg/L | 7/15/2010 1339h | 7/15/2010 2219h | SW6020A | 0.00600 | **0.559** | |

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1007213-001
**Client Sample ID:** CR-10-12
**Collection Date:** 7/13/2010 2030h
**Received Date:** 7/15/2010 955h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 7/15/2010 1346h | 7/16/2010 1643h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 7/15/2010 1346h | 7/15/2010 1945h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 7/15/2010 1346h | 7/16/2010 1643h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 7/15/2010 1346h | 7/15/2010 1945h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 7/15/2010 1346h | 7/16/2010 1718h | SW6010C | 10.0 | **99.9** | |
| Copper | mg/L | 7/15/2010 1346h | 7/15/2010 1945h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 7/15/2010 1346h | 7/16/2010 1643h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 7/15/2010 1346h | 7/15/2010 1945h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 7/15/2010 1346h | 7/16/2010 1643h | SW6010C | 1.00 | **8.96** | |
| Manganese | mg/L | 7/15/2010 1346h | 7/15/2010 1945h | SW6020A | 0.00120 | < 0.00120 | |
| Molybdenum | mg/L | 7/15/2010 1346h | 7/16/2010 1643h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 7/15/2010 1346h | 7/16/2010 1643h | SW6010C | 1.00 | **1.20** | |
| Selenium | mg/L | 7/15/2010 1346h | 7/15/2010 1945h | SW6020A | 0.000800 | **0.00120** | |
| Sodium | mg/L | 7/15/2010 1346h | 7/16/2010 1643h | SW6010C | 1.00 | **16.1** | |
| Zinc | mg/L | 7/15/2010 1346h | 7/15/2010 1945h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Scofield Baseline
**Lab Sample ID:** 1007213-001
**Client Sample ID:** CR-10-12
**Collection Date:** 7/13/2010 2030h
**Received Date:** 7/15/2010 955h

**Contact:** Brad Lindsay


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Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 7/19/2010 540h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 7/16/2010 800h | A2320B | 20.0 | **175** | |
| Ammonia (as N) | mg/L | 7/15/2010 1414h | 7/19/2010 1350h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 7/16/2010 800h | A2320B | 20.0 | **175** | |
| Carbonate (as CaCO3) | mg/L | | 7/16/2010 800h | A2320B | 10.0 | < 10.0 | |
| Chloride | mg/L | | 7/15/2010 1813h | E300.0 | 1.00 | **21.8** | |
| Hardness (as CaCO3) | mg/L | | 7/16/2010 | A2340B | 100 | **286** | |
| Nitrate (as N) | mg/L | | 7/15/2010 1258h | E353.2 | 0.100 | **6.70** | |
| Nitrite (as N) | mg/L | | 7/15/2010 1239h | E353.2 | 0.0100 | **0.180** | |
| Phosphate, Total Ortho (as P) | mg/L | | 7/15/2010 1130h | E365.1 | 0.0500 | **0.379** | |
| Sulfate | mg/L | | 7/15/2010 1813h | E300.0 | 7.50 | **73.9** | |
| Total Dissolved Solids | mg/L | | 7/16/2010 1330h | A2540C | 100 | **620** | |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*




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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007213
**Project:** Scofield Baseline

**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-7476 | Aluminum | mg/L | SW6010C | 0.978 | 1.000 | 0 | 97.8 | 75-125 | | | | 7/16/2010 |
| LCS-7476 | Boron | mg/L | SW6010C | 1.02 | 1.000 | 0 | 102 | 75-125 | | | | 7/16/2010 |
| LCS-7476 | Calcium | mg/L | SW6010C | 10.1 | 10.00 | 0 | 101 | 75-125 | | | | 7/16/2010 |
| LCS-7476 | Iron | mg/L | SW6010C | 0.965 | 1.000 | 0 | 96.5 | 75-125 | | | | 7/16/2010 |
| LCS-7476 | Magnesium | mg/L | SW6010C | 9.96 | 10.00 | 0 | 99.6 | 75-125 | | | | 7/16/2010 |
| LCS-7476 | Molybdenum | mg/L | SW6010C | 0.195 | 0.2000 | 0 | 97.4 | 75-125 | | | | 7/16/2010 |
| LCS-7476 | Potassium | mg/L | SW6010C | 9.96 | 10.00 | 0 | 99.6 | 75-125 | | | | 7/16/2010 |
| LCS-7476 | Sodium | mg/L | SW6010C | 9.95 | 10.00 | 0 | 99.5 | 75-125 | | | | 7/16/2010 |
| LCS-7474 | Iron | mg/L | SW6010C | 1.09 | 1.000 | 0 | 109 | 75-125 | | | | 7/15/2010 |
| LCS-7476 | Arsenic | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 101 | 85-115 | | | | 7/15/2010 |
| LCS-7476 | Cadmium | mg/L | SW6020A | 0.205 | 0.2000 | 0 | 102 | 85-115 | | | | 7/15/2010 |
| LCS-7476 | Copper | mg/L | SW6020A | 0.204 | 0.2000 | 0.0004490 | 102 | 85-115 | | | | 7/15/2010 |
| LCS-7476 | Lead | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 85-115 | | | | 7/15/2010 |
| LCS-7476 | Manganese | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 102 | 85-115 | | | | 7/15/2010 |
| LCS-7476 | Selenium | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.7 | 85-115 | | | | 7/15/2010 |
| LCS-7476 | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 85-115 | | | | 7/15/2010 |
| LCS-7474 | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 7/15/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007213
**Project:** Scofield Baseline

**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-7476 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 7/16/2010 |
| MB-7476 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 7/16/2010 |
| MB-7476 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 7/16/2010 |
| MB-7476 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 7/16/2010 |
| MB-7476 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 7/16/2010 |
| MB-7476 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 7/16/2010 |
| MB-7476 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 7/16/2010 |
| MB-7476 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 7/16/2010 |
| MB-7474 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 7/15/2010 |
| MB-7476 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 7/15/2010 |
| MB-7476 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 7/15/2010 |
| MB-7476 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 7/15/2010 |
| MB-7476 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 7/15/2010 |
| MB-7476 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 7/15/2010 |
| MB-7476 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 7/15/2010 |
| MB-7476 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 7/15/2010 |
| MB-7474 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 7/15/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007213
**Project:** Scofield Baseline

**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1007213-001CMS | Aluminum | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 75-125 | | | | 7/16/2010 |
| 1007213-001CMS | Boron | mg/L | SW6010C | 1.19 | 1.000 | 0.01850 | 117 | 75-125 | | | | 7/16/2010 |
| 1007213-001CMS | Iron | mg/L | SW6010C | 1.04 | 1.000 | 0 | 104 | 75-125 | | | | 7/16/2010 |
| 1007213-001CMS | Magnesium | mg/L | SW6010C | 19.3 | 10.00 | 8.956 | 104 | 75-125 | | | | 7/16/2010 |
| 1007213-001CMS | Molybdenum | mg/L | SW6010C | 0.213 | 0.2000 | 0 | 107 | 75-125 | | | | 7/16/2010 |
| 1007213-001CMS | Potassium | mg/L | SW6010C | 11.9 | 10.00 | 1.198 | 107 | 75-125 | | | | 7/16/2010 |
| 1007213-001CMS | Sodium | mg/L | SW6010C | 26.0 | 10.00 | 16.09 | 99.1 | 75-125 | | | | 7/16/2010 |
| 1007213-001CMS | Calcium | mg/L | SW6010C | 108 | 10.00 | 99.85 | 85.4 | 75-125 | | | | 7/16/2010 |
| 1007213-001DMS | Iron | mg/L | SW6010C | 44.9 | 1.000 | 44.80 | 10.0 | 75-125 | | | 2 | 7/15/2010 |
| 1007213-001CMS | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0004410 | 100 | 70-130 | | | | 7/15/2010 |
| 1007213-001CMS | Cadmium | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.6 | 70-130 | | | | 7/15/2010 |
| 1007213-001CMS | Copper | mg/L | SW6020A | 0.198 | 0.2000 | 0.0007820 | 98.8 | 70-130 | | | | 7/15/2010 |
| 1007213-001CMS | Lead | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.3 | 70-130 | | | | 7/15/2010 |
| 1007213-001CMS | Manganese | mg/L | SW6020A | 0.201 | 0.2000 | 0.0005250 | 100 | 70-130 | | | | 7/15/2010 |
| 1007213-001CMS | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0.001199 | 99.4 | 70-130 | | | | 7/15/2010 |
| 1007213-001CMS | Zinc | mg/L | SW6020A | 0.986 | 1.000 | 0 | 98.6 | 70-130 | | | | 7/15/2010 |
| 1007213-001DMS | Manganese | mg/L | SW6020A | 0.745 | 0.2000 | 0.5586 | 93.2 | 70-130 | | | | 7/15/2010 |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007213
**Project:** Scofield Baseline

**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1007213-001CMSD | Aluminum | mg/L | SW6010C | 1.04 | 1.000 | 0 | 104 | 75-125 | 1.18 | 20 | | 7/16/2010 |
| 1007213-001CMSD | Boron | mg/L | SW6010C | 1.19 | 1.000 | 0.01850 | 118 | 75-125 | 0.263 | 20 | | 7/16/2010 |
| 1007213-001CMSD | Iron | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 75-125 | 1.06 | 20 | | 7/16/2010 |
| 1007213-001CMSD | Magnesium | mg/L | SW6010C | 19.7 | 10.00 | 8.956 | 107 | 75-125 | 1.69 | 20 | | 7/16/2010 |
| 1007213-001CMSD | Molybdenum | mg/L | SW6010C | 0.216 | 0.2000 | 0 | 108 | 75-125 | 1.37 | 20 | | 7/16/2010 |
| 1007213-001CMSD | Potassium | mg/L | SW6010C | 11.9 | 10.00 | 1.198 | 107 | 75-125 | 0.109 | 20 | | 7/16/2010 |
| 1007213-001CMSD | Sodium | mg/L | SW6010C | 26.3 | 10.00 | 16.09 | 102 | 75-125 | 1.06 | 20 | | 7/16/2010 |
| 1007213-001CMSD | Calcium | mg/L | SW6010C | 110 | 10.00 | 99.85 | 105 | 75-125 | 1.84 | 20 | | 7/16/2010 |
| 1007213-001DMSD | Iron | mg/L | SW6010C | 44.9 | 1.000 | 44.80 | 10.0 | 75-125 | 0 | 20 | [2] | 7/15/2010 |
| 1007213-001CMSD | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0.0004410 | 99.8 | 70-130 | 0.244 | 20 | | 7/15/2010 |
| 1007213-001CMSD | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 70-130 | 0.576 | 20 | | 7/15/2010 |
| 1007213-001CMSD | Copper | mg/L | SW6020A | 0.197 | 0.2000 | 0.0007820 | 98.2 | 70-130 | 0.694 | 20 | | 7/15/2010 |
| 1007213-001CMSD | Lead | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.3 | 70-130 | 0.00604 | 20 | | 7/15/2010 |
| 1007213-001CMSD | Manganese | mg/L | SW6020A | 0.201 | 0.2000 | 0.0005250 | 100 | 70-130 | 0.167 | 20 | | 7/15/2010 |
| 1007213-001CMSD | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.001199 | 101 | 70-130 | 1.14 | 20 | | 7/15/2010 |
| 1007213-001CMSD | Zinc | mg/L | SW6020A | 0.987 | 1.000 | 0 | 98.7 | 70-130 | 0.169 | 20 | | 7/15/2010 |
| 1007213-001DMSD | Manganese | mg/L | SW6020A | 0.743 | 0.2000 | 0.5586 | 92.3 | 70-130 | 0.257 | 20 | | 7/15/2010 |

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007213
**Project:** Scofield Baseline

**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1007213-001EDUP | Total Dissolved Solids | mg/L | A2540C | 620 | | 620.0 | | - | 0 | 5 | | 7/16/2010 |
| 1007245-001EDUP | Total Dissolved Solids | mg/L | A2540C | 304 | | 288.0 | | - | 5.41 | 5 | | 7/16/2010 |



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Kyle F. Gross
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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007213
**Project:** Scofield Baseline

**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R16407 | Chloride | mg/L | E300.0 | 4.70 | 5.000 | 0 | 94.0 | 90-110 | | | | 7/15/2010 |
| LCS-R16407 | Sulfate | mg/L | E300.0 | 5.09 | 5.000 | 0 | 102 | 90-110 | | | | 7/15/2010 |
| LCS-R16439 | Acidity | mg/L | A2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | | | | 7/19/2010 |
| LCS-R16405 | Alkalinity (as CaCO3) | mg/L | A2320B | 49,900 | 50,000 | 0 | 99.8 | 90-110 | | | | 7/16/2010 |
| LCS-7478 | Ammonia (as N) | mg/L | E350.1 | 0.938 | 1.000 | 0 | 93.8 | 90-110 | | | | 7/19/2010 |
| LCS-R16376 | Nitrite (as N) | mg/L | E353.2 | 1.05 | 1.000 | 0 | 105 | 90-110 | | | | 7/15/2010 |
| LCS-R16377 | Nitrate (as N) | mg/L | E353.2 | 1.05 | 1.000 | 0 | 105 | 90-110 | | | | 7/15/2010 |
| LCS-R16374 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.913 | 1.000 | 0 | 91.3 | 90-110 | | | | 7/15/2010 |
| LCS-R16479 | Total Dissolved Solids | mg/L | A2540C | 200 | 205.0 | 0 | 97.6 | 80-120 | | | | 7/16/2010 |



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007213
**Project:** Scofield Baseline

**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R16407 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | | 7/15/2010 |
| MB-R16407 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 7/15/2010 |
| MB-R16439 | Acidity | mg/L | A2310B | < 15.0 | | | | - | | | | 7/19/2010 |
| MB-R16405 | Alkalinity (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 7/16/2010 |
| MB-R16405 | Bicarbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 7/16/2010 |
| MB-R16405 | Carbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 7/16/2010 |
| MB-7478 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 7/19/2010 |
| MB-R16376 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 7/15/2010 |
| MB-R16377 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 7/15/2010 |
| MB-R16374 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | < 0.0500 | | | | - | | | | 7/15/2010 |
| MB-R16479 | Total Dissolved Solids | mg/L | A2540C | < 10.0 | | | | - | | | | 7/16/2010 |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007213
**Project:** Scofield Baseline

**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1007213-001AMS | Chloride | mg/L | E300.0 | 70.4 | 50.00 | 21.76 | 97.3 | 90-110 | | | | 7/15/2010 |
| 1007213-001AMS | Sulfate | mg/L | E300.0 | 120 | 50.00 | 73.89 | 92.2 | 90-110 | | | | 7/15/2010 |
| 1007245-001AMS | Acidity | mg/L | A2310B | 102 | 50.00 | 50.00 | 104 | 80-120 | | | | 7/19/2010 |
| 1007213-001AMS | Acidity | mg/L | A2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | | | | 7/19/2010 |
| 1007213-001AMS | Alkalinity (as CaCO3) | mg/L | A2320B | 277 | 100.0 | 175.0 | 102 | 80-120 | | | | 7/16/2010 |
| 1007231-001BMS | Alkalinity (as CaCO3) | mg/L | A2320B | 317 | 100.0 | 221.0 | 96.0 | 80-120 | | | | 7/16/2010 |
| 1007210-003AMS | Ammonia (as N) | mg/L | E350.1 | 1.02 | 1.000 | 0.06140 | 95.8 | 90-110 | | | | 7/19/2010 |
| 1007213-001BMS | Ammonia (as N) | mg/L | E350.1 | 0.955 | 1.000 | 0 | 95.5 | 90-110 | | | | 7/19/2010 |
| 1007213-001AMS | Nitrite (as N) | mg/L | E353.2 | 1.20 | 1.000 | 0.1805 | 102 | 90-110 | | | | 7/15/2010 |
| 1007213-001AMS | Nitrate (as N) | mg/L | E353.2 | 17.7 | 10.00 | 6.702 | 110 | 90-110 | | | | 7/15/2010 |
| 1007213-001AMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.40 | 1.000 | 0.3786 | 102 | 90-110 | | | | 7/15/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1007213
**Project:** Scofield Baseline

**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1007213-001AMSD | Chloride | mg/L | E300.0 | 70.3 | 50.00 | 21.76 | 97.1 | 90-110 | 0.0910 | 20 | | 7/15/2010 |
| 1007213-001AMSD | Sulfate | mg/L | E300.0 | 120 | 50.00 | 73.89 | 91.6 | 90-110 | 0.239 | 20 | | 7/15/2010 |
| 1007245-001AMSD | Acidity | mg/L | A2310B | 100 | 50.00 | 50.00 | 100 | 80-120 | 1.98 | 0 | | 7/19/2010 |
| 1007213-001AMSD | Acidity | mg/L | A2310B | 54.0 | 50.00 | 0 | 108 | 80-120 | 7.69 | 0 | | 7/19/2010 |
| 1007213-001AMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 273 | 100.0 | 175.0 | 98.0 | 80-120 | 1.45 | 10 | | 7/16/2010 |
| 1007231-001BMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 319 | 100.0 | 221.0 | 98.0 | 80-120 | 0.629 | 10 | | 7/16/2010 |
| 1007210-003AMSD | Ammonia (as N) | mg/L | E350.1 | 1.05 | 1.000 | 0.06140 | 98.9 | 90-110 | 2.98 | 10 | | 7/19/2010 |
| 1007213-001BMSD | Ammonia (as N) | mg/L | E350.1 | 0.989 | 1.000 | 0 | 98.9 | 90-110 | 3.44 | 10 | | 7/19/2010 |
| 1007213-001AMSD | Nitrite (as N) | mg/L | E353.2 | 1.15 | 1.000 | 0.1805 | 96.8 | 90-110 | 4.53 | 10 | | 7/15/2010 |
| 1007213-001AMSD | Nitrate (as N) | mg/L | E353.2 | 17.8 | 10.00 | 6.702 | 111 | 90-110 | 0.273 | 10 | [1] | 7/15/2010 |
| 1007213-001AMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.38 | 1.000 | 0.3786 | 101 | 90-110 | 1.16 | 10 | | 7/15/2010 |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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# American West Analytical Laboratories

## WORK ORDER Summary

*15-Jul-10*

**Work Order:** 1007213

**WO Type:** Project

| | | | |
|---|---|---|---|
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay |
| **Project ID:** | CAR300-Scofield Baseline | **PM:** | |
| **Project:** | Scofield Baseline | **QC Level:** | LEVEL II+ |
| **ChkList Completed On:** | | **Completed By** | |
| **ChkList Reviewed On:** | | **Reviewed By:** | |
| **WO Reviewed On:** | | **Reviewed By:** | HKB |

**COMMENTS :** QC 2+, EDD; DB

| Sample ID | Client Sample ID | Date Collected | Date Received | Date Due | Matrix | Test Code | Hld | MS | SEL | Sub | Storage |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1007213-001A | CR-10-12 | 7/13/2010 8:30:00 PM | 7/15/2010 9:55:00 AM | 7/29/2010 | Aqueous | 300.0-W | ☐ | ☐ | ☑ | ☐ | DF - wc |
| | SEL Analytes: CL SO4 | | | | | | | | | | |
| | | | | 7/29/2010 | | ACIDITY-W-2310B | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/29/2010 | | ALK-W-2320B | ☐ | ☐ | ☑ | ☐ | DF - wc |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | | | |
| | | | | 7/29/2010 | | NO2-W-353.2 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/29/2010 | | NO3-W-353.2 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| | | | | 7/29/2010 | | PO4-O-365.1 | ☐ | ☐ | ☐ | ☐ | DF - wc |
| 1007213-001B | | | | 7/29/2010 | | NH3-W-350.1 | ☐ | ☐ | ☐ | ☐ | DF - nh3 |
| | | | | 7/29/2010 | | NH3-W-PR | ☐ | ☐ | ☐ | ☐ | DF - nh3 |
| 1007213-001C | | | | 7/29/2010 | | 3005A-DIS-PR | ☐ | ☐ | ☐ | ☐ | DF - dis met |
| | | | | 7/29/2010 | | 6010C-DIS | ☐ | ☐ | ☑ | ☐ | DF - dis met |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | | | |
| | | | | 7/29/2010 | | 6020-DIS | ☐ | ☐ | ☑ | ☐ | DF - dis met |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | | | |
| | | | | 7/29/2010 | | HARD-2340B | ☐ | ☐ | ☐ | ☐ | DF - dis met |
| 1007213-001D | | | | 7/29/2010 | | 3005A-ICPMS-PR | ☐ | ☐ | ☐ | ☐ | DF - total met |
| | | | | 7/29/2010 | | 6010C-W | ☐ | ☐ | ☑ | ☐ | DF - total met |
| | SEL Analytes: FE | | | | | | | | | | |
| | | | | 7/29/2010 | | 6020-W | ☐ | ☐ | ☑ | ☐ | DF - total met |
| | SEL Analytes: MN | | | | | | | | | | |
| 1007213-001E | | | | 7/29/2010 | | TDS-W-2540C | ☐ | ☐ | ☐ | ☐ | ww - tds |

Client Carbon Resources & Rock Logic

Address P.O. Box 544

Cedaredge, CO 81413
City State Zip

Phone 435 851-9044 Fax

Contact Brad Lindsay

E-mail RockLogicConsulting@gmail.com

Project Name Scofield Baseline

Project Number/P.O.# —

Sampler Name Greg Hunt


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# CHAIN OF CUSTODY

Lab Sample Set # 1007213

Page _____ of _____

*Turn Around Time (Circle One)*

1 day 2 day 3 day 4 day 5 day (Standard)
QC 1 2 2+ 3 3+ 4

**Please indicate tests needed below**

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | Table 4 + Included on PR | | | | | | | | | | | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CR-10-12 | 7-13-10 | GW | 5 | ✓ | | | | | | | | | | | |
| | @ 2013O | | | | | | | | | | | | | | |
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| Relinquished By: *Signature* | Date | Received By: *Signature* |
|---|---|---|
| PRINT NAME Greg Hunt | Time 16:45 | PRINT NAME |
| Relinquished By: *Signature* | Date | Received By: *Signature* UPS |
| PRINT NAME | Time | PRINT NAME |

| Relinquished By: *Signature* | Date | Received By: *Signature* |
|---|---|---|
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: *Signature* | Date 7/15/10 | Received By: *Signature* Denise Brown |
| PRINT NAME | Time 9:55 | PRINT NAME Denise Brown |

Special Instructions:

PLEASE FILTER

*Table 4 per Brad Gikes-
DB 7/16/10

**LABORATORY USE ONLY**

SAMPLES WERE:
1 Shipped or hand delivered
Notes: UPS DB 7/15/10
2 Ambient or Chilled
Notes: on ice
3 Temperature 14.3°
4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:
5 Properly Preserved
(Y) N
Notes:
6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:
1 Present on Outer Package (Y) N NA
2 Unbroken on Outer Package (Y) N NA
3 Present on Sample Y (N) NA
4 Unbroken on Sample Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

# Table 4: Ground-Water Monitoring Parameters
## Minimum Requirements and Recommendations
## Baseline, Operational, and Postmining

| | | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|---|
| + | * | - | Water level or Flow | Depth, Flow |
| + | * | - | pH | Standard units |
| + | * | - | Specific Conductivity | umhos/cm @ 25° C |
| | * | - | Temperature | °C |

| | | | LABORATORY MEASUREMENTS | REPORTED AS |
|---|---|---|---|---|
| + | * | - | Total Dissolved Solids | mg/l |
| | * | - | Total Hardness ($CaCO_3$) | mg/l |
| | * | - | Total Alkalinity | mg/l |
| | | - | Acidity | mg/l |
| | | - | Aluminum (Dissolved) | mg/l |
| | | - | Arsenic (Dissolved) | mg/l |
| | | - | Boron (Dissolved) | mg/l |
| | * | - | Carbonate | mg/l |
| | * | - | Bicarbonate | mg/l |
| | | - | Cadmium (Dissolved) | mg/l |
| | * | - | Calcium (Dissolved) | mg/l |
| | * | - | Chloride | mg/l |
| | | - | Copper (Dissolved) | mg/l |
| | * | - | Iron (Dissolved) | mg/l |
| + | * | - | Iron (Total) | mg/l |
| | | - | Lead (Dissolved) | mg/l |
| | * | - | Magnesium (Dissolved) | mg/l |
| | * | - | Manganese (Dissolved) | mg/l |
| + | * | - | Manganese (Total) | mg/l |
| | | - | Molybdenum (Dissolved) | mg/l |
| | | - | Ammonia | mg/l |
| | | - | Nitrates | mg/l |
| | | - | Nitrites | mg/l |
| | * | - | Potassium (Dissolved) | mg/l |
| | | - | Phosphate (Ortho) | mg/l |
| | | - | Selenium (Dissolved) | mg/l |
| | * | - | Sodium (Dissolved) | mg/l |
| | * | - | Sulfate | mg/l |
| | | - | Zinc (Dissolved) | mg/l |
| | * | - | Cations | meq/l |
| | * | - | Anions | meq/l |

\+ Parameters required for Baseline monitoring.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Postmining monitoring

Sample Set: 1007213

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
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Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

## Denise Bruun

**To:** rocklogicconsulting@gmail.com
**Subject:** AWAL Lab Set 1007213 - Scofield Baseline
**Attachments:** 1007231 - COC and Attached Table 4.pdf

Brad,

Attached is a copy of the Chain of Custody and the attached Table 4 we received with your samples on 7-15-10. As you can see on the chain of custody, it says to use Table 3. However, it was Table 4 that we prepared bottles for and which was attached to your chain of custody. We are assuming you want the analysis for Table 4, but if you really do need Table 3, please let us know as soon as possible so we can send more sample bottles for the volume we don't have.

Thank You,

Denise Bruun
Customer Service Representative

**American West Analytical Labs**
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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Kinney #2 Baseline

Dear Brad Lindsay: Lab Set ID: 1009035

American West Analytical Laboratories received 2 sample(s) on 9/2/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: _____
Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney #2 Baseline
**Lab Sample ID:** 1009035-001
**Client Sample ID:** CR-10-11
**Collection Date:** 8/31/2010 1730h
**Received Date:** 9/2/2010 1030h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 9/5/2010 1211h | 9/8/2010 1722h | SW6010C | 0.100 | **22.7** | |
| Manganese | mg/L | 9/5/2010 1211h | 9/6/2010 0513h | SW6020A | 0.00120 | **0.437** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney #2 Baseline
**Lab Sample ID:** 1009035-002
**Client Sample ID:** CR-10-12
**Collection Date:** 8/31/2010 1830h
**Received Date:** 9/2/2010 1030h


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## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 9/5/2010 1211h | 9/8/2010 1737h | SW6010C | 0.100 | **3.01** | |
| Manganese | mg/L | 9/5/2010 1211h | 9/6/2010 0542h | SW6020A | 0.00120 | **0.0287** | |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney #2 Baseline
**Lab Sample ID:** 1009035-001
**Client Sample ID:** CR-10-11
**Collection Date:** 8/31/2010 1730h
**Received Date:** 9/2/2010 1030h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 9/3/2010 1334h | 9/14/2010 1618h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 9/3/2010 1334h | 9/6/2010 0407h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 9/3/2010 1334h | 9/14/2010 1618h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 9/3/2010 1334h | 9/6/2010 0407h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 9/3/2010 1334h | 9/14/2010 1544h | SW6010C | 10.0 | **82.3** | 2 |
| Copper | mg/L | 9/3/2010 1334h | 9/6/2010 0407h | SW6020A | 0.000800 | **0.00140** | |
| Iron | mg/L | 9/3/2010 1334h | 9/14/2010 1618h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 9/3/2010 1334h | 9/6/2010 0407h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 9/3/2010 1334h | 9/14/2010 1618h | SW6010C | 1.00 | **12.4** | |
| Manganese | mg/L | 9/3/2010 1334h | 9/6/2010 0407h | SW6020A | 0.00120 | **0.0182** | |
| Molybdenum | mg/L | 9/3/2010 1334h | 9/14/2010 1618h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 9/3/2010 1334h | 9/14/2010 1618h | SW6010C | 1.00 | **1.27** | |
| Selenium | mg/L | 9/3/2010 1334h | 9/6/2010 0407h | SW6020A | 0.000800 | **0.00130** | |
| Sodium | mg/L | 9/3/2010 1334h | 9/14/2010 1618h | SW6010C | 1.00 | **11.5** | |
| Zinc | mg/L | 9/3/2010 1334h | 9/6/2010 0407h | SW6020A | 0.00500 | **0.00958** | |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*
*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney #2 Baseline
**Lab Sample ID:** 1009035-002
**Client Sample ID:** CR-10-12
**Collection Date:** 8/31/2010 1830h
**Received Date:** 9/2/2010 1030h


**AMERICAN WEST ANALYTICAL LABORATORIES**

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 9/3/2010 1334h | 9/14/2010 1633h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 9/3/2010 1334h | 9/6/2010 0436h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 9/3/2010 1334h | 9/14/2010 1633h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 9/3/2010 1334h | 9/6/2010 0436h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 9/3/2010 1334h | 9/14/2010 1556h | SW6010C | 10.0 | **66.2** | |
| Copper | mg/L | 9/3/2010 1334h | 9/6/2010 0436h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 9/3/2010 1334h | 9/14/2010 1633h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 9/3/2010 1334h | 9/6/2010 0436h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 9/3/2010 1334h | 9/14/2010 1633h | SW6010C | 1.00 | **6.10** | |
| Manganese | mg/L | 9/3/2010 1334h | 9/6/2010 0436h | SW6020A | 0.00120 | **0.00212** | |
| Molybdenum | mg/L | 9/3/2010 1334h | 9/14/2010 1633h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 9/3/2010 1334h | 9/14/2010 1633h | SW6010C | 1.00 | **1.04** | |
| Selenium | mg/L | 9/3/2010 1334h | 9/6/2010 0436h | SW6020A | 0.000800 | **0.000870** | |
| Sodium | mg/L | 9/3/2010 1334h | 9/14/2010 1633h | SW6010C | 1.00 | **25.7** | |
| Zinc | mg/L | 9/3/2010 1334h | 9/6/2010 0436h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney #2 Baseline
**Lab Sample ID:** 1009035-001
**Client Sample ID:** CR-10-11
**Collection Date:** 8/31/2010 1730h
**Received Date:** 9/2/2010 1030h


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Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 9/3/2010 1030h | A2310B | 15.0 | **46.0** | |
| Alkalinity (as CaCO3) | mg/L | | 9/3/2010 0920h | A2320B | 20.0 | **214** | |
| Ammonia (as N) | mg/L | 9/10/2010 1605h | 9/14/2010 0830h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 9/3/2010 0920h | A2320B | 20.0 | **214** | |
| Carbonate (as CaCO3) | mg/L | | 9/3/2010 0920h | A2320B | 10.0 | < 10.0 | |
| Chloride | mg/L | | 9/2/2010 2053h | E300.0 | 0.500 | **14.7** | |
| Hardness (as CaCO3) | mg/L | | 9/14/2010 | A2340B | 10.0 | **257** | |
| Nitrate (as N) | mg/L | | 9/2/2010 1347h | E353.2 | 0.100 | **2.54** | 1 |
| Nitrite (as N) | mg/L | | 9/2/2010 1327h | E353.2 | 0.0100 | **0.0828** | |
| Oil & Grease | mg/L | | 9/7/2010 1431h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total Ortho (as P) | mg/L | | 9/2/2010 1238h | E365.1 | 0.0500 | **0.225** | |
| Settleable Solids | mL/L | | 9/2/2010 1210h | A2540F | 0.100 | **6.50** | |
| Sulfate | mg/L | | 9/2/2010 2053h | E300.0 | 3.75 | **28.3** | |
| Total Dissolved Solids | mg/L | | 9/2/2010 1400h | A2540C | 50.0 | **470** | |
| Total Suspended Solids | mg/L | | 9/2/2010 1545h | A2540D | 30.0 | **2,690** | |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney #2 Baseline
**Lab Sample ID:** 1009035-002
**Client Sample ID:** CR-10-12
**Collection Date:** 8/31/2010 1830h
**Received Date:** 9/2/2010 1030h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 9/3/2010 1030h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 9/3/2010 0920h | A2320B | 20.0 | **175** | |
| Ammonia (as N) | mg/L | 9/10/2010 1605h | 9/14/2010 0834h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 9/3/2010 0920h | A2320B | 20.0 | **175** | |
| Carbonate (as CaCO3) | mg/L | | 9/3/2010 0920h | A2320B | 10.0 | < 10.0 | |
| Chloride | mg/L | | 9/2/2010 2203h | E300.0 | 0.500 | **18.8** | |
| Hardness (as CaCO3) | mg/L | | 9/14/2010 | A2340B | 10.0 | **191** | |
| Nitrate (as N) | mg/L | | 9/2/2010 1351h | E353.2 | 0.100 | **5.17** | |
| Nitrite (as N) | mg/L | | 9/2/2010 1333h | E353.2 | 0.0100 | **0.0426** | |
| Oil & Grease | mg/L | | 9/7/2010 1431h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total Ortho (as P) | mg/L | | 9/2/2010 1241h | E365.1 | 0.0500 | **0.0907** | |
| Settleable Solids | mL/L | | 9/2/2010 1210h | A2540F | 0.100 | < 0.100 | |
| Sulfate | mg/L | | 9/2/2010 2203h | E300.0 | 3.75 | **37.1** | |
| Total Dissolved Solids | mg/L | | 9/2/2010 1400h | A2540C | 20.0 | **308** | @ |
| Total Suspended Solids | mg/L | | 9/2/2010 1545h | A2540D | 3.00 | **95.0** | |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*




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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009035
**Project:** Kinney #2 Baseline

**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-8314 | Aluminum | mg/L | SW6010C | 1.00 | 1.000 | 0 | 100 | 80-120 | | | | 9/14/2010 |
| LCS-8314 | Boron | mg/L | SW6010C | 1.02 | 1.000 | 0 | 102 | 80-120 | | | | 9/14/2010 |
| LCS-8314 | Calcium | mg/L | SW6010C | 9.95 | 10.00 | 0 | 99.5 | 80-120 | | | | 9/14/2010 |
| LCS-8314 | Iron | mg/L | SW6010C | 1.01 | 1.000 | 0 | 101 | 80-120 | | | | 9/14/2010 |
| LCS-8314 | Magnesium | mg/L | SW6010C | 10.4 | 10.00 | 0 | 104 | 80-120 | | | | 9/14/2010 |
| LCS-8314 | Molybdenum | mg/L | SW6010C | 0.194 | 0.2000 | 0 | 97.0 | 80-120 | | | | 9/14/2010 |
| LCS-8314 | Potassium | mg/L | SW6010C | 10.3 | 10.00 | 0 | 103 | 80-120 | | | | 9/14/2010 |
| LCS-8314 | Sodium | mg/L | SW6010C | 9.98 | 10.00 | 0 | 99.8 | 80-120 | | | | 9/14/2010 |
| LCS-8325 | Calcium | mg/L | SW6010C | 11.4 | 10.00 | 0 | 114 | 80-120 | | | | 9/8/2010 |
| LCS-8325 | Iron | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 80-120 | | | | 9/8/2010 |
| LCS-8325 | Magnesium | mg/L | SW6010C | 11.1 | 10.00 | 0 | 111 | 80-120 | | | | 9/8/2010 |
| LCS-8325 | Potassium | mg/L | SW6010C | 10.8 | 10.00 | 0 | 108 | 80-120 | | | | 9/8/2010 |
| LCS-8325 | Sodium | mg/L | SW6010C | 10.2 | 10.00 | 0 | 102 | 80-120 | | | | 9/8/2010 |
| LCS-8314 | Arsenic | mg/L | SW6020A | 0.205 | 0.2000 | 0 | 103 | 85-115 | | | | 9/6/2010 |
| LCS-8314 | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.8 | 85-115 | | | | 9/6/2010 |
| LCS-8314 | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 9/6/2010 |
| LCS-8314 | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 85-115 | | | | 9/6/2010 |
| LCS-8314 | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 85-115 | | | | 9/6/2010 |
| LCS-8314 | Selenium | mg/L | SW6020A | 0.199 | 0.2000 | 0.0001510 | 99.2 | 85-115 | | | | 9/6/2010 |
| LCS-8314 | Zinc | mg/L | SW6020A | 0.998 | 1.000 | 0 | 99.8 | 85-115 | | | | 9/6/2010 |
| LCS-8325 | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 9/6/2010 |
| LCS-8325 | Manganese | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 102 | 85-115 | | | | 9/6/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009035
**Project:** Kinney #2 Baseline

**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-8314 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 9/14/2010 |
| MB-8314 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 9/14/2010 |
| MB-8314 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 9/14/2010 |
| MB-8314 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 9/14/2010 |
| MB-8314 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 9/14/2010 |
| MB-8314 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 9/14/2010 |
| MB-8314 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 9/14/2010 |
| MB-8314 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 9/14/2010 |
| MB-8325 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 9/8/2010 |
| MB-8325 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 9/8/2010 |
| MB-8325 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 9/8/2010 |
| MB-8325 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 9/8/2010 |
| MB-8325 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 9/8/2010 |
| MB-8314 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 9/6/2010 |
| MB-8314 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 9/6/2010 |
| MB-8314 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 9/6/2010 |
| MB-8314 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 9/6/2010 |
| MB-8314 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 9/6/2010 |
| MB-8314 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 9/6/2010 |
| MB-8314 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 9/6/2010 |
| MB-8325 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 9/6/2010 |
| MB-8325 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 9/6/2010 |



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Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009035
**Project:** Kinney #2 Baseline

**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009035-001EMS | Aluminum | mg/L | SW6010C | 1.07 | 1.000 | 0 | 107 | 75-125 | | | | 9/14/2010 |
| 1009035-001EMS | Boron | mg/L | SW6010C | 1.20 | 1.000 | 0.03100 | 117 | 75-125 | | | | 9/14/2010 |
| 1009035-001EMS | Iron | mg/L | SW6010C | 1.02 | 1.000 | 0 | 102 | 75-125 | | | | 9/14/2010 |
| 1009035-001EMS | Magnesium | mg/L | SW6010C | 23.2 | 10.00 | 12.40 | 108 | 75-125 | | | | 9/14/2010 |
| 1009035-001EMS | Molybdenum | mg/L | SW6010C | 0.208 | 0.2000 | 0 | 104 | 75-125 | | | | 9/14/2010 |
| 1009035-001EMS | Potassium | mg/L | SW6010C | 12.1 | 10.00 | 1.270 | 108 | 75-125 | | | | 9/14/2010 |
| 1009035-001EMS | Sodium | mg/L | SW6010C | 21.9 | 10.00 | 11.50 | 104 | 75-125 | | | | 9/14/2010 |
| 1009035-001EMS | Calcium | mg/L | SW6010C | 95.1 | 10.00 | 82.33 | 128 | 75-125 | | | [2] | 9/14/2010 |
| 1009035-001FMS | Iron | mg/L | SW6010C | 23.6 | 1.000 | 22.70 | 90.0 | 75-125 | | | | 9/8/2010 |
| 1009035-001FMS | Potassium | mg/L | SW6010C | 19.2 | 10.00 | 6.790 | 124 | 75-125 | | | | 9/8/2010 |
| 1009035-001FMS | Sodium | mg/L | SW6010C | 22.0 | 10.00 | 11.60 | 104 | 75-125 | | | | 9/8/2010 |
| 1009035-001FMS | Calcium | mg/L | SW6010C | 141 | 10.00 | 133.0 | 80.0 | 75-125 | | | | 9/8/2010 |
| 1009035-001FMS | Magnesium | mg/L | SW6010C | 29.3 | 10.00 | 18.60 | 107 | 75-125 | | | | 9/8/2010 |
| 1009035-001EMS | Arsenic | mg/L | SW6020A | 0.207 | 0.2000 | 0.0005070 | 103 | 75-125 | | | | 9/6/2010 |
| 1009035-001EMS | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0.00005300 | 100 | 75-125 | | | | 9/6/2010 |
| 1009035-001EMS | Copper | mg/L | SW6020A | 0.196 | 0.2000 | 0.001398 | 97.3 | 75-125 | | | | 9/6/2010 |
| 1009035-001EMS | Lead | mg/L | SW6020A | 0.204 | 0.2000 | 0 | 102 | 75-125 | | | | 9/6/2010 |
| 1009035-001EMS | Manganese | mg/L | SW6020A | 0.220 | 0.2000 | 0.01820 | 101 | 75-125 | | | | 9/6/2010 |
| 1009035-001EMS | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0.001295 | 99.1 | 75-125 | | | | 9/6/2010 |
| 1009035-001EMS | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0.009585 | 100 | 75-125 | | | | 9/6/2010 |
| 1009035-001FMS | Lead | mg/L | SW6020A | 0.219 | 0.2000 | 0.02460 | 97.4 | 75-125 | | | | 9/6/2010 |
| 1009035-001FMS | Manganese | mg/L | SW6020A | 0.591 | 0.2000 | 0.4372 | 77.1 | 75-125 | | | | 9/6/2010 |

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009035
**Project:** Kinney #2 Baseline

**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009035-001EMSD | Aluminum | mg/L | SW6010C | 1.03 | 1.000 | 0 | 103 | 75-125 | 3.81 | 20 | | 9/14/2010 |
| 1009035-001EMSD | Boron | mg/L | SW6010C | 1.18 | 1.000 | 0.03100 | 115 | 75-125 | 1.68 | 20 | | 9/14/2010 |
| 1009035-001EMSD | Iron | mg/L | SW6010C | 1.01 | 1.000 | 0 | 101 | 75-125 | 0.985 | 20 | | 9/14/2010 |
| 1009035-001EMSD | Magnesium | mg/L | SW6010C | 22.7 | 10.00 | 12.40 | 103 | 75-125 | 2.18 | 20 | | 9/14/2010 |
| 1009035-001EMSD | Molybdenum | mg/L | SW6010C | 0.204 | 0.2000 | 0 | 102 | 75-125 | 1.94 | 20 | | 9/14/2010 |
| 1009035-001EMSD | Potassium | mg/L | SW6010C | 11.8 | 10.00 | 1.270 | 105 | 75-125 | 2.51 | 20 | | 9/14/2010 |
| 1009035-001EMSD | Sodium | mg/L | SW6010C | 21.4 | 10.00 | 11.50 | 99.0 | 75-125 | 2.31 | 20 | | 9/14/2010 |
| 1009035-001EMSD | Calcium | mg/L | SW6010C | 89.5 | 10.00 | 82.33 | 71.2 | 75-125 | 6.16 | 20 | [2] | 9/14/2010 |
| 1009035-001FMSD | Iron | mg/L | SW6010C | 23.5 | 1.000 | 22.70 | 80.0 | 75-125 | 0.425 | 20 | | 9/8/2010 |
| 1009035-001FMSD | Potassium | mg/L | SW6010C | 18.9 | 10.00 | 6.790 | 121 | 75-125 | 1.57 | 20 | | 9/8/2010 |
| 1009035-001FMSD | Sodium | mg/L | SW6010C | 22.1 | 10.00 | 11.60 | 105 | 75-125 | 0.454 | 20 | | 9/8/2010 |
| 1009035-001FMSD | Calcium | mg/L | SW6010C | 141 | 10.00 | 133.0 | 80.0 | 75-125 | 0 | 20 | | 9/8/2010 |
| 1009035-001FMSD | Magnesium | mg/L | SW6010C | 30.2 | 10.00 | 18.60 | 116 | 75-125 | 3.03 | 20 | | 9/8/2010 |
| 1009035-001EMSD | Arsenic | mg/L | SW6020A | 0.209 | 0.2000 | 0.0005070 | 104 | 75-125 | 0.750 | 20 | | 9/6/2010 |
| 1009035-001EMSD | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0.00005300 | 100 | 75-125 | 0.0829 | 20 | | 9/6/2010 |
| 1009035-001EMSD | Copper | mg/L | SW6020A | 0.198 | 0.2000 | 0.001398 | 98.5 | 75-125 | 1.16 | 20 | | 9/6/2010 |
| 1009035-001EMSD | Lead | mg/L | SW6020A | 0.198 | 0.2000 | 0 | 98.8 | 75-125 | 3.15 | 20 | | 9/6/2010 |
| 1009035-001EMSD | Manganese | mg/L | SW6020A | 0.220 | 0.2000 | 0.01820 | 101 | 75-125 | 0.255 | 20 | | 9/6/2010 |
| 1009035-001EMSD | Selenium | mg/L | SW6020A | 0.204 | 0.2000 | 0.001295 | 101 | 75-125 | 2.21 | 20 | | 9/6/2010 |
| 1009035-001EMSD | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0.009585 | 99.8 | 75-125 | 0.254 | 20 | | 9/6/2010 |
| 1009035-001FMSD | Lead | mg/L | SW6020A | 0.221 | 0.2000 | 0.02460 | 98.4 | 75-125 | 0.882 | 20 | | 9/6/2010 |
| 1009035-001FMSD | Manganese | mg/L | SW6020A | 0.608 | 0.2000 | 0.4372 | 85.6 | 75-125 | 2.84 | 20 | | 9/6/2010 |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009035
**Project:** Kinney #2 Baseline

**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1008598-005HDUP | Total Dissolved Solids | mg/L | A2540C | 724 | | 756.0 | | - | 4.32 | 5 | | 9/2/2010 |
| 1009035-002ADUP | Total Dissolved Solids | mg/L | A2540C | 292 | | 308.0 | | - | 5.33 | 5 | @ | 9/2/2010 |
| 1008577-002ADUP | Total Suspended Solids | mg/L | A2540D | 270 | | 270.0 | | - | 0 | 5 | | 9/2/2010 |
| 1009022-002ADUP | Total Suspended Solids | mg/L | A2540D | < 3.00 | | 1.000 | | - | 0 | 5 | | 9/2/2010 |
| 1009035-002ADUP | Total Suspended Solids | mg/L | A2540D | 96.0 | | 95.00 | | - | 1.05 | 5 | | 9/2/2010 |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009035
**Project:** Kinney #2 Baseline

**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R18092 | Chloride | mg/L | E300.0 | 4.89 | 5.000 | 0 | 97.8 | 90-110 | | | | 9/2/2010 |
| LCS-R18092 | Sulfate | mg/L | E300.0 | 5.28 | 5.000 | 0 | 106 | 90-110 | | | | 9/2/2010 |
| LCS-R18100 | Acidity | mg/L | A2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | | | | 9/3/2010 |
| LCS-R18095 | Alkalinity (as CaCO3) | mg/L | A2320B | 52,500 | 50,000 | 0 | 105 | 90-110 | | | | 9/3/2010 |
| LCS-8409 | Ammonia (as N) | mg/L | E350.1 | 0.921 | 1.000 | 0 | 92.1 | 90-110 | | | | 9/14/2010 |
| LCS-R18051 | Nitrite (as N) | mg/L | E353.2 | 1.08 | 1.000 | 0 | 108 | 90-110 | | | | 9/2/2010 |
| LCS-R18053 | Nitrate (as N) | mg/L | E353.2 | 1.00 | 1.000 | 0 | 100 | 90-110 | | | | 9/2/2010 |
| LCS-R18192 | Oil & Grease | mg/L | E1664A | 39.8 | 40.00 | 2.800 | 92.5 | 78-114 | | | | 9/7/2010 |
| LCS-R18043 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.964 | 1.000 | 0 | 96.4 | 90-110 | | | | 9/2/2010 |
| LCS-R18144 | Total Dissolved Solids | mg/L | A2540C | 202 | 205.0 | 0 | 98.5 | 80-120 | | | | 9/2/2010 |
| LCS-R18094 | Total Suspended Solids | mg/L | A2540D | 102 | 100.0 | 0 | 102 | 80-120 | | | | 9/2/2010 |



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Kyle F. Gross
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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009035
**Project:** Kinney #2 Baseline

**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R18092 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | | 9/2/2010 |
| MB-R18092 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 9/2/2010 |
| MB-R18100 | Acidity | mg/L | A2310B | < 15.0 | | | | - | | | | 9/3/2010 |
| MB-R18095 | Alkalinity (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 9/3/2010 |
| MB-R18095 | Bicarbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 9/3/2010 |
| MB-R18095 | Carbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 9/3/2010 |
| MB-8409 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 9/14/2010 |
| MB-R18051 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 9/2/2010 |
| MB-R18053 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 9/2/2010 |
| MB-R18192 | Oil & Grease | mg/L | E1664A | < 3.00 | | | | - | | | | 9/7/2010 |
| MB-R18043 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | < 0.0500 | | | | - | | | | 9/2/2010 |
| MB-R18144 | Total Dissolved Solids | mg/L | A2540C | < 10.0 | | | | - | | | | 9/2/2010 |
| MB-R18094 | Total Suspended Solids | mg/L | A2540D | < 3.00 | | | | - | | | | 9/2/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009035
**Project:** Kinney #2 Baseline

**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009003-001CMS | Chloride | mg/L | E300.0 | 59.7 | 50.00 | 10.35 | 98.7 | 90-110 | | | | 9/2/2010 |
| 1009003-001CMS | Sulfate | mg/L | E300.0 | 74.5 | 50.00 | 24.50 | 100 | 90-110 | | | | 9/2/2010 |
| 1008598-005DMS | Chloride | mg/L | E300.0 | 126 | 50.00 | 80.02 | 92.9 | 90-110 | | | | 9/2/2010 |
| 1008598-005DMS | Sulfate | mg/L | E300.0 | 85.7 | 50.00 | 36.25 | 99.0 | 90-110 | | | | 9/2/2010 |
| 1009035-001BMS | Chloride | mg/L | E300.0 | 39.1 | 25.00 | 14.71 | 97.6 | 90-110 | | | | 9/2/2010 |
| 1009035-001BMS | Sulfate | mg/L | E300.0 | 53.0 | 25.00 | 28.26 | 99.1 | 90-110 | | | | 9/2/2010 |
| 1009035-002BMS | Acidity | mg/L | A2310B | 48.0 | 50.00 | 0 | 96.0 | 80-120 | | | | 9/3/2010 |
| 1009035-001BMS | Alkalinity (as CaCO3) | mg/L | A2320B | 317 | 100.0 | 214.0 | 103 | 80-120 | | | | 9/3/2010 |
| 1009035-001DMS | Ammonia (as N) | mg/L | E350.1 | 0.953 | 1.000 | 0 | 95.3 | 90-110 | | | | 9/14/2010 |
| 1009035-001BMS | Nitrite (as N) | mg/L | E353.2 | 1.18 | 1.000 | 0.08280 | 110 | 90-110 | | | | 9/2/2010 |
| 1009035-001BMS | Nitrate (as N) | mg/L | E353.2 | 13.9 | 10.00 | 2.538 | 114 | 90-110 | | | [1] | 9/2/2010 |
| 1009035-001BMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.23 | 1.000 | 0.2251 | 100 | 90-110 | | | | 9/2/2010 |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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Jose Rocha
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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009035
**Project:** Kinney #2 Baseline

**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009003-001CMSD | Chloride | mg/L | E300.0 | 59.3 | 50.00 | 10.35 | 97.9 | 90-110 | 0.689 | 20 | | 9/2/2010 |
| 1009003-001CMSD | Sulfate | mg/L | E300.0 | 74.5 | 50.00 | 24.50 | 100 | 90-110 | 0.0174 | 20 | | 9/2/2010 |
| 1008598-005DMSD | Chloride | mg/L | E300.0 | 126 | 50.00 | 80.02 | 91.9 | 90-110 | 0.397 | 20 | | 9/2/2010 |
| 1008598-005DMSD | Sulfate | mg/L | E300.0 | 85.3 | 50.00 | 36.25 | 98.1 | 90-110 | 0.492 | 20 | | 9/2/2010 |
| 1009035-001BMSD | Chloride | mg/L | E300.0 | 39.1 | 25.00 | 14.71 | 97.6 | 90-110 | 0.0460 | 20 | | 9/2/2010 |
| 1009035-001BMSD | Sulfate | mg/L | E300.0 | 53.0 | 25.00 | 28.26 | 99.1 | 90-110 | 0.0207 | 20 | | 9/2/2010 |
| 1009035-002BMSD | Acidity | mg/L | A2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | 8.00 | 0 | | 9/3/2010 |
| 1009035-001BMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 322 | 100.0 | 214.0 | 108 | 80-120 | 1.56 | 10 | | 9/3/2010 |
| 1009035-001DMSD | Ammonia (as N) | mg/L | E350.1 | 0.981 | 1.000 | 0 | 98.1 | 90-110 | 2.94 | 10 | | 9/14/2010 |
| 1009035-001BMSD | Nitrite (as N) | mg/L | E353.2 | 1.12 | 1.000 | 0.08280 | 104 | 90-110 | 4.68 | 10 | | 9/2/2010 |
| 1009035-001BMSD | Nitrate (as N) | mg/L | E353.2 | 12.9 | 10.00 | 2.538 | 104 | 90-110 | 7.37 | 10 | | 9/2/2010 |
| 1009035-001BMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.28 | 1.000 | 0.2251 | 105 | 90-110 | 4.15 | 10 | | 9/2/2010 |



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# American West Analytical Laboratories

## WORK ORDER Summary

**Work Order:** 1009035

**Client:** Carbon Resources
**Client ID:** CAR300
**Project:** Kinney #2 Baseline
**Comments:** QC 2+, EDD;

**Contact:** Brad Lindsay
**QC Level:** LEVEL II+

**WO Type:** Project

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1009035-001A | CR-10-11 | 8/31/2010 5:30:00 PM | 9/2/2010 10:30:00 AM | 9/16/2010 | Aqueous | SS-W-2540F | ☐ | ww - ss/tss | 1 |
| | | | | 9/16/2010 | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | 9/16/2010 | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1009035-001B | | | | 9/16/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 9/16/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 9/16/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 9/16/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 9/16/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 9/16/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1009035-001C | | | | 9/16/2010 | | OGB-W-1664A | ☐ | ogb | |
| 1009035-001D | | | | 9/16/2010 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 9/16/2010 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1009035-001E | | | | 9/16/2010 | | 3005A-DIS-PR | ☐ | DF - dis met | |
| | | | | 9/16/2010 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 9/16/2010 | | 6020-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 9/16/2010 | | HARD-2340B | ☐ | DF - dis met | |
| 1009035-001F | | | | 9/16/2010 | | 3005A-ICPMS-PR | ☐ | DF - total met | |
| | | | | 9/16/2010 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |

# WORK ORDER Summary

**Work Order:** 1009035

**Client:** Carbon Resources
**Client ID:** CAR300
**Project:** Kinney #2 Baseline
**Comments:** QC 2+, EDD;

**Contact:** Brad Lindsay
**QC Level:** LEVEL II+

**WO Type:** Project

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1009035-001F | CR-10-11 | 8/31/2010 5:30:00 PM | 9/2/2010 10:30:00 AM | 9/16/2010 | Aqueous | 6020-W | ☑ | DF - total met | 1 |
| | SEL Analytes: MN | | | | | | | | |
| 1009035-002A | CR-10-12 | 8/31/2010 6:30:00 PM | | 9/16/2010 | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | 9/16/2010 | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | 9/16/2010 | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1009035-002B | | | | 9/16/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 9/16/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 9/16/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 9/16/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 9/16/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 9/16/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1009035-002C | | | | 9/16/2010 | | OGB-W-1664A | ☐ | ogb | |
| 1009035-002D | | | | 9/16/2010 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 9/16/2010 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1009035-002E | | | | 9/16/2010 | | 3005A-DIS-PR | ☐ | DF - dis met | |
| | | | | 9/16/2010 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 9/16/2010 | | 6020-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 9/16/2010 | | HARD-2340B | ☐ | DF - dis met | |
| 1009035-002F | | | | 9/16/2010 | | 3005A-ICPMS-PR | ☐ | DF - total met | |
| | | | | 9/16/2010 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |

# WORK ORDER Summary

**Work Order:** 1009035

**Client:** Carbon Resources
**Client ID:** CAR300
**Project:** Kinney #2 Baseline
**Comments:** QC 2+, EDD;

**Contact:** Brad Lindsay
**QC Level:** LEVEL II+

**WO Type:** Project

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1009035-002F | CR-10-12 | 8/31/2010 6:30:00 PM | 9/2/2010 10:30:00 AM | 9/16/2010 | Aqueous | 6020-W | ☑ | DF - total met | 1 |
| | **SEL Analytes: MN** | | | | | | | | |

Client Rock Logic

Address P.O. Box 544

Cedaredge CO 81413
City State Zip

Phone 970-856-3401 Fax

Contact Brad Lindsay

E-mail Lindsaybra1@gmail.com

Project Name Kinney #2 Baseline

Project Number/P.O.#

Sampler Name G.L. Hunt


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# CHAIN OF CUSTODY

Lab Sample Set # 1009035

Page 1 of 1

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day Standard

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TESTS REQUIRED: Table 3 on File | QC LEVEL | COMMENTS |
|---|---|---|---|---|---|---|
| CR-10-11 | 8-31-10 17:30 | GW | 6 | ✓ | 1 2 2+ 3 3+ 4 | |
| CR-10-12 | 8-31-10 18:30 | GW | 6 | ✓ | | |

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
Notes: UPS

2 Ambient or Chilled
Notes: ice

3 Temperature 5.3

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Checked at Bench
Y N
Notes:

6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:

1 Present on Outer Package
(Y) N NA

2 Unbroken on Outer Package
(Y) N NA

3 Present on Sample
Y N (NA)

4 Unbroken on Sample
Y N (NA)

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME Greg Hunt | Time 11:30 | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date 9/2/10 |
| PRINT NAME | Time | PRINT NAME Elma Hayward | Time 1033 |

Special Instructions:

Please filter

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 1009035

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Scofield Baseline / Ground Water Monitoring

Dear Brad Lindsay: Lab Set ID: 1009511

American West Analytical Laboratories received 2 sample(s) on 9/29/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: _____
Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Ground Water Monitoring
**Lab Sample ID:** 1009511-001
**Client Sample ID:** CR-10-12
**Collection Date:** 9/28/2010 1100h
**Received Date:** 9/29/2010 0802h

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## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 9/30/2010 1324h | 10/5/2010 1603h | SW6010C | 0.100 | **9.38** | [2] |
| Manganese | mg/L | 9/30/2010 1324h | 9/30/2010 2101h | SW6020A | 0.00120 | **0.0961** | |

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Ground Water Monitoring
**Lab Sample ID:** 1009511-002
**Client Sample ID:** CR-10-11
**Collection Date:** 9/28/2010 1415h
**Received Date:** 9/29/2010 0802h

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## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 9/30/2010 1324h | 10/5/2010 1614h | SW6010C | 0.100 | **0.815** | |
| Manganese | mg/L | 9/30/2010 1324h | 9/30/2010 2142h | SW6020A | 0.00120 | **0.0162** | |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Ground Water Monitoring
**Lab Sample ID:** 1009511-001
**Client Sample ID:** CR-10-12
**Collection Date:** 9/28/2010 1100h
**Received Date:** 9/29/2010 0802h

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Laboratory Director

Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 9/30/2010 1321h | 10/6/2010 1836h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 9/30/2010 1321h | 10/1/2010 2131h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 9/30/2010 1321h | 10/6/2010 1836h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 9/30/2010 1321h | 10/1/2010 2131h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 9/30/2010 1321h | 10/6/2010 1721h | SW6010C | 10.0 | **82.4** | |
| Copper | mg/L | 9/30/2010 1321h | 10/1/2010 2131h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 9/30/2010 1321h | 10/6/2010 1836h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 9/30/2010 1321h | 10/1/2010 2131h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 9/30/2010 1321h | 10/6/2010 1836h | SW6010C | 1.00 | **7.38** | |
| Manganese | mg/L | 9/30/2010 1321h | 10/1/2010 2131h | SW6020A | 0.00120 | **0.00212** | |
| Molybdenum | mg/L | 9/30/2010 1321h | 10/6/2010 1836h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 9/30/2010 1321h | 10/6/2010 1836h | SW6010C | 1.00 | **1.01** | |
| Selenium | mg/L | 9/30/2010 1321h | 10/1/2010 2131h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 9/30/2010 1321h | 10/6/2010 1836h | SW6010C | 1.00 | **16.0** | |
| Zinc | mg/L | 9/30/2010 1321h | 10/1/2010 2131h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Ground Water Monitoring
**Lab Sample ID:** 1009511-002
**Client Sample ID:** CR-10-11
**Collection Date:** 9/28/2010 1415h
**Received Date:** 9/29/2010 0802h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 9/30/2010 1321h | 10/6/2010 1847h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 9/30/2010 1321h | 10/1/2010 2150h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 9/30/2010 1321h | 10/6/2010 1847h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 9/30/2010 1321h | 10/1/2010 2150h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 9/30/2010 1321h | 10/6/2010 1733h | SW6010C | 10.0 | **78.1** | |
| Copper | mg/L | 9/30/2010 1321h | 10/1/2010 2150h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 9/30/2010 1321h | 10/6/2010 1847h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 9/30/2010 1321h | 10/1/2010 2150h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 9/30/2010 1321h | 10/6/2010 1847h | SW6010C | 1.00 | **11.0** | |
| Manganese | mg/L | 9/30/2010 1321h | 10/1/2010 2150h | SW6020A | 0.00120 | < 0.00120 | |
| Molybdenum | mg/L | 9/30/2010 1321h | 10/6/2010 1847h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 9/30/2010 1321h | 10/6/2010 1847h | SW6010C | 1.00 | **1.12** | |
| Selenium | mg/L | 9/30/2010 1321h | 10/1/2010 2150h | SW6020A | 0.000800 | **0.00119** | |
| Sodium | mg/L | 9/30/2010 1321h | 10/6/2010 1847h | SW6010C | 1.00 | **10.2** | |
| Zinc | mg/L | 9/30/2010 1321h | 10/1/2010 2150h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*




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**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Ground Water Monitoring
**Lab Sample ID:** 1009511-001
**Client Sample ID:** CR-10-12
**Collection Date:** 9/28/2010 1100h
**Received Date:** 9/29/2010 0802h


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Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 9/30/2010 1110h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | **177** | |
| Ammonia (as N) | mg/L | 10/1/2010 1019h | 10/4/2010 0845h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | **177** | |
| Carbonate (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 10.0 | < 10.0 | |
| Chloride | mg/L | | 10/1/2010 1955h | E300.0 | 10.0 | **27.2** | |
| Hardness (as CaCO3) | mg/L | | 10/6/2010 | A2340B | 10.0 | **236** | |
| Nitrate (as N) | mg/L | | 9/29/2010 1521h | E353.2 | 0.0100 | **0.679** | 1 |
| Nitrite (as N) | mg/L | | 9/29/2010 1501h | E353.2 | 0.0100 | **0.0237** | |
| Phosphate, Total Ortho (as P) | mg/L | | 9/29/2010 1604h | E365.1 | 0.0500 | **0.0720** | 1 |
| Sulfate | mg/L | | 10/10/2010 2113h | E300.0 | 750 | **11,500** | |
| Total Dissolved Solids | mg/L | | 10/1/2010 1330h | A2540C | 10.0 | **390** | |

*1 - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*




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**Lab Sample ID:** 1009511-002
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| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 9/30/2010 1110h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | **217** | |
| Ammonia (as N) | mg/L | 10/1/2010 1019h | 10/4/2010 0841h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | **217** | |
| Carbonate (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 10.0 | < 10.0 | |
| Chloride | mg/L | | 10/1/2010 2104h | E300.0 | 10.0 | **20.8** | |
| Hardness (as CaCO3) | mg/L | | 10/6/2010 | A2340B | 10.0 | **240** | |
| Nitrate (as N) | mg/L | | 9/29/2010 1525h | E353.2 | 0.100 | **2.68** | |
| Nitrite (as N) | mg/L | | 9/29/2010 1514h | E353.2 | 0.0100 | < 0.0100 | |
| Phosphate, Total Ortho (as P) | mg/L | | 9/29/2010 1610h | E365.1 | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/10/2010 2136h | E300.0 | 750 | **11,700** | |
| Total Dissolved Solids | mg/L | | 10/1/2010 1330h | A2540C | 10.0 | **306** | |




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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009511
**Project:** Scofield Baseline / Ground Water Monitoring

**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-8751 | Aluminum | mg/L | SW6010C | 0.950 | 1.000 | 0 | 95.0 | 80-120 | | | | 10/6/2010 |
| LCS-8751 | Boron | mg/L | SW6010C | 0.968 | 1.000 | 0 | 96.8 | 80-120 | | | | 10/6/2010 |
| LCS-8751 | Calcium | mg/L | SW6010C | 9.09 | 10.00 | 0 | 90.9 | 80-120 | | | | 10/6/2010 |
| LCS-8751 | Iron | mg/L | SW6010C | 0.945 | 1.000 | 0 | 94.5 | 80-120 | | | | 10/6/2010 |
| LCS-8751 | Magnesium | mg/L | SW6010C | 9.39 | 10.00 | 0 | 93.9 | 80-120 | | | | 10/6/2010 |
| LCS-8751 | Molybdenum | mg/L | SW6010C | 0.183 | 0.2000 | 0 | 91.4 | 80-120 | | | | 10/6/2010 |
| LCS-8751 | Potassium | mg/L | SW6010C | 9.71 | 10.00 | 0 | 97.1 | 80-120 | | | | 10/6/2010 |
| LCS-8751 | Sodium | mg/L | SW6010C | 9.44 | 10.00 | 0 | 94.4 | 80-120 | | | | 10/6/2010 |
| LCS-8752 | Iron | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 80-120 | | | | 10/5/2010 |
| LCS-8751 | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 10/1/2010 |
| LCS-8751 | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 85-115 | | | | 10/1/2010 |
| LCS-8751 | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 85-115 | | | | 10/1/2010 |
| LCS-8751 | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 10/1/2010 |
| LCS-8751 | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 85-115 | | | | 10/1/2010 |
| LCS-8751 | Selenium | mg/L | SW6020A | 0.204 | 0.2000 | 0 | 102 | 85-115 | | | | 10/1/2010 |
| LCS-8751 | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 85-115 | | | | 10/1/2010 |
| LCS-8752 | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 85-115 | | | | 9/30/2010 |
| LCS-8752 | Cadmium | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.7 | 85-115 | | | | 9/30/2010 |
| LCS-8752 | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 9/30/2010 |
| LCS-8752 | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 9/30/2010 |
| LCS-8752 | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.8 | 85-115 | | | | 9/30/2010 |
| LCS-8752 | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 85-115 | | | | 9/30/2010 |
| LCS-8752 | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 85-115 | | | | 9/30/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009511
**Project:** Scofield Baseline / Ground Water Monitoring

**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-8751 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 10/6/2010 |
| MB-8751 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 10/6/2010 |
| MB-8751 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/6/2010 |
| MB-8751 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 10/6/2010 |
| MB-8751 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/6/2010 |
| MB-8751 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 10/6/2010 |
| MB-8751 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/6/2010 |
| MB-8751 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/6/2010 |
| MB-8752 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 10/5/2010 |
| MB-8751 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 10/1/2010 |
| MB-8751 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 10/1/2010 |
| MB-8751 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 10/1/2010 |
| MB-8751 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 10/1/2010 |
| MB-8751 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 10/1/2010 |
| MB-8751 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 10/1/2010 |
| MB-8751 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 10/1/2010 |
| MB-8752 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 9/30/2010 |
| MB-8752 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 9/30/2010 |
| MB-8752 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 9/30/2010 |
| MB-8752 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 9/30/2010 |
| MB-8752 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 9/30/2010 |
| MB-8752 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 9/30/2010 |
| MB-8752 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 9/30/2010 |



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Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009511
**Project:** Scofield Baseline / Ground Water Monitoring

**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009508-001EMS | Aluminum | mg/L | SW6010C | 0.986 | 1.000 | 0 | 98.6 | 75-125 | | | | 10/6/2010 |
| 1009508-001EMS | Boron | mg/L | SW6010C | 1.23 | 1.000 | 0.1526 | 108 | 75-125 | | | | 10/6/2010 |
| 1009508-001EMS | Iron | mg/L | SW6010C | 0.998 | 1.000 | 0 | 99.8 | 75-125 | | | | 10/6/2010 |
| 1009508-001EMS | Magnesium | mg/L | SW6010C | 42.0 | 10.00 | 33.17 | 88.2 | 75-125 | | | | 10/6/2010 |
| 1009508-001EMS | Molybdenum | mg/L | SW6010C | 0.195 | 0.2000 | 0 | 97.3 | 75-125 | | | | 10/6/2010 |
| 1009508-001EMS | Potassium | mg/L | SW6010C | 16.4 | 10.00 | 6.373 | 100 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Aluminum | mg/L | SW6010C | 0.866 | 1.000 | 0 | 86.6 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Boron | mg/L | SW6010C | 0.955 | 1.000 | 0.01937 | 93.6 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Iron | mg/L | SW6010C | 0.875 | 1.000 | 0 | 87.5 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Magnesium | mg/L | SW6010C | 15.9 | 10.00 | 7.380 | 84.8 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Molybdenum | mg/L | SW6010C | 0.169 | 0.2000 | 0 | 84.7 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Potassium | mg/L | SW6010C | 9.77 | 10.00 | 1.011 | 87.6 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Sodium | mg/L | SW6010C | 24.4 | 10.00 | 16.03 | 83.3 | 75-125 | | | | 10/6/2010 |
| 1009508-001EMS | Calcium | mg/L | SW6010C | 63.1 | 10.00 | 53.40 | 96.9 | 75-125 | | | | 10/6/2010 |
| 1009508-001EMS | Sodium | mg/L | SW6010C | 53.5 | 10.00 | 43.17 | 103 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Calcium | mg/L | SW6010C | 91.4 | 10.00 | 82.42 | 89.4 | 75-125 | | | | 10/6/2010 |
| 1009508-001FMS | Iron | mg/L | SW6010C | 1.27 | 1.000 | 0.2070 | 106 | 75-125 | | | | 10/5/2010 |
| 1009511-001EMS | Iron | mg/L | SW6010C | 10.8 | 1.000 | 9.380 | 142 | 75-125 | | | 2 | 10/5/2010 |
| 1009508-001EMS | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0004450 | 100 | 75-125 | | | | 10/1/2010 |
| 1009508-001EMS | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | | | | 10/1/2010 |
| 1009508-001EMS | Copper | mg/L | SW6020A | 0.195 | 0.2000 | 0 | 97.5 | 75-125 | | | | 10/1/2010 |
| 1009508-001EMS | Lead | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 101 | 75-125 | | | | 10/1/2010 |
| 1009508-001EMS | Manganese | mg/L | SW6020A | 0.206 | 0.2000 | 0.006622 | 99.7 | 75-125 | | | | 10/1/2010 |
| 1009508-001EMS | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.0005100 | 101 | 75-125 | | | | 10/1/2010 |



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Kyle F. Gross
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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009511
**Project:** Scofield Baseline / Ground Water Monitoring

**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009508-001EMS | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 75-125 | | | | 10/1/2010 |
| 1009511-001DMS | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0004980 | 100 | 75-125 | | | | 10/1/2010 |
| 1009511-001DMS | Cadmium | mg/L | SW6020A | 0.197 | 0.2000 | 0.00008100 | 98.5 | 75-125 | | | | 10/1/2010 |
| 1009511-001DMS | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0.0004650 | 100 | 75-125 | | | | 10/1/2010 |
| 1009511-001DMS | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 75-125 | | | | 10/1/2010 |
| 1009511-001DMS | Manganese | mg/L | SW6020A | 0.204 | 0.2000 | 0.002118 | 101 | 75-125 | | | | 10/1/2010 |
| 1009511-001DMS | Selenium | mg/L | SW6020A | 0.201 | 0.2000 | 0.0006810 | 100 | 75-125 | | | | 10/1/2010 |
| 1009511-001DMS | Zinc | mg/L | SW6020A | 0.990 | 1.000 | 0 | 99.0 | 75-125 | | | | 10/1/2010 |
| 1009522-001BMS | Manganese | mg/L | SW6020A | 0.223 | 0.2000 | 0.02429 | 99.4 | 75-125 | | | | 10/1/2010 |
| 1009508-001FMS | Manganese | mg/L | SW6020A | 0.220 | 0.2000 | 0.02004 | 99.9 | 75-125 | | | | 9/30/2010 |
| 1009511-001EMS | Manganese | mg/L | SW6020A | 0.297 | 0.2000 | 0.09608 | 101 | 75-125 | | | | 9/30/2010 |
| 1009533-001FMS | Arsenic | mg/L | SW6020A | 0.287 | 0.2000 | 0.09053 | 98.2 | 75-125 | | | | 9/30/2010 |
| 1009533-001FMS | Cadmium | mg/L | SW6020A | 0.195 | 0.2000 | 0.0002780 | 97.4 | 75-125 | | | | 9/30/2010 |
| 1009533-001FMS | Copper | mg/L | SW6020A | 0.203 | 0.2000 | 0.002522 | 100 | 75-125 | | | | 9/30/2010 |
| 1009533-001FMS | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | | | | 9/30/2010 |
| 1009533-001FMS | Manganese | mg/L | SW6020A | 1.81 | 0.2000 | 1.663 | 74.6 | 75-125 | | | 2 | 9/30/2010 |
| 1009533-001FMS | Selenium | mg/L | SW6020A | 0.210 | 0.2000 | 0.007680 | 101 | 75-125 | | | | 9/30/2010 |
| 1009533-001FMS | Zinc | mg/L | SW6020A | 1.04 | 1.000 | 0.02531 | 101 | 75-125 | | | | 9/30/2010 |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009511
**Project:** Scofield Baseline / Ground Water Monitoring

**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009508-001EMSD | Aluminum | mg/L | SW6010C | 0.970 | 1.000 | 0 | 97.0 | 75-125 | 1.67 | 20 | | 10/6/2010 |
| 1009508-001EMSD | Boron | mg/L | SW6010C | 1.22 | 1.000 | 0.1526 | 107 | 75-125 | 1.08 | 20 | | 10/6/2010 |
| 1009508-001EMSD | Iron | mg/L | SW6010C | 0.962 | 1.000 | 0 | 96.2 | 75-125 | 3.61 | 20 | | 10/6/2010 |
| 1009508-001EMSD | Magnesium | mg/L | SW6010C | 40.8 | 10.00 | 33.17 | 75.8 | 75-125 | 3.00 | 20 | | 10/6/2010 |
| 1009508-001EMSD | Molybdenum | mg/L | SW6010C | 0.193 | 0.2000 | 0 | 96.3 | 75-125 | 1.09 | 20 | | 10/6/2010 |
| 1009508-001EMSD | Potassium | mg/L | SW6010C | 15.9 | 10.00 | 6.373 | 95.7 | 75-125 | 2.86 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Aluminum | mg/L | SW6010C | 0.969 | 1.000 | 0 | 96.9 | 75-125 | 11.2 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Boron | mg/L | SW6010C | 1.06 | 1.000 | 0.01937 | 104 | 75-125 | 10.8 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Iron | mg/L | SW6010C | 0.944 | 1.000 | 0 | 94.4 | 75-125 | 7.62 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Magnesium | mg/L | SW6010C | 16.6 | 10.00 | 7.380 | 92.4 | 75-125 | 4.64 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Molybdenum | mg/L | SW6010C | 0.188 | 0.2000 | 0 | 94.0 | 75-125 | 10.4 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Potassium | mg/L | SW6010C | 10.7 | 10.00 | 1.011 | 96.7 | 75-125 | 8.90 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Sodium | mg/L | SW6010C | 25.0 | 10.00 | 16.03 | 89.5 | 75-125 | 2.51 | 20 | | 10/6/2010 |
| 1009508-001EMSD | Calcium | mg/L | SW6010C | 65.4 | 10.00 | 53.40 | 121 | 75-125 | 3.67 | 20 | | 10/6/2010 |
| 1009508-001EMSD | Sodium | mg/L | SW6010C | 54.9 | 10.00 | 43.17 | 117 | 75-125 | 2.59 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Calcium | mg/L | SW6010C | 92.0 | 10.00 | 82.42 | 96.0 | 75-125 | 0.711 | 20 | | 10/6/2010 |
| 1009508-001FMSD | Iron | mg/L | SW6010C | 1.30 | 1.000 | 0.2070 | 109 | 75-125 | 2.33 | 20 | | 10/5/2010 |
| 1009511-001EMSD | Iron | mg/L | SW6010C | 10.9 | 1.000 | 9.380 | 152 | 75-125 | 0.922 | 20 | 2 | 10/5/2010 |
| 1009508-001EMSD | Arsenic | mg/L | SW6020A | 0.202 | 0.2000 | 0.0004450 | 101 | 75-125 | 0.144 | 20 | | 10/1/2010 |
| 1009508-001EMSD | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | 0.00600 | 20 | | 10/1/2010 |
| 1009508-001EMSD | Copper | mg/L | SW6020A | 0.196 | 0.2000 | 0 | 98.0 | 75-125 | 0.554 | 20 | | 10/1/2010 |
| 1009508-001EMSD | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 75-125 | 0.801 | 20 | | 10/1/2010 |
| 1009508-001EMSD | Manganese | mg/L | SW6020A | 0.203 | 0.2000 | 0.006622 | 98.3 | 75-125 | 1.38 | 20 | | 10/1/2010 |
| 1009508-001EMSD | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0.0005100 | 99.9 | 75-125 | 0.657 | 20 | | 10/1/2010 |



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009511
**Project:** Scofield Baseline / Ground Water Monitoring

**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009508-001EMSD | Zinc | mg/L | SW6020A | 1.00 | 1.000 | 0 | 100 | 75-125 | 0.326 | 20 | | 10/1/2010 |
| 1009522-001BMSD | Manganese | mg/L | SW6020A | 0.223 | 0.2000 | 0.02429 | 99.5 | 75-125 | 0.0699 | 20 | | 10/1/2010 |
| 1009511-001DMSD | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0004980 | 100 | 75-125 | 0.195 | 20 | | 10/1/2010 |
| 1009511-001DMSD | Cadmium | mg/L | SW6020A | 0.198 | 0.2000 | 0.00008100 | 99.2 | 75-125 | 0.700 | 20 | | 10/1/2010 |
| 1009511-001DMSD | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0.0004650 | 100 | 75-125 | 0.0911 | 20 | | 10/1/2010 |
| 1009511-001DMSD | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 75-125 | 0.462 | 20 | | 10/1/2010 |
| 1009511-001DMSD | Manganese | mg/L | SW6020A | 0.205 | 0.2000 | 0.002118 | 101 | 75-125 | 0.380 | 20 | | 10/1/2010 |
| 1009511-001DMSD | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.0006810 | 100 | 75-125 | 0.388 | 20 | | 10/1/2010 |
| 1009511-001DMSD | Zinc | mg/L | SW6020A | 0.987 | 1.000 | 0 | 98.7 | 75-125 | 0.281 | 20 | | 10/1/2010 |
| 1009508-001FMSD | Manganese | mg/L | SW6020A | 0.222 | 0.2000 | 0.02004 | 101 | 75-125 | 0.954 | 20 | | 9/30/2010 |
| 1009511-001EMSD | Manganese | mg/L | SW6020A | 0.298 | 0.2000 | 0.09608 | 101 | 75-125 | 0.0988 | 20 | | 9/30/2010 |
| 1009533-001FMSD | Arsenic | mg/L | SW6020A | 0.288 | 0.2000 | 0.09053 | 98.8 | 75-125 | 0.381 | 20 | | 9/30/2010 |
| 1009533-001FMSD | Cadmium | mg/L | SW6020A | 0.194 | 0.2000 | 0.0002780 | 96.8 | 75-125 | 0.549 | 20 | | 9/30/2010 |
| 1009533-001FMSD | Copper | mg/L | SW6020A | 0.203 | 0.2000 | 0.002522 | 100 | 75-125 | 0.0113 | 20 | | 9/30/2010 |
| 1009533-001FMSD | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | 0.00150 | 20 | | 9/30/2010 |
| 1009533-001FMSD | Manganese | mg/L | SW6020A | 1.76 | 0.2000 | 1.663 | 49.1 | 75-125 | 2.86 | 20 | [2] | 9/30/2010 |
| 1009533-001FMSD | Selenium | mg/L | SW6020A | 0.211 | 0.2000 | 0.007680 | 101 | 75-125 | 0.299 | 20 | | 9/30/2010 |
| 1009533-001FMSD | Zinc | mg/L | SW6020A | 1.03 | 1.000 | 0.02531 | 101 | 75-125 | 0.706 | 20 | | 9/30/2010 |

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009511
**Project:** Scofield Baseline / Ground Water Monitoring

**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009508-001ADUP | Total Dissolved Solids | mg/L | A2540C | 404 | | 412.0 | | - | 1.96 | 5 | | 10/1/2010 |
| 1009511-001ADUP | Total Dissolved Solids | mg/L | A2540C | 394 | | 390.0 | | - | 1.02 | 5 | | 10/1/2010 |
| 1009533-001HDUP | Total Dissolved Solids | mg/L | A2540C | 1,140 | | 1,132 | | - | 1.05 | 5 | | 10/1/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009511
**Project:** Scofield Baseline / Ground Water Monitoring

**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R19058 | Chloride | mg/L | E300.0 | 4.54 | 5.000 | 0 | 90.7 | 90-110 | | | | 10/1/2010 |
| LCS-R19058 | Sulfate | mg/L | E300.0 | 4.87 | 5.000 | 0 | 97.4 | 90-110 | | | | 10/1/2010 |
| LCS-R19235 | Sulfate | mg/L | E300.0 | 5.46 | 5.000 | 0 | 109 | 90-110 | | | | 10/10/2010 |
| LCS-R18965 | Acidity | mg/L | A2310B | 48.0 | 50.00 | 0 | 96.0 | 80-120 | | | | 9/30/2010 |
| LCS-R18966 | Alkalinity (as CaCO3) | mg/L | A2320B | 51,600 | 50,000 | 0 | 103 | 90-110 | | | | 9/30/2010 |
| LCS-8769 | Ammonia (as N) | mg/L | E350.1 | 1.09 | 1.000 | 0 | 109 | 90-110 | | | | 10/4/2010 |
| LCS-R18919 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.962 | 1.000 | 0.005800 | 95.6 | 90-110 | | | | 9/29/2010 |
| LCS-R19081 | Total Dissolved Solids | mg/L | A2540C | 192 | 205.0 | 0 | 93.7 | 80-120 | | | | 10/1/2010 |



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009511
**Project:** Scofield Baseline / Ground Water Monitoring

**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R19058 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | | 10/1/2010 |
| MB-R19058 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 10/1/2010 |
| MB-R19235 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 10/10/2010 |
| MB-R18965 | Acidity | mg/L | A2310B | < 15.0 | | | | - | | | | 9/30/2010 |
| MB-R18966 | Alkalinity (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 9/30/2010 |
| MB-R18966 | Bicarbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 9/30/2010 |
| MB-R18966 | Carbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 9/30/2010 |
| MB-8769 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 10/4/2010 |
| MB-R18919 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | < 0.0500 | | | | - | | | | 9/29/2010 |
| MB-R19081 | Total Dissolved Solids | mg/L | A2540C | < 10.0 | | | | - | | | | 10/1/2010 |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009511
**Project:** Scofield Baseline / Ground Water Monitoring

**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009507-005CMS | Sulfate | mg/L | E300.0 | 6.91 | 5.000 | 1.929 | 99.6 | 90-110 | | | | 10/1/2010 |
| 1009508-004BMS | Chloride | mg/L | E300.0 | 55.7 | 50.00 | 10.05 | 91.4 | 90-110 | | | | 10/1/2010 |
| 1009508-004BMS | Sulfate | mg/L | E300.0 | 73.0 | 50.00 | 23.46 | 99.0 | 90-110 | | | | 10/1/2010 |
| 1009511-001BMS | Chloride | mg/L | E300.0 | 480 | 500.0 | 0 | 96.0 | 90-110 | | | | 10/1/2010 |
| 1009522-001AMS | Chloride | mg/L | E300.0 | 65.6 | 25.00 | 39.76 | 103 | 90-110 | | | | 10/1/2010 |
| 1009522-001AMS | Sulfate | mg/L | E300.0 | 36.1 | 25.00 | 11.88 | 96.8 | 90-110 | | | | 10/1/2010 |
| 1009533-001DMS | Chloride | mg/L | E300.0 | 140 | 50.00 | 86.55 | 106 | 90-110 | | | | 10/2/2010 |
| 1009533-001DMS | Sulfate | mg/L | E300.0 | 185 | 50.00 | 133.8 | 102 | 90-110 | | | | 10/2/2010 |
| 1009511-002BMS | Sulfate | mg/L | E300.0 | 17,100 | 5,000 | 11,710 | 109 | 90-110 | | | | 10/10/2010 |
| 1009508-005BMS | Acidity | mg/L | A2310B | 46.0 | 50.00 | 0 | 92.0 | 80-120 | | | | 9/30/2010 |
| 1009511-001BMS | Acidity | mg/L | A2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | | | | 9/30/2010 |
| 1009508-001BMS | Alkalinity (as CaCO3) | mg/L | A2320B | 338 | 100.0 | 238.0 | 100 | 80-120 | | | | 9/30/2010 |
| 1009511-001BMS | Alkalinity (as CaCO3) | mg/L | A2320B | 280 | 100.0 | 177.0 | 103 | 80-120 | | | | 9/30/2010 |
| 1009522-001AMS | Alkalinity (as CaCO3) | mg/L | A2320B | 1,570 | 500.0 | 1,059 | 101 | 80-120 | | | | 9/30/2010 |
| 1009533-001DMS | Alkalinity (as CaCO3) | mg/L | A2320B | 1,430 | 500.0 | 893.0 | 107 | 80-120 | | | | 9/30/2010 |
| 1009508-001DMS | Ammonia (as N) | mg/L | E350.1 | 1.03 | 1.000 | 0 | 103 | 90-110 | | | | 10/4/2010 |
| 1009511-002CMS | Ammonia (as N) | mg/L | E350.1 | 1.00 | 1.000 | 0 | 100 | 90-110 | | | | 10/4/2010 |
| 1009533-001EMS | Ammonia (as N) | mg/L | E350.1 | 1.08 | 1.000 | 0.3142 | 76.9 | 90-110 | | | 1 | 10/4/2010 |
| 1009508-001BMS | Nitrite (as N) | mg/L | E353.2 | 1.09 | 1.000 | 0 | 109 | 90-110 | | | | 9/29/2010 |
| 1009511-001BMS | Nitrite (as N) | mg/L | E353.2 | 1.10 | 1.000 | 0.02370 | 108 | 90-110 | | | | 9/29/2010 |
| 1009508-001BMS | Nitrate (as N) | mg/L | E353.2 | 1.13 | 1.000 | 0.009300 | 112 | 90-110 | | | 1 | 9/29/2010 |
| 1009507-005CMS | Nitrate (as N) | mg/L | E353.2 | 0.790 | 1.000 | 0 | 79.0 | 90-110 | | | 1 | 9/29/2010 |
| 1009511-001BMS | Nitrate (as N) | mg/L | E353.2 | 18.4 | 10.00 | 0.6793 | 177 | 90-110 | | | 1 | 9/29/2010 |
| 1009508-001BMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.919 | 1.000 | 0.03440 | 88.5 | 90-110 | | | 1 | 9/29/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009511
**Project:** Scofield Baseline / Ground Water Monitoring

**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009511-001BMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.924 | 1.000 | 0.07200 | 85.2 | 90-110 | | | 1 | 9/29/2010 |

*1 - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009511
**Project:** Scofield Baseline / Ground Water Monitoring

**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009507-005CMSD | Sulfate | mg/L | E300.0 | 6.86 | 5.000 | 1.929 | 98.5 | 90-110 | 0.799 | 20 | | 10/1/2010 |
| 1009508-004BMSD | Chloride | mg/L | E300.0 | 55.4 | 50.00 | 10.05 | 90.7 | 90-110 | 0.569 | 20 | | 10/1/2010 |
| 1009508-004BMSD | Sulfate | mg/L | E300.0 | 72.8 | 50.00 | 23.46 | 98.6 | 90-110 | 0.268 | 20 | | 10/1/2010 |
| 1009511-001BMSD | Chloride | mg/L | E300.0 | 478 | 500.0 | 0 | 95.6 | 90-110 | 0.394 | 20 | | 10/1/2010 |
| 1009522-001AMSD | Chloride | mg/L | E300.0 | 65.1 | 25.00 | 39.76 | 101 | 90-110 | 0.747 | 20 | | 10/1/2010 |
| 1009522-001AMSD | Sulfate | mg/L | E300.0 | 35.5 | 25.00 | 11.88 | 94.6 | 90-110 | 1.53 | 20 | | 10/1/2010 |
| 1009533-001DMSD | Chloride | mg/L | E300.0 | 140 | 50.00 | 86.55 | 107 | 90-110 | 0.233 | 20 | | 10/2/2010 |
| 1009533-001DMSD | Sulfate | mg/L | E300.0 | 185 | 50.00 | 133.8 | 103 | 90-110 | 0.228 | 20 | | 10/2/2010 |
| 1009511-002BMSD | Sulfate | mg/L | E300.0 | 17,200 | 5,000 | 11,710 | 109 | 90-110 | 0.221 | 20 | | 10/10/2010 |
| 1009508-005BMSD | Acidity | mg/L | A2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | 8.33 | 0 | | 9/30/2010 |
| 1009511-001BMSD | Acidity | mg/L | A2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | 0 | 0 | | 9/30/2010 |
| 1009508-001BMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 340 | 100.0 | 238.0 | 102 | 80-120 | 0.590 | 10 | | 9/30/2010 |
| 1009511-001BMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 284 | 100.0 | 177.0 | 107 | 80-120 | 1.42 | 10 | | 9/30/2010 |
| 1009522-001AMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 1,580 | 500.0 | 1,059 | 105 | 80-120 | 1.14 | 10 | | 9/30/2010 |
| 1009533-001DMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 1,400 | 500.0 | 893.0 | 101 | 80-120 | 1.84 | 10 | | 9/30/2010 |
| 1009508-001DMSD | Ammonia (as N) | mg/L | E350.1 | 1.06 | 1.000 | 0 | 106 | 90-110 | 3.06 | 10 | | 10/4/2010 |
| 1009511-002CMSD | Ammonia (as N) | mg/L | E350.1 | 1.01 | 1.000 | 0 | 101 | 90-110 | 0.259 | 10 | | 10/4/2010 |
| 1009533-001EMSD | Ammonia (as N) | mg/L | E350.1 | 1.19 | 1.000 | 0.3142 | 87.9 | 90-110 | 9.67 | 10 | 1 | 10/4/2010 |
| 1009508-001BMSD | Nitrite (as N) | mg/L | E353.2 | 1.10 | 1.000 | 0 | 110 | 90-110 | 1.11 | 10 | 1 | 9/29/2010 |
| 1009511-001BMSD | Nitrite (as N) | mg/L | E353.2 | 1.11 | 1.000 | 0.02370 | 109 | 90-110 | 0.929 | 10 | | 9/29/2010 |
| 1009508-001BMSD | Nitrate (as N) | mg/L | E353.2 | 1.13 | 1.000 | 0.009300 | 112 | 90-110 | 0.222 | 10 | 1 | 9/29/2010 |
| 1009507-005CMSD | Nitrate (as N) | mg/L | E353.2 | 0.788 | 1.000 | 0 | 78.8 | 90-110 | 0.254 | 10 | 1 | 9/29/2010 |
| 1009511-001BMSD | Nitrate (as N) | mg/L | E353.2 | 17.0 | 10.00 | 0.6793 | 163 | 90-110 | 7.86 | 10 | 1 | 9/29/2010 |
| 1009508-001BMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.955 | 1.000 | 0.03440 | 92.0 | 90-110 | 3.81 | 10 | | 9/29/2010 |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009511
**Project:** Scofield Baseline / Ground Water Monitoring

**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009511-001BMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.994 | 1.000 | 0.07200 | 92.2 | 90-110 | 7.33 | 10 | | 9/29/2010 |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# American West Analytical Laboratories

## WORK ORDER Summary

**Work Order:** 1009511

Page 1 of 2

9/29/2010

**Client:** Carbon Resources

**Client ID:** CAR300

**Contact:** Brad Lindsay

**Project:** Scofield Baseline / Ground Water Monitoring

**QC Level:** LEVEL II+

**WO Type:** Project

**Comments:** QC 2+, EDD;

HCO3 TOK-DB

-el

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1009511-001A | CR-10-12 | 9/28/2010 11:00:00 AM | 9/29/2010 8:02:00 AM | 10/13/2010 | Aqueous | TDS-W-2540C | ☐ | ww - tds | 1 |
| 1009511-001B | | | | 10/13/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 10/13/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 10/13/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 10/13/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 10/13/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 10/13/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1009511-001C | | | | 10/13/2010 | | NH3-W-350.1 | ☐ | df / nh3 | |
| | | | | 10/13/2010 | | NH3-W-PR | ☐ | df / nh3 | |
| 1009511-001D | | | | 10/13/2010 | | 3005A-DIS-PR | ☐ | df / dis/met | 2 |
| | | | | 10/13/2010 | | 6010C-DIS | ☑ | df / dis/met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 10/13/2010 | | 6020-DIS | ☑ | df / dis/met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 10/13/2010 | | HARD-2340B | ☐ | df / dis/met | |
| 1009511-001E | | | | 10/13/2010 | | 3005A-ICPMS-PR | ☐ | df / total metals | 1 |
| | | | | 10/13/2010 | | 6010C-W | ☑ | df / total metals | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 10/13/2010 | | 6020-W | ☑ | df / total metals | |
| | SEL Analytes: MN | | | | | | | | |
| 1009511-002A | CR-10-11 | 9/28/2010 2:15:00 PM | | 10/13/2010 | | TDS-W-2540C | ☐ | ww - tds | |

# WORK ORDER Summary

**Work Order:** **1009511**



**Client:** Carbon Resources
**Client ID:** CAR300
**Project:** Scofield Baseline / Ground Water Monitoring
**Comments:** QC 2+, EDD;

**Contact:** Brad Lindsay
**QC Level:** LEVEL II+

9/29/2010
**WO Type:** Project

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1009511-002B | CR-10-11 | 9/28/2010 2:15:00 PM | 9/29/2010 8:02:00 AM | 10/13/2010 | Aqueous | 300.0-W | ☑ | DF - wc | 1 |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 10/13/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 10/13/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 10/13/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 10/13/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 10/13/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1009511-002C | | | | 10/13/2010 | | NH3-W-350.1 | ☐ | df / nh3 | |
| | | | | 10/13/2010 | | NH3-W-PR | ☐ | df / nh3 | |
| 1009511-002D | | | | 10/13/2010 | | 3005A-DIS-PR | ☐ | df / dismet | 2 |
| | | | | 10/13/2010 | | 6010C-DIS | ☑ | df / dismet | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 10/13/2010 | | 6020-DIS | ☑ | df / dismet | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 10/13/2010 | | HARD-2340B | ☐ | df / dismet | |
| 1009511-002E | | | | 10/13/2010 | | 3005A-ICPMS-PR | ☐ | df / total met | 1 |
| | | | | 10/13/2010 | | 6010C-W | ☑ | df / total met | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 10/13/2010 | | 6020-W | ☑ | df / total met | |
| | SEL Analytes: MN | | | | | | | | |

Client CARBON RESOURCES c/o ROCK LOGIC

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Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGICCONSULTING@GMAIL.COM

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY


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# CHAIN OF CUSTODY

Lab Sample Set # 1009508

Page 1 of 1

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day Standard

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TESTS REQUIRED: TABLE 4 | TABLE 3 | QC LEVEL | COMMENTS |
|---|---|---|---|---|---|---|---|
| CR-10-12 | 9/23/10 / 11:00 | W | 6 | ✓ | | 1 2 2+ 3 3+ 4 | 1009511 |
| CR-10-11 | / 14:15 | | 6 | ✓ | | | |
| MUD CREEK | / 12:00 | | 7 | | ✓ | | 1009508 |
| SULFUR SPRING | / 12:35 | | 7 | | ✓ | | |
| RES-1 | / 12:50 | | 7 | | ✓ | | |
| MILLER OUTLET | / 13:20 | | 7 | | ✓ | | |
| ASPEN SPRING | / 17:45 | | 7 | | ✓ | | |

**LABORATORY USE ONLY**

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes: on ice
3 Temperature 3.5
4 Received Broken/Leaking (Improperly Sealed) Y N
Notes:
5 Properly Preserved Y N
Checked at Bench Y N
Notes:
6 Received Within Holding Times Y N
Notes:

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA

Discrepancies Between Sample Labels and COC Record? Y N
Notes:

| Relinquished By: Signature | Date | Time | PRINT NAME | Received By: Signature | Date | Time | PRINT NAME |
|---|---|---|---|---|---|---|---|
| Brad Lindsay | 9/28/10 | 19:30 | BRAD LINDSAY | Jeffrey Lindsay | 9/28/10 | 19:30 | JEFFREY LINDSAY |
| Jeffrey Lindsay | 9/29/10 | 8:02 | JEFFREY LINDSAY | Erica Hale | 9/29/10 | 8:02 | ERICA HALE |
| | | | | | | | |
| | | | | | | | |

Special Instructions:

PLEASE FILTER

TABLE 4 SHOULD BE TITLED "GROUND WATER MONITORING..."

TABLE 3 SHOULD BE TITLED "SURFACE WATER MONITORING..."

TABLE 4

1 L HDPE
1 L HDPE
250 mL HDPE
1 500 mL HNO3
1 250 mL H2SO4

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Temperature | °C |

LABORATORY MEASUREMENTS

| | | | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphate (Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 100951

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Scofield Baseline / Surface Water Monitoring

Dear Brad Lindsay: Lab Set ID: 1009508

American West Analytical Laboratories received 5 sample(s) on 9/29/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: _____
Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Surface Water Monitoring
**Lab Sample ID:** 1009508-001
**Client Sample ID:** Mud Creek
**Collection Date:** 9/28/2010 1200h
**Received Date:** 9/29/2010 0802h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 9/30/2010 1321h | 10/6/2010 1753h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 9/30/2010 1321h | 10/1/2010 2017h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 9/30/2010 1321h | 10/6/2010 1753h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 9/30/2010 1321h | 10/1/2010 2017h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 9/30/2010 1321h | 10/6/2010 1639h | SW6010C | 10.0 | **53.4** | |
| Copper | mg/L | 9/30/2010 1321h | 10/1/2010 2017h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 9/30/2010 1321h | 10/6/2010 1753h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 9/30/2010 1321h | 10/1/2010 2017h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 9/30/2010 1321h | 10/6/2010 1753h | SW6010C | 1.00 | **33.2** | |
| Manganese | mg/L | 9/30/2010 1321h | 10/1/2010 2017h | SW6020A | 0.00120 | **0.00662** | |
| Molybdenum | mg/L | 9/30/2010 1321h | 10/6/2010 1753h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 9/30/2010 1321h | 10/6/2010 1753h | SW6010C | 1.00 | **6.37** | |
| Selenium | mg/L | 9/30/2010 1321h | 10/1/2010 2017h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 9/30/2010 1321h | 10/6/2010 1639h | SW6010C | 10.0 | **43.2** | |
| Zinc | mg/L | 9/30/2010 1321h | 10/1/2010 2017h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Surface Water Monitoring
**Lab Sample ID:** 1009508-002
**Client Sample ID:** Sulfur Spring
**Collection Date:** 9/28/2010 1235h
**Received Date:** 9/29/2010 0802h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 9/30/2010 1321h | 10/6/2010 1808h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 9/30/2010 1321h | 10/1/2010 2048h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 9/30/2010 1321h | 10/6/2010 1808h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 9/30/2010 1321h | 10/1/2010 2048h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 9/30/2010 1321h | 10/6/2010 1651h | SW6010C | 10.0 | **89.4** | |
| Copper | mg/L | 9/30/2010 1321h | 10/1/2010 2048h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 9/30/2010 1321h | 10/6/2010 1808h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 9/30/2010 1321h | 10/1/2010 2048h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 9/30/2010 1321h | 10/6/2010 1808h | SW6010C | 1.00 | **33.7** | |
| Manganese | mg/L | 9/30/2010 1321h | 10/1/2010 2048h | SW6020A | 0.00120 | **0.0271** | |
| Molybdenum | mg/L | 9/30/2010 1321h | 10/6/2010 1808h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 9/30/2010 1321h | 10/6/2010 1808h | SW6010C | 1.00 | **4.65** | |
| Selenium | mg/L | 9/30/2010 1321h | 10/1/2010 2048h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 9/30/2010 1321h | 10/6/2010 1808h | SW6010C | 1.00 | **8.21** | |
| Zinc | mg/L | 9/30/2010 1321h | 10/1/2010 2048h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Surface Water Monitoring
**Lab Sample ID:** 1009508-003
**Client Sample ID:** RES-1
**Collection Date:** 9/28/2010 1250h
**Received Date:** 9/29/2010 0802h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 9/30/2010 1321h | 10/6/2010 1812h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 9/30/2010 1321h | 10/1/2010 2054h | SW6020A | 0.000600 | **0.00305** | |
| Boron | mg/L | 9/30/2010 1321h | 10/6/2010 1812h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 9/30/2010 1321h | 10/1/2010 2054h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 9/30/2010 1321h | 10/6/2010 1812h | SW6010C | 1.00 | **47.8** | |
| Copper | mg/L | 9/30/2010 1321h | 10/1/2010 2054h | SW6020A | 0.000800 | **0.00125** | |
| Iron | mg/L | 9/30/2010 1321h | 10/6/2010 1812h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 9/30/2010 1321h | 10/1/2010 2054h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 9/30/2010 1321h | 10/6/2010 1655h | SW6010C | 10.0 | **75.5** | |
| Manganese | mg/L | 9/30/2010 1321h | 10/1/2010 2054h | SW6020A | 0.00120 | **0.244** | |
| Molybdenum | mg/L | 9/30/2010 1321h | 10/6/2010 1812h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 9/30/2010 1321h | 10/6/2010 1812h | SW6010C | 1.00 | **10.5** | |
| Selenium | mg/L | 9/30/2010 1321h | 10/1/2010 2054h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 9/30/2010 1321h | 10/6/2010 1812h | SW6010C | 1.00 | **34.4** | |
| Zinc | mg/L | 9/30/2010 1321h | 10/1/2010 2054h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Surface Water Monitoring
**Lab Sample ID:** 1009508-004
**Client Sample ID:** Miller Outlet
**Collection Date:** 9/28/2010 1320h
**Received Date:** 9/29/2010 0802h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 9/30/2010 1321h | 10/6/2010 1816h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 9/30/2010 1321h | 10/1/2010 2059h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 9/30/2010 1321h | 10/6/2010 1816h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 9/30/2010 1321h | 10/1/2010 2059h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 9/30/2010 1321h | 10/6/2010 1659h | SW6010C | 10.0 | **67.9** | |
| Copper | mg/L | 9/30/2010 1321h | 10/1/2010 2059h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 9/30/2010 1321h | 10/6/2010 1816h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 9/30/2010 1321h | 10/1/2010 2059h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 9/30/2010 1321h | 10/6/2010 1816h | SW6010C | 1.00 | **16.5** | |
| Manganese | mg/L | 9/30/2010 1321h | 10/1/2010 2059h | SW6020A | 0.00120 | **0.00161** | |
| Molybdenum | mg/L | 9/30/2010 1321h | 10/6/2010 1816h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 9/30/2010 1321h | 10/6/2010 1816h | SW6010C | 1.00 | **2.08** | |
| Selenium | mg/L | 9/30/2010 1321h | 10/1/2010 2059h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 9/30/2010 1321h | 10/6/2010 1816h | SW6010C | 1.00 | **6.21** | |
| Zinc | mg/L | 9/30/2010 1321h | 10/1/2010 2059h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*




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Jose Rocha
QA Officer

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Surface Water Monitoring
**Lab Sample ID:** 1009508-005
**Client Sample ID:** Aspen Spring
**Collection Date:** 9/28/2010 1745h
**Received Date:** 9/29/2010 0802h

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 9/30/2010 1321h | 10/6/2010 1820h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 9/30/2010 1321h | 10/1/2010 2125h | SW6020A | 0.000600 | **0.00162** | |
| Boron | mg/L | 9/30/2010 1321h | 10/6/2010 1820h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 9/30/2010 1321h | 10/1/2010 2125h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 9/30/2010 1321h | 10/6/2010 1820h | SW6010C | 1.00 | **35.1** | |
| Copper | mg/L | 9/30/2010 1321h | 10/1/2010 2125h | SW6020A | 0.000800 | **0.00267** | |
| Iron | mg/L | 9/30/2010 1321h | 10/6/2010 1820h | SW6010C | 0.100 | **0.213** | |
| Lead | mg/L | 9/30/2010 1321h | 10/1/2010 2125h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 9/30/2010 1321h | 10/6/2010 1820h | SW6010C | 1.00 | **10.9** | |
| Manganese | mg/L | 9/30/2010 1321h | 10/1/2010 2125h | SW6020A | 0.00120 | **0.0106** | |
| Molybdenum | mg/L | 9/30/2010 1321h | 10/6/2010 1820h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 9/30/2010 1321h | 10/6/2010 1820h | SW6010C | 1.00 | **24.1** | |
| Selenium | mg/L | 9/30/2010 1321h | 10/1/2010 2125h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 9/30/2010 1321h | 10/6/2010 1820h | SW6010C | 1.00 | **11.1** | |
| Zinc | mg/L | 9/30/2010 1321h | 10/1/2010 2125h | SW6020A | 0.00500 | < 0.00500 | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Surface Water Monitoring
**Lab Sample ID:** 1009508-001
**Client Sample ID:** Mud Creek
**Collection Date:** 9/28/2010 1200h
**Received Date:** 9/29/2010 0802h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 9/30/2010 1324h | 10/5/2010 1520h | SW6010C | 0.100 | **0.207** | |
| Manganese | mg/L | 9/30/2010 1324h | 9/30/2010 2020h | SW6020A | 0.00120 | **0.0200** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Surface Water Monitoring
**Lab Sample ID:** 1009508-002
**Client Sample ID:** Sulfur Spring
**Collection Date:** 9/28/2010 1235h
**Received Date:** 9/29/2010 0802h


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## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 9/30/2010 1324h | 10/5/2010 1536h | SW6010C | 0.100 | < 0.100 | |
| Manganese | mg/L | 9/30/2010 1324h | 9/30/2010 2038h | SW6020A | 0.00120 | **0.0272** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Surface Water Monitoring
**Lab Sample ID:** 1009508-003
**Client Sample ID:** RES-1
**Collection Date:** 9/28/2010 1250h
**Received Date:** 9/29/2010 0802h

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Jose Rocha
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## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 9/30/2010 1324h | 10/5/2010 1551h | SW6010C | 0.100 | **1.95** | |
| Manganese | mg/L | 9/30/2010 1324h | 9/30/2010 2044h | SW6020A | 0.00120 | **0.405** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Surface Water Monitoring
**Lab Sample ID:** 1009508-004
**Client Sample ID:** Miller Outlet
**Collection Date:** 9/28/2010 1320h
**Received Date:** 9/29/2010 0802h

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## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 9/30/2010 1324h | 10/5/2010 1555h | SW6010C | 0.100 | **0.628** | |
| Manganese | mg/L | 9/30/2010 1324h | 9/30/2010 2049h | SW6020A | 0.00120 | **0.0263** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Surface Water Monitoring
**Lab Sample ID:** 1009508-005
**Client Sample ID:** Aspen Spring
**Collection Date:** 9/28/2010 1745h
**Received Date:** 9/29/2010 0802h

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Jose Rocha
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 9/30/2010 1324h | 10/5/2010 1559h | SW6010C | 0.100 | **25.8** | |
| Manganese | mg/L | 9/30/2010 1324h | 9/30/2010 2055h | SW6020A | 0.00120 | **0.609** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Surface Water Monitoring
**Lab Sample ID:** 1009508-001
**Client Sample ID:** Mud Creek
**Collection Date:** 9/28/2010 1200h
**Received Date:** 9/29/2010 0802h


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Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 9/30/2010 1110h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | **238** | |
| Ammonia (as N) | mg/L | 10/1/2010 1019h | 10/4/2010 0826h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | **238** | |
| Carbonate (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 10.0 | < 10.0 | |
| Chloride | mg/L | | 10/1/2010 1712h | E300.0 | 1.00 | **14.1** | |
| Hardness (as CaCO3) | mg/L | | 10/6/2010 | A2340B | 10.0 | **270** | |
| Nitrate (as N) | mg/L | | 9/29/2010 1442h | E353.2 | 0.0100 | < 0.0100 | 1 |
| Nitrite (as N) | mg/L | | 9/29/2010 1442h | E353.2 | 0.0100 | < 0.0100 | 1 |
| Oil & Grease | mg/L | | 9/29/2010 1358h | E1664A | 3.00 | **3.10** | |
| Phosphate, Total Ortho (as P) | mg/L | | 9/29/2010 1558h | E365.1 | 0.0500 | < 0.0500 | 1 |
| Settleable Solids | mL/L | | 9/29/2010 1325h | A2540F | 0.100 | < 0.100 | |
| Sulfate | mg/L | | 10/1/2010 1712h | E300.0 | 7.50 | **122** | |
| Total Dissolved Solids | mg/L | | 10/1/2010 1330h | A2540C | 10.0 | **412** | |
| Total Suspended Solids | mg/L | | 9/29/2010 1530h | A2540D | 3.00 | **13.0** | |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Surface Water Monitoring
**Lab Sample ID:** 1009508-002
**Client Sample ID:** Sulfur Spring
**Collection Date:** 9/28/2010 1235h
**Received Date:** 9/29/2010 0802h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 9/30/2010 1110h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | **343** | |
| Ammonia (as N) | mg/L | 10/1/2010 1019h | 10/4/2010 0830h | E350.1 | 0.0500 | **0.142** | |
| Bicarbonate (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | **343** | |
| Carbonate (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 10.0 | < 10.0 | |
| Chloride | mg/L | | 9/29/2010 2106h | E300.0 | 1.00 | **6.63** | |
| Hardness (as CaCO3) | mg/L | | 10/6/2010 | A2340B | 10.0 | **362** | |
| Nitrate (as N) | mg/L | | 9/29/2010 1455h | E353.2 | 0.0100 | < 0.0100 | |
| Nitrite (as N) | mg/L | | 9/29/2010 1455h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 9/29/2010 1358h | E1664A | 3.00 | **3.10** | |
| Phosphate, Total Ortho (as P) | mg/L | | 9/29/2010 1601h | E365.1 | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 9/29/2010 1325h | A2540F | 0.100 | < 0.100 | |
| Sulfate | mg/L | | 9/29/2010 2106h | E300.0 | 7.50 | **43.3** | |
| Total Dissolved Solids | mg/L | | 10/1/2010 1330h | A2540C | 10.0 | **388** | |
| Total Suspended Solids | mg/L | | 9/29/2010 1530h | A2540D | 3.00 | < 3.00 | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Surface Water Monitoring
**Lab Sample ID:** 1009508-003
**Client Sample ID:** RES-1
**Collection Date:** 9/28/2010 1250h
**Received Date:** 9/29/2010 0802h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 9/30/2010 1110h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | **406** | |
| Ammonia (as N) | mg/L | 10/1/2010 1019h | 10/4/2010 0831h | E350.1 | 0.0500 | **0.0642** | |
| Bicarbonate (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | **315** | |
| Carbonate (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | **91.0** | |
| Chloride | mg/L | | 9/29/2010 2129h | E300.0 | 1.00 | **68.3** | |
| Hardness (as CaCO3) | mg/L | | 10/6/2010 | A2340B | 10.0 | **430** | |
| Nitrate (as N) | mg/L | | 9/29/2010 1457h | E353.2 | 0.0100 | **0.200** | |
| Nitrite (as N) | mg/L | | 9/29/2010 1457h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 9/29/2010 1358h | E1664A | 3.00 | **3.24** | |
| Phosphate, Total Ortho (as P) | mg/L | | 9/29/2010 1602h | E365.1 | 0.0500 | **0.0770** | |
| Settleable Solids | mL/L | | 9/29/2010 1325h | A2540F | 0.100 | **4.70** | |
| Sulfate | mg/L | | 9/29/2010 2129h | E300.0 | 7.50 | **11.6** | |
| Total Dissolved Solids | mg/L | | 10/1/2010 1330h | A2540C | 10.0 | **568** | |
| Total Suspended Solids | mg/L | | 9/29/2010 1530h | A2540D | 3.00 | **67.0** | |




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Surface Water Monitoring
**Lab Sample ID:** 1009508-004
**Client Sample ID:** Miller Outlet
**Collection Date:** 9/28/2010 1320h
**Received Date:** 9/29/2010 0802h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 9/30/2010 1110h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | **217** | |
| Ammonia (as N) | mg/L | 10/1/2010 1019h | 10/4/2010 0832h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | **214** | |
| Carbonate (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/1/2010 1735h | E300.0 | 1.00 | **10.1** | |
| Hardness (as CaCO3) | mg/L | | 10/6/2010 | A2340B | 10.0 | **238** | |
| Nitrate (as N) | mg/L | | 9/29/2010 1458h | E353.2 | 0.0100 | < 0.0100 | |
| Nitrite (as N) | mg/L | | 9/29/2010 1458h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 9/29/2010 1358h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total Ortho (as P) | mg/L | | 9/29/2010 1602h | E365.1 | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 9/29/2010 1325h | A2540F | 0.100 | < 0.100 | |
| Sulfate | mg/L | | 10/1/2010 1735h | E300.0 | 7.50 | **23.5** | |
| Total Dissolved Solids | mg/L | | 10/1/2010 1330h | A2540C | 10.0 | **272** | |
| Total Suspended Solids | mg/L | | 9/29/2010 1530h | A2540D | 3.00 | **20.0** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Surface Water Monitoring
**Lab Sample ID:** 1009508-005
**Client Sample ID:** Aspen Spring
**Collection Date:** 9/28/2010 1745h
**Received Date:** 9/29/2010 0802h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 9/30/2010 1110h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | **124** | |
| Ammonia (as N) | mg/L | 10/1/2010 1019h | 10/4/2010 0833h | E350.1 | 0.0500 | **1.63** | |
| Bicarbonate (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 20.0 | **124** | |
| Carbonate (as CaCO3) | mg/L | | 9/30/2010 1015h | A2320B | 10.0 | < 10.0 | |
| Chloride | mg/L | | 10/1/2010 1931h | E300.0 | 0.500 | **36.1** | |
| Hardness (as CaCO3) | mg/L | | 10/6/2010 | A2340B | 10.0 | **128** | |
| Nitrate (as N) | mg/L | | 9/29/2010 1459h | E353.2 | 0.0100 | < 0.0100 | |
| Nitrite (as N) | mg/L | | 9/29/2010 1459h | E353.2 | 0.0100 | **0.0605** | |
| Oil & Grease | mg/L | | 9/29/2010 1358h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total Ortho (as P) | mg/L | | 9/29/2010 1603h | E365.1 | 0.0500 | **0.118** | |
| Settleable Solids | mL/L | | 9/29/2010 1325h | A2540F | 0.100 | **1.50** | |
| Sulfate | mg/L | | 10/1/2010 1931h | E300.0 | 3.75 | **29.1** | |
| Total Dissolved Solids | mg/L | | 10/1/2010 1330h | A2540C | 10.0 | **342** | |
| Total Suspended Solids | mg/L | | 9/29/2010 1530h | A2540D | 15.0 | **344** | |




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Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009508
**Project:** Scofield Baseline / Surface Water Monitoring

**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-8751 | Aluminum | mg/L | SW6010C | 0.950 | 1.000 | 0 | 95.0 | 80-120 | | | | 10/6/2010 |
| LCS-8751 | Boron | mg/L | SW6010C | 0.968 | 1.000 | 0 | 96.8 | 80-120 | | | | 10/6/2010 |
| LCS-8751 | Calcium | mg/L | SW6010C | 9.09 | 10.00 | 0 | 90.9 | 80-120 | | | | 10/6/2010 |
| LCS-8751 | Iron | mg/L | SW6010C | 0.945 | 1.000 | 0 | 94.5 | 80-120 | | | | 10/6/2010 |
| LCS-8751 | Magnesium | mg/L | SW6010C | 9.39 | 10.00 | 0 | 93.9 | 80-120 | | | | 10/6/2010 |
| LCS-8751 | Molybdenum | mg/L | SW6010C | 0.183 | 0.2000 | 0 | 91.4 | 80-120 | | | | 10/6/2010 |
| LCS-8751 | Potassium | mg/L | SW6010C | 9.71 | 10.00 | 0 | 97.1 | 80-120 | | | | 10/6/2010 |
| LCS-8751 | Sodium | mg/L | SW6010C | 9.44 | 10.00 | 0 | 94.4 | 80-120 | | | | 10/6/2010 |
| LCS-8752 | Iron | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 80-120 | | | | 10/5/2010 |
| LCS-8751 | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 10/1/2010 |
| LCS-8751 | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 85-115 | | | | 10/1/2010 |
| LCS-8751 | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 85-115 | | | | 10/1/2010 |
| LCS-8751 | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 10/1/2010 |
| LCS-8751 | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 85-115 | | | | 10/1/2010 |
| LCS-8751 | Selenium | mg/L | SW6020A | 0.204 | 0.2000 | 0 | 102 | 85-115 | | | | 10/1/2010 |
| LCS-8751 | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 85-115 | | | | 10/1/2010 |
| LCS-8752 | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 85-115 | | | | 9/30/2010 |
| LCS-8752 | Cadmium | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.7 | 85-115 | | | | 9/30/2010 |
| LCS-8752 | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 9/30/2010 |
| LCS-8752 | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 9/30/2010 |
| LCS-8752 | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.8 | 85-115 | | | | 9/30/2010 |
| LCS-8752 | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 85-115 | | | | 9/30/2010 |
| LCS-8752 | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 85-115 | | | | 9/30/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009508
**Project:** Scofield Baseline / Surface Water Monitoring

**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-8751 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 10/6/2010 |
| MB-8751 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 10/6/2010 |
| MB-8751 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/6/2010 |
| MB-8751 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 10/6/2010 |
| MB-8751 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/6/2010 |
| MB-8751 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 10/6/2010 |
| MB-8751 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/6/2010 |
| MB-8751 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/6/2010 |
| MB-8752 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 10/5/2010 |
| MB-8751 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 10/1/2010 |
| MB-8751 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 10/1/2010 |
| MB-8751 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 10/1/2010 |
| MB-8751 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 10/1/2010 |
| MB-8751 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 10/1/2010 |
| MB-8751 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 10/1/2010 |
| MB-8751 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 10/1/2010 |
| MB-8752 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 9/30/2010 |
| MB-8752 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 9/30/2010 |
| MB-8752 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 9/30/2010 |
| MB-8752 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 9/30/2010 |
| MB-8752 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 9/30/2010 |
| MB-8752 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 9/30/2010 |
| MB-8752 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 9/30/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009508
**Project:** Scofield Baseline / Surface Water Monitoring

**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009508-001EMS | Aluminum | mg/L | SW6010C | 0.986 | 1.000 | 0 | 98.6 | 75-125 | | | | 10/6/2010 |
| 1009508-001EMS | Boron | mg/L | SW6010C | 1.23 | 1.000 | 0.1526 | 108 | 75-125 | | | | 10/6/2010 |
| 1009508-001EMS | Iron | mg/L | SW6010C | 0.998 | 1.000 | 0 | 99.8 | 75-125 | | | | 10/6/2010 |
| 1009508-001EMS | Magnesium | mg/L | SW6010C | 42.0 | 10.00 | 33.17 | 88.2 | 75-125 | | | | 10/6/2010 |
| 1009508-001EMS | Molybdenum | mg/L | SW6010C | 0.195 | 0.2000 | 0 | 97.3 | 75-125 | | | | 10/6/2010 |
| 1009508-001EMS | Potassium | mg/L | SW6010C | 16.4 | 10.00 | 6.373 | 100 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Aluminum | mg/L | SW6010C | 0.866 | 1.000 | 0 | 86.6 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Boron | mg/L | SW6010C | 0.955 | 1.000 | 0.01937 | 93.6 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Iron | mg/L | SW6010C | 0.875 | 1.000 | 0 | 87.5 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Magnesium | mg/L | SW6010C | 15.9 | 10.00 | 7.380 | 84.8 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Molybdenum | mg/L | SW6010C | 0.169 | 0.2000 | 0 | 84.7 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Potassium | mg/L | SW6010C | 9.77 | 10.00 | 1.011 | 87.6 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Sodium | mg/L | SW6010C | 24.4 | 10.00 | 16.03 | 83.3 | 75-125 | | | | 10/6/2010 |
| 1009508-001EMS | Calcium | mg/L | SW6010C | 63.1 | 10.00 | 53.40 | 96.9 | 75-125 | | | | 10/6/2010 |
| 1009508-001EMS | Sodium | mg/L | SW6010C | 53.5 | 10.00 | 43.17 | 103 | 75-125 | | | | 10/6/2010 |
| 1009511-001DMS | Calcium | mg/L | SW6010C | 91.4 | 10.00 | 82.42 | 89.4 | 75-125 | | | | 10/6/2010 |
| 1009508-001FMS | Iron | mg/L | SW6010C | 1.27 | 1.000 | 0.2070 | 106 | 75-125 | | | | 10/5/2010 |
| 1009511-001EMS | Iron | mg/L | SW6010C | 10.8 | 1.000 | 9.380 | 142 | 75-125 | | | 2 | 10/5/2010 |
| 1009508-001EMS | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0004450 | 100 | 75-125 | | | | 10/1/2010 |
| 1009508-001EMS | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | | | | 10/1/2010 |
| 1009508-001EMS | Copper | mg/L | SW6020A | 0.195 | 0.2000 | 0 | 97.5 | 75-125 | | | | 10/1/2010 |
| 1009508-001EMS | Lead | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 101 | 75-125 | | | | 10/1/2010 |
| 1009508-001EMS | Manganese | mg/L | SW6020A | 0.206 | 0.2000 | 0.006622 | 99.7 | 75-125 | | | | 10/1/2010 |
| 1009508-001EMS | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.0005100 | 101 | 75-125 | | | | 10/1/2010 |



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Kyle F. Gross
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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009508
**Project:** Scofield Baseline / Surface Water Monitoring

**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009508-001EMS | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 75-125 | | | | 10/1/2010 |
| 1009511-001DMS | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0004980 | 100 | 75-125 | | | | 10/1/2010 |
| 1009511-001DMS | Cadmium | mg/L | SW6020A | 0.197 | 0.2000 | 0.00008100 | 98.5 | 75-125 | | | | 10/1/2010 |
| 1009511-001DMS | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0.0004650 | 100 | 75-125 | | | | 10/1/2010 |
| 1009511-001DMS | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 75-125 | | | | 10/1/2010 |
| 1009511-001DMS | Manganese | mg/L | SW6020A | 0.204 | 0.2000 | 0.002118 | 101 | 75-125 | | | | 10/1/2010 |
| 1009511-001DMS | Selenium | mg/L | SW6020A | 0.201 | 0.2000 | 0.0006810 | 100 | 75-125 | | | | 10/1/2010 |
| 1009511-001DMS | Zinc | mg/L | SW6020A | 0.990 | 1.000 | 0 | 99.0 | 75-125 | | | | 10/1/2010 |
| 1009522-001BMS | Manganese | mg/L | SW6020A | 0.223 | 0.2000 | 0.02429 | 99.4 | 75-125 | | | | 10/1/2010 |
| 1009508-001FMS | Manganese | mg/L | SW6020A | 0.220 | 0.2000 | 0.02004 | 99.9 | 75-125 | | | | 9/30/2010 |
| 1009511-001EMS | Manganese | mg/L | SW6020A | 0.297 | 0.2000 | 0.09608 | 101 | 75-125 | | | | 9/30/2010 |
| 1009533-001FMS | Arsenic | mg/L | SW6020A | 0.287 | 0.2000 | 0.09053 | 98.2 | 75-125 | | | | 9/30/2010 |
| 1009533-001FMS | Cadmium | mg/L | SW6020A | 0.195 | 0.2000 | 0.0002780 | 97.4 | 75-125 | | | | 9/30/2010 |
| 1009533-001FMS | Copper | mg/L | SW6020A | 0.203 | 0.2000 | 0.002522 | 100 | 75-125 | | | | 9/30/2010 |
| 1009533-001FMS | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | | | | 9/30/2010 |
| 1009533-001FMS | Manganese | mg/L | SW6020A | 1.81 | 0.2000 | 1.663 | 74.6 | 75-125 | | | 2 | 9/30/2010 |
| 1009533-001FMS | Selenium | mg/L | SW6020A | 0.210 | 0.2000 | 0.007680 | 101 | 75-125 | | | | 9/30/2010 |
| 1009533-001FMS | Zinc | mg/L | SW6020A | 1.04 | 1.000 | 0.02531 | 101 | 75-125 | | | | 9/30/2010 |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009508
**Project:** Scofield Baseline / Surface Water Monitoring

**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009508-001EMSD | Aluminum | mg/L | SW6010C | 0.970 | 1.000 | 0 | 97.0 | 75-125 | 1.67 | 20 | | 10/6/2010 |
| 1009508-001EMSD | Boron | mg/L | SW6010C | 1.22 | 1.000 | 0.1526 | 107 | 75-125 | 1.08 | 20 | | 10/6/2010 |
| 1009508-001EMSD | Iron | mg/L | SW6010C | 0.962 | 1.000 | 0 | 96.2 | 75-125 | 3.61 | 20 | | 10/6/2010 |
| 1009508-001EMSD | Magnesium | mg/L | SW6010C | 40.8 | 10.00 | 33.17 | 75.8 | 75-125 | 3.00 | 20 | | 10/6/2010 |
| 1009508-001EMSD | Molybdenum | mg/L | SW6010C | 0.193 | 0.2000 | 0 | 96.3 | 75-125 | 1.09 | 20 | | 10/6/2010 |
| 1009508-001EMSD | Potassium | mg/L | SW6010C | 15.9 | 10.00 | 6.373 | 95.7 | 75-125 | 2.86 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Aluminum | mg/L | SW6010C | 0.969 | 1.000 | 0 | 96.9 | 75-125 | 11.2 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Boron | mg/L | SW6010C | 1.06 | 1.000 | 0.01937 | 104 | 75-125 | 10.8 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Iron | mg/L | SW6010C | 0.944 | 1.000 | 0 | 94.4 | 75-125 | 7.62 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Magnesium | mg/L | SW6010C | 16.6 | 10.00 | 7.380 | 92.4 | 75-125 | 4.64 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Molybdenum | mg/L | SW6010C | 0.188 | 0.2000 | 0 | 94.0 | 75-125 | 10.4 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Potassium | mg/L | SW6010C | 10.7 | 10.00 | 1.011 | 96.7 | 75-125 | 8.90 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Sodium | mg/L | SW6010C | 25.0 | 10.00 | 16.03 | 89.5 | 75-125 | 2.51 | 20 | | 10/6/2010 |
| 1009508-001EMSD | Calcium | mg/L | SW6010C | 65.4 | 10.00 | 53.40 | 121 | 75-125 | 3.67 | 20 | | 10/6/2010 |
| 1009508-001EMSD | Sodium | mg/L | SW6010C | 54.9 | 10.00 | 43.17 | 117 | 75-125 | 2.59 | 20 | | 10/6/2010 |
| 1009511-001DMSD | Calcium | mg/L | SW6010C | 92.0 | 10.00 | 82.42 | 96.0 | 75-125 | 0.711 | 20 | | 10/6/2010 |
| 1009508-001FMSD | Iron | mg/L | SW6010C | 1.30 | 1.000 | 0.2070 | 109 | 75-125 | 2.33 | 20 | | 10/5/2010 |
| 1009511-001EMSD | Iron | mg/L | SW6010C | 10.9 | 1.000 | 9.380 | 152 | 75-125 | 0.922 | 20 | 2 | 10/5/2010 |
| 1009508-001EMSD | Arsenic | mg/L | SW6020A | 0.202 | 0.2000 | 0.0004450 | 101 | 75-125 | 0.144 | 20 | | 10/1/2010 |
| 1009508-001EMSD | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | 0.00600 | 20 | | 10/1/2010 |
| 1009508-001EMSD | Copper | mg/L | SW6020A | 0.196 | 0.2000 | 0 | 98.0 | 75-125 | 0.554 | 20 | | 10/1/2010 |
| 1009508-001EMSD | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 75-125 | 0.801 | 20 | | 10/1/2010 |
| 1009508-001EMSD | Manganese | mg/L | SW6020A | 0.203 | 0.2000 | 0.006622 | 98.3 | 75-125 | 1.38 | 20 | | 10/1/2010 |
| 1009508-001EMSD | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0.0005100 | 99.9 | 75-125 | 0.657 | 20 | | 10/1/2010 |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009508
**Project:** Scofield Baseline / Surface Water Monitoring

**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009508-001EMSD | Zinc | mg/L | SW6020A | 1.00 | 1.000 | 0 | 100 | 75-125 | 0.326 | 20 | | 10/1/2010 |
| 1009522-001BMSD | Manganese | mg/L | SW6020A | 0.223 | 0.2000 | 0.02429 | 99.5 | 75-125 | 0.0699 | 20 | | 10/1/2010 |
| 1009511-001DMSD | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0004980 | 100 | 75-125 | 0.195 | 20 | | 10/1/2010 |
| 1009511-001DMSD | Cadmium | mg/L | SW6020A | 0.198 | 0.2000 | 0.00008100 | 99.2 | 75-125 | 0.700 | 20 | | 10/1/2010 |
| 1009511-001DMSD | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0.0004650 | 100 | 75-125 | 0.0911 | 20 | | 10/1/2010 |
| 1009511-001DMSD | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 75-125 | 0.462 | 20 | | 10/1/2010 |
| 1009511-001DMSD | Manganese | mg/L | SW6020A | 0.205 | 0.2000 | 0.002118 | 101 | 75-125 | 0.380 | 20 | | 10/1/2010 |
| 1009511-001DMSD | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.0006810 | 100 | 75-125 | 0.388 | 20 | | 10/1/2010 |
| 1009511-001DMSD | Zinc | mg/L | SW6020A | 0.987 | 1.000 | 0 | 98.7 | 75-125 | 0.281 | 20 | | 10/1/2010 |
| 1009508-001FMSD | Manganese | mg/L | SW6020A | 0.222 | 0.2000 | 0.02004 | 101 | 75-125 | 0.954 | 20 | | 9/30/2010 |
| 1009511-001EMSD | Manganese | mg/L | SW6020A | 0.298 | 0.2000 | 0.09608 | 101 | 75-125 | 0.0988 | 20 | | 9/30/2010 |
| 1009533-001FMSD | Arsenic | mg/L | SW6020A | 0.288 | 0.2000 | 0.09053 | 98.8 | 75-125 | 0.381 | 20 | | 9/30/2010 |
| 1009533-001FMSD | Cadmium | mg/L | SW6020A | 0.194 | 0.2000 | 0.0002780 | 96.8 | 75-125 | 0.549 | 20 | | 9/30/2010 |
| 1009533-001FMSD | Copper | mg/L | SW6020A | 0.203 | 0.2000 | 0.002522 | 100 | 75-125 | 0.0113 | 20 | | 9/30/2010 |
| 1009533-001FMSD | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | 0.00150 | 20 | | 9/30/2010 |
| 1009533-001FMSD | Manganese | mg/L | SW6020A | 1.76 | 0.2000 | 1.663 | 49.1 | 75-125 | 2.86 | 20 | 2 | 9/30/2010 |
| 1009533-001FMSD | Selenium | mg/L | SW6020A | 0.211 | 0.2000 | 0.007680 | 101 | 75-125 | 0.299 | 20 | | 9/30/2010 |
| 1009533-001FMSD | Zinc | mg/L | SW6020A | 1.03 | 1.000 | 0.02531 | 101 | 75-125 | 0.706 | 20 | | 9/30/2010 |

*2 - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009508
**Project:** Scofield Baseline / Surface Water Monitoring

**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009508-001ADUP | Total Dissolved Solids | mg/L | A2540C | 404 | | 412.0 | | - | 1.96 | 5 | | 10/1/2010 |
| 1009511-001ADUP | Total Dissolved Solids | mg/L | A2540C | 394 | | 390.0 | | - | 1.02 | 5 | | 10/1/2010 |
| 1009533-001HDUP | Total Dissolved Solids | mg/L | A2540C | 1,140 | | 1,132 | | - | 1.05 | 5 | | 10/1/2010 |
| 1009503-001ADUP | Total Suspended Solids | mg/L | A2540D | 101 | | 100.0 | | - | 0.995 | 5 | | 9/29/2010 |
| 1009508-002ADUP | Total Suspended Solids | mg/L | A2540D | < 3.00 | | 1.000 | | - | 0 | 5 | | 9/29/2010 |



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Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009508
**Project:** Scofield Baseline / Surface Water Monitoring

**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R18970 | Chloride | mg/L | E300.0 | 4.73 | 5.000 | 0 | 94.6 | 90-110 | | | | 9/29/2010 |
| LCS-R18970 | Sulfate | mg/L | E300.0 | 5.51 | 5.000 | 0 | 110 | 90-110 | | | | 9/29/2010 |
| LCS-R19058 | Chloride | mg/L | E300.0 | 4.54 | 5.000 | 0 | 90.7 | 90-110 | | | | 10/1/2010 |
| LCS-R19058 | Sulfate | mg/L | E300.0 | 4.87 | 5.000 | 0 | 97.4 | 90-110 | | | | 10/1/2010 |
| LCS-R18965 | Acidity | mg/L | A2310B | 48.0 | 50.00 | 0 | 96.0 | 80-120 | | | | 9/30/2010 |
| LCS-R18966 | Alkalinity (as CaCO3) | mg/L | A2320B | 51,600 | 50,000 | 0 | 103 | 90-110 | | | | 9/30/2010 |
| LCS-8769 | Ammonia (as N) | mg/L | E350.1 | 1.09 | 1.000 | 0 | 109 | 90-110 | | | | 10/4/2010 |
| LCS-R18989 | Oil & Grease | mg/L | E1664A | 40.2 | 40.00 | 2.700 | 93.8 | 78-114 | | | | 9/29/2010 |
| LCS-R18919 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.962 | 1.000 | 0.005800 | 95.6 | 90-110 | | | | 9/29/2010 |
| LCS-R19081 | Total Dissolved Solids | mg/L | A2540C | 192 | 205.0 | 0 | 93.7 | 80-120 | | | | 10/1/2010 |
| LCS-R18955 | Total Suspended Solids | mg/L | A2540D | 97.0 | 100.0 | 0 | 97.0 | 80-120 | | | | 9/29/2010 |



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Kyle F. Gross
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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009508
**Project:** Scofield Baseline / Surface Water Monitoring

**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R18970 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | | 9/29/2010 |
| MB-R18970 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 9/29/2010 |
| MB-R19058 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | | 10/1/2010 |
| MB-R19058 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 10/1/2010 |
| MB-R18965 | Acidity | mg/L | A2310B | < 15.0 | | | | - | | | | 9/30/2010 |
| MB-R18966 | Alkalinity (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 9/30/2010 |
| MB-R18966 | Bicarbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 9/30/2010 |
| MB-R18966 | Carbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 9/30/2010 |
| MB-8769 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 10/4/2010 |
| MB-R18989 | Oil & Grease | mg/L | E1664A | < 3.00 | | | | - | | | | 9/29/2010 |
| MB-R18919 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | < 0.0500 | | | | - | | | | 9/29/2010 |
| MB-R19081 | Total Dissolved Solids | mg/L | A2540C | < 10.0 | | | | - | | | | 10/1/2010 |
| MB-R18955 | Total Suspended Solids | mg/L | A2540D | < 3.00 | | | | - | | | | 9/29/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009508
**Project:** Scofield Baseline / Surface Water Monitoring

**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009507-005CMS | Chloride | mg/L | E300.0 | 85.2 | 25.00 | 61.56 | 94.4 | 90-110 | | | | 9/29/2010 |
| 1009507-005CMS | Sulfate | mg/L | E300.0 | 6.91 | 5.000 | 1.929 | 99.6 | 90-110 | | | | 10/1/2010 |
| 1009508-004BMS | Chloride | mg/L | E300.0 | 55.7 | 50.00 | 10.05 | 91.4 | 90-110 | | | | 10/1/2010 |
| 1009508-004BMS | Sulfate | mg/L | E300.0 | 73.0 | 50.00 | 23.46 | 99.0 | 90-110 | | | | 10/1/2010 |
| 1009511-001BMS | Chloride | mg/L | E300.0 | 480 | 500.0 | 0 | 96.0 | 90-110 | | | | 10/1/2010 |
| 1009522-001AMS | Chloride | mg/L | E300.0 | 65.6 | 25.00 | 39.76 | 103 | 90-110 | | | | 10/1/2010 |
| 1009522-001AMS | Sulfate | mg/L | E300.0 | 36.1 | 25.00 | 11.88 | 96.8 | 90-110 | | | | 10/1/2010 |
| 1009533-001DMS | Chloride | mg/L | E300.0 | 140 | 50.00 | 86.55 | 106 | 90-110 | | | | 10/2/2010 |
| 1009533-001DMS | Sulfate | mg/L | E300.0 | 185 | 50.00 | 133.8 | 102 | 90-110 | | | | 10/2/2010 |
| 1009508-005BMS | Acidity | mg/L | A2310B | 46.0 | 50.00 | 0 | 92.0 | 80-120 | | | | 9/30/2010 |
| 1009511-001BMS | Acidity | mg/L | A2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | | | | 9/30/2010 |
| 1009508-001BMS | Alkalinity (as CaCO3) | mg/L | A2320B | 338 | 100.0 | 238.0 | 100 | 80-120 | | | | 9/30/2010 |
| 1009511-001BMS | Alkalinity (as CaCO3) | mg/L | A2320B | 280 | 100.0 | 177.0 | 103 | 80-120 | | | | 9/30/2010 |
| 1009522-001AMS | Alkalinity (as CaCO3) | mg/L | A2320B | 1,570 | 500.0 | 1,059 | 101 | 80-120 | | | | 9/30/2010 |
| 1009533-001DMS | Alkalinity (as CaCO3) | mg/L | A2320B | 1,430 | 500.0 | 893.0 | 107 | 80-120 | | | | 9/30/2010 |
| 1009508-001DMS | Ammonia (as N) | mg/L | E350.1 | 1.03 | 1.000 | 0 | 103 | 90-110 | | | | 10/4/2010 |
| 1009511-002CMS | Ammonia (as N) | mg/L | E350.1 | 1.00 | 1.000 | 0 | 100 | 90-110 | | | | 10/4/2010 |
| 1009533-001EMS | Ammonia (as N) | mg/L | E350.1 | 1.08 | 1.000 | 0.3142 | 76.9 | 90-110 | | | I | 10/4/2010 |
| 1009508-001BMS | Nitrite (as N) | mg/L | E353.2 | 1.09 | 1.000 | 0 | 109 | 90-110 | | | | 9/29/2010 |
| 1009511-001BMS | Nitrite (as N) | mg/L | E353.2 | 1.10 | 1.000 | 0.02370 | 108 | 90-110 | | | | 9/29/2010 |
| 1009508-001BMS | Nitrate (as N) | mg/L | E353.2 | 1.13 | 1.000 | 0.009300 | 112 | 90-110 | | | I | 9/29/2010 |
| 1009507-005CMS | Nitrate (as N) | mg/L | E353.2 | 0.790 | 1.000 | 0 | 79.0 | 90-110 | | | I | 9/29/2010 |
| 1009511-001BMS | Nitrate (as N) | mg/L | E353.2 | 18.4 | 10.00 | 0.6793 | 177 | 90-110 | | | I | 9/29/2010 |
| 1009508-001BMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.919 | 1.000 | 0.03440 | 88.5 | 90-110 | | | I | 9/29/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009508
**Project:** Scofield Baseline / Surface Water Monitoring

**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009511-001BMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.924 | 1.000 | 0.07200 | 85.2 | 90-110 | | | 1 | 9/29/2010 |

*1 - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009508
**Project:** Scofield Baseline / Surface Water Monitoring

**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009507-005CMSD | Chloride | mg/L | E300.0 | 85.1 | 25.00 | 61.56 | 94.0 | 90-110 | 0.110 | 20 | | 9/29/2010 |
| 1009507-005CMSD | Sulfate | mg/L | E300.0 | 6.86 | 5.000 | 1.929 | 98.5 | 90-110 | 0.799 | 20 | | 10/1/2010 |
| 1009508-004BMSD | Chloride | mg/L | E300.0 | 55.4 | 50.00 | 10.05 | 90.7 | 90-110 | 0.569 | 20 | | 10/1/2010 |
| 1009508-004BMSD | Sulfate | mg/L | E300.0 | 72.8 | 50.00 | 23.46 | 98.6 | 90-110 | 0.268 | 20 | | 10/1/2010 |
| 1009511-001BMSD | Chloride | mg/L | E300.0 | 478 | 500.0 | 0 | 95.6 | 90-110 | 0.394 | 20 | | 10/1/2010 |
| 1009522-001AMSD | Chloride | mg/L | E300.0 | 65.1 | 25.00 | 39.76 | 101 | 90-110 | 0.747 | 20 | | 10/1/2010 |
| 1009522-001AMSD | Sulfate | mg/L | E300.0 | 35.5 | 25.00 | 11.88 | 94.6 | 90-110 | 1.53 | 20 | | 10/1/2010 |
| 1009533-001DMSD | Chloride | mg/L | E300.0 | 140 | 50.00 | 86.55 | 107 | 90-110 | 0.233 | 20 | | 10/2/2010 |
| 1009533-001DMSD | Sulfate | mg/L | E300.0 | 185 | 50.00 | 133.8 | 103 | 90-110 | 0.228 | 20 | | 10/2/2010 |
| 1009508-005BMSD | Acidity | mg/L | A2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | 8.33 | 0 | | 9/30/2010 |
| 1009511-001BMSD | Acidity | mg/L | A2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | 0 | 0 | | 9/30/2010 |
| 1009508-001BMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 340 | 100.0 | 238.0 | 102 | 80-120 | 0.590 | 10 | | 9/30/2010 |
| 1009511-001BMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 284 | 100.0 | 177.0 | 107 | 80-120 | 1.42 | 10 | | 9/30/2010 |
| 1009522-001AMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 1,580 | 500.0 | 1,059 | 105 | 80-120 | 1.14 | 10 | | 9/30/2010 |
| 1009533-001DMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 1,400 | 500.0 | 893.0 | 101 | 80-120 | 1.84 | 10 | | 9/30/2010 |
| 1009508-001DMSD | Ammonia (as N) | mg/L | E350.1 | 1.06 | 1.000 | 0 | 106 | 90-110 | 3.06 | 10 | | 10/4/2010 |
| 1009511-002CMSD | Ammonia (as N) | mg/L | E350.1 | 1.01 | 1.000 | 0 | 101 | 90-110 | 0.259 | 10 | | 10/4/2010 |
| 1009533-001EMSD | Ammonia (as N) | mg/L | E350.1 | 1.19 | 1.000 | 0.3142 | 87.9 | 90-110 | 9.67 | 10 | 1 | 10/4/2010 |
| 1009508-001BMSD | Nitrite (as N) | mg/L | E353.2 | 1.10 | 1.000 | 0 | 110 | 90-110 | 1.11 | 10 | 1 | 9/29/2010 |
| 1009511-001BMSD | Nitrite (as N) | mg/L | E353.2 | 1.11 | 1.000 | 0.02370 | 109 | 90-110 | 0.929 | 10 | | 9/29/2010 |
| 1009508-001BMSD | Nitrate (as N) | mg/L | E353.2 | 1.13 | 1.000 | 0.009300 | 112 | 90-110 | 0.222 | 10 | 1 | 9/29/2010 |
| 1009507-005CMSD | Nitrate (as N) | mg/L | E353.2 | 0.788 | 1.000 | 0 | 78.8 | 90-110 | 0.254 | 10 | 1 | 9/29/2010 |
| 1009511-001BMSD | Nitrate (as N) | mg/L | E353.2 | 17.0 | 10.00 | 0.6793 | 163 | 90-110 | 7.86 | 10 | 1 | 9/29/2010 |
| 1009508-001BMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.955 | 1.000 | 0.03440 | 92.0 | 90-110 | 3.81 | 10 | | 9/29/2010 |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1009508
**Project:** Scofield Baseline / Surface Water Monitoring

**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1009511-001BMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.994 | 1.000 | 0.07200 | 92.2 | 90-110 | 7.33 | 10 | | 9/29/2010 |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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# American West Analytical Laboratories

## WORK ORDER Summary

**Work Order:** 1009508



**Client:** Carbon Resources
**Client ID:** CAR300
**Project:** Scofield Baseline / Surface Water Monitoring
**Comments:** QC 2+, EDD;

**Contact:** Brad Lindsay
**QC Level:** LEVEL II+

9/29/2010
**WO Type:** Project

HOK-DB

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1009508-001A | Mud Creek | 9/28/2010 12:00:00 PM | 9/29/2010 8:02:00 AM | 10/13/2010 | Aqueous | SS-W-2540F | ☐ | ww - ss/tss | 1 |
| | | | | 10/13/2010 | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | 10/13/2010 | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1009508-001B | | | | 10/13/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 10/13/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 10/13/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 10/13/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 10/13/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 10/13/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1009508-001C | | | | 10/13/2010 | | OGB-W-1664A | ☐ | ogb | |
| 1009508-001D | | | | 10/13/2010 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 10/13/2010 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1009508-001E | | | | 10/13/2010 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 10/13/2010 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 10/13/2010 | | 6020-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 10/13/2010 | | HARD-2340B | ☐ | DF - dis met | |
| 1009508-001F | | | | 10/13/2010 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 10/13/2010 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |

# WORK ORDER Summary

**Work Order:** **1009508**



**Client:** Carbon Resources

**Client ID:** CAR300 **Contact:** Brad Lindsay

**Project:** Scofield Baseline / Surface Water Monitoring **QC Level:** LEVEL II+ **WO Type:** Project

**Comments:** QC 2+, EDD;

9/29/2010

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1009508-001F | Mud Creek | 9/28/2010 12:00:00 PM | 9/29/2010 8:02:00 AM | 10/13/2010 | Aqueous | 6020-W | ☑ | DF - total met | 1 |
| | SEL Analytes: MN | | | | | | | | |
| 1009508-002A | Sulfur Spring | 9/28/2010 12:35:00 PM | | 10/13/2010 | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | 10/13/2010 | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | 10/13/2010 | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1009508-002B | | | | 10/13/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 10/13/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 10/13/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 10/13/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 10/13/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 10/13/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1009508-002C | | | | 10/13/2010 | | OGB-W-1664A | ☐ | ogb | |
| 1009508-002D | | | | 10/13/2010 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 10/13/2010 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1009508-002E | | | | 10/13/2010 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 10/13/2010 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 10/13/2010 | | 6020-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 10/13/2010 | | HARD-2340B | ☐ | DF - dis met | |
| 1009508-002F | | | | 10/13/2010 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 10/13/2010 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |

# WORK ORDER Summary

**Work Order:** 1009508



**Client:** Carbon Resources
**Client ID:** CAR300
**Project:** Scofield Baseline / Surface Water Monitoring
**Comments:** QC 2+, EDD;

**Contact:** Brad Lindsay
**QC Level:** LEVEL II+

9/29/2010
**WO Type:** Project

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1009508-002F | Sulfur Spring | 9/28/2010 12:35:00 PM | 9/29/2010 8:02:00 AM | 10/13/2010 | Aqueous | 6020-W | ☑ | DF - total met | 1 |
| | SEL Analytes: MN | | | | | | | | |
| 1009508-003A | RES-1 | 9/28/2010 12:50:00 PM | | 10/13/2010 | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | 10/13/2010 | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | 10/13/2010 | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1009508-003B | | | | 10/13/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 10/13/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 10/13/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 10/13/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 10/13/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 10/13/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1009508-003C | | | | 10/13/2010 | | OGB-W-1664A | ☐ | ogb | |
| 1009508-003D | | | | 10/13/2010 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 10/13/2010 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1009508-003E | | | | 10/13/2010 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 10/13/2010 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 10/13/2010 | | 6020-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 10/13/2010 | | HARD-2340B | ☐ | DF - dis met | |
| 1009508-003F | | | | 10/13/2010 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 10/13/2010 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |

# WORK ORDER Summary

**Work Order:** 1009508



**Client:** Carbon Resources
**Client ID:** CAR300
**Project:** Scofield Baseline / Surface Water Monitoring
**Comments:** QC 2+, EDD;

**Contact:** Brad Lindsay
**QC Level:** LEVEL II+

9/29/2010
**WO Type:** Project

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1009508-003F | RES-1 | 9/28/2010 12:50:00 PM | 9/29/2010 8:02:00 AM | 10/13/2010 | Aqueous | 6020-W | ☑ | DF - total met | 1 |
| | **SEL Analytes: MN** | | | | | | | | |
| 1009508-004A | Miller Outlet | 9/28/2010 1:20:00 PM | | 10/13/2010 | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | 10/13/2010 | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | 10/13/2010 | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1009508-004B | | | | 10/13/2010 | | 300.0-W | ☑ | DF - wc | |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | 10/13/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 10/13/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | 10/13/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 10/13/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 10/13/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1009508-004C | | | | 10/13/2010 | | OGB-W-1664A | ☐ | ogb | |
| 1009508-004D | | | | 10/13/2010 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 10/13/2010 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1009508-004E | | | | 10/13/2010 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 10/13/2010 | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | 10/13/2010 | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | 10/13/2010 | | HARD-2340B | ☐ | DF - dis met | |
| 1009508-004F | | | | 10/13/2010 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 10/13/2010 | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |

# WORK ORDER Summary

**Work Order:** **1009508**



**Client:** Carbon Resources
**Client ID:** CAR300
**Project:** Scofield Baseline / Surface Water Monitoring
**Comments:** QC 2+, EDD;

**Contact:** Brad Lindsay
**QC Level:** LEVEL II+

9/29/2010
**WO Type:** Project

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1009508-004F | Miller Outlet | 9/28/2010 1:20:00 PM | 9/29/2010 8:02:00 AM | 10/13/2010 | Aqueous | 6020-W | ☑ | DF - total met | 1 |
| | **SEL Analytes: MN** | | | | | | | | |
| 1009508-005A | Aspen Spring | 9/28/2010 5:45:00 PM | | 10/13/2010 | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | 10/13/2010 | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | 10/13/2010 | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1009508-005B | | | | 10/13/2010 | | 300.0-W | ☑ | DF - wc | |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | 10/13/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 10/13/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | 10/13/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 10/13/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 10/13/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1009508-005C | | | | 10/13/2010 | | OGB-W-1664A | ☐ | ogb | |
| 1009508-005D | | | | 10/13/2010 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 10/13/2010 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1009508-005E | | | | 10/13/2010 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 10/13/2010 | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | 10/13/2010 | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | 10/13/2010 | | HARD-2340B | ☐ | DF - dis met | |
| 1009508-005F | | | | 10/13/2010 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 10/13/2010 | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |

# WORK ORDER Summary

**Work Order:** **1009508**



9/29/2010

| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Carbon Resources | | | | |
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay | | |
| **Project:** | Scofield Baseline / Surface Water Monitoring | **QC Level:** | LEVEL II+ | **WO Type:** | Project |
| **Comments:** | QC 2+, EDD; | | | | |

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1009508-005F | Aspen Spring | 9/28/2010 5:45:00 PM | 9/29/2010 8:02:00 AM | 10/13/2010 | Aqueous | 6020-W | ☑ | DF - total met | 1 |
| | SEL Analytes: MN | | | | | | | | |

Client CARBON RESOURCES c/o ROCK LOGIC

Address PO BOX 544

CEDAREDGE CO 81413
City State Zip

Phone (435) 851-9044 Fax

Contact BRAD LINDSAY

E-mail ROCKLOGICCONSULTING@GMAIL.COM

Project Name SCOFIELD BASELINE

Project Number/P.O.#

Sampler Name BRAD LINDSAY


AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115

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(888) 263-8686
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Email:awal@awal-labs.com


# CHAIN OF CUSTODY

Lab Sample Set # 1009508

Page 1 of 1

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day (Standard)

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TESTS REQUIRED: TABLE 4 | TABLE 3 | QC LEVEL | COMMENTS |
|---|---|---|---|---|---|---|---|
| CR-10-12 | 9/28/10 / 11:00 | W | 6 | ✓ | | 1 2 2+ 3 3+ 4 | 1009511 |
| CR-10-11 | / 14:15 | | 6 | ✓ | | | |
| MUD CREEK | / 12:00 | | 7 | | ✓ | | |
| SULFUR SPRING | / 12:35 | | 7 | | ✓ | | |
| RES-1 | / 12:50 | | 7 | | ✓ | | 1009508 |
| MILLER OUTLET | / 13:20 | | 7 | | ✓ | | |
| ASPEN SPRING | / 17:45 | | 7 | | ✓ | | |

**LABORATORY USE ONLY**

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes: On ice
3 Temperature 3.5
4 Received Broken/Leaking (Improperly Sealed) Y (N)
Notes:
5 Properly Preserved (Y) N
Checked at Bench Y N
Notes:
6 Received Within Holding Times (Y) N
Notes:

COC Tape Was:
1 Present on Outer Package (Y) N NA
2 Unbroken on Outer Package (Y) N NA
3 Present on Sample Y N (NA)
4 Unbroken on Sample Y N (NA)

Discrepancies Between Sample Labels and COC Record? Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME: BRAD LINDSAY | Time: 19:30 | PRINT NAME: JEFFREY LINDSAY | Time: 19:30 |
| Relinquished By: Signature | Date: 9/29/10 | Received By: Signature | Date: 9/29/10 |
| PRINT NAME: JEFFREY LINDSAY | Time: 8:02 | PRINT NAME: [illegible] | Time: 8:02 |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |

Special Instructions:

PLEASE FILTER

TABLE 4 SHOULD BE TITLED "GROUND WATER MONITORING..."

TABLE 3 SHOULD BE TITLED "SURFACE WATER MONITORING..."

59.25 54.P

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 1009508

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

AMERICAN
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Salt Lake City, Utah
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e-mail: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Kinney #2 (Scofield) Baseline

Dear Brad Lindsay: Lab Set ID: 1011004

American West Analytical Laboratories received 2 sample(s) on 11/1/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: _____
Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

| | | | |
|---|---|---|---|
| **Client:** | Carbon Resources | **Contact:** | Brad Lindsay |
| **Project:** | Kinney #2 (Scofield) Baseline | | |
| **Lab Sample ID:** | 1011004-001 | | |
| **Client Sample ID:** | CR-10-11 | | |
| **Collection Date:** | 10/30/2010 1330h | | |
| **Received Date:** | 11/1/2010 1115h | | |


**AMERICAN WEST ANALYTICAL LABORATORIES**

463 West 3600 South
Salt Lake City, Utah
84115

(801) 263-8686
Toll Free (888) 263-8686
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e-mail: awal@awal-labs.com


## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 11/2/2010 1206h | 11/10/2010 1315h | SW6010C | 0.100 | **0.121** | |
| Manganese | mg/L | 11/2/2010 1206h | 11/3/2010 2337h | SW6020A | 0.00120 | **0.00653** | |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

| | | | |
|---|---|---|---|
| **Client:** | Carbon Resources | **Contact:** | Brad Lindsay |
| **Project:** | Kinney #2 (Scofield) Baseline | | |
| **Lab Sample ID:** | 1011004-002 | | |
| **Client Sample ID:** | CR-10-12 | | |
| **Collection Date:** | 10/30/2010 1420h | | |
| **Received Date:** | 11/1/2010 1115h | | |


**AMERICAN WEST ANALYTICAL LABORATORIES**

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e-mail: awal@awal-labs.com


## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 11/2/2010 1206h | 11/10/2010 1330h | SW6010C | 0.100 | **0.393** | |
| Manganese | mg/L | 11/2/2010 1206h | 11/4/2010 0010h | SW6020A | 0.00120 | **0.00915** | |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Kinney #2 (Scofield) Baseline
**Lab Sample ID:** 1011004-001
**Client Sample ID:** CR-10-11
**Collection Date:** 10/30/2010 1330h
**Received Date:** 11/1/2010 1115h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 11/2/2010 1203h | 11/10/2010 1223h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 11/2/2010 1203h | 11/4/2010 0032h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 11/2/2010 1203h | 11/10/2010 1223h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 11/2/2010 1203h | 11/4/2010 0032h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 11/2/2010 1203h | 11/10/2010 1150h | SW6010C | 10.0 | **69.1** | |
| Copper | mg/L | 11/2/2010 1203h | 11/4/2010 0032h | SW6020A | 0.000800 | **0.00132** | |
| Iron | mg/L | 11/2/2010 1203h | 11/10/2010 1223h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 11/2/2010 1203h | 11/4/2010 0032h | SW6020A | 0.000400 | **0.00125** | |
| Magnesium | mg/L | 11/2/2010 1203h | 11/10/2010 1223h | SW6010C | 1.00 | **12.3** | |
| Manganese | mg/L | 11/2/2010 1203h | 11/4/2010 0032h | SW6020A | 0.00120 | **0.00445** | |
| Molybdenum | mg/L | 11/2/2010 1203h | 11/10/2010 1223h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 11/2/2010 1203h | 11/10/2010 1223h | SW6010C | 1.00 | **1.25** | |
| Selenium | mg/L | 11/2/2010 1203h | 11/4/2010 0032h | SW6020A | 0.000800 | **0.00147** | |
| Sodium | mg/L | 11/2/2010 1203h | 11/10/2010 1223h | SW6010C | 1.00 | **11.2** | |
| Zinc | mg/L | 11/2/2010 1203h | 11/4/2010 0032h | SW6020A | 0.00500 | **0.141** | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Kinney #2 (Scofield) Baseline
**Lab Sample ID:** 1011004-002
**Client Sample ID:** CR-10-12
**Collection Date:** 10/30/2010 1420h
**Received Date:** 11/1/2010 1115h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 11/2/2010 1203h | 11/10/2010 1239h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 11/2/2010 1203h | 11/4/2010 0117h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 11/2/2010 1203h | 11/10/2010 1239h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 11/2/2010 1203h | 11/4/2010 0117h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 11/2/2010 1203h | 11/10/2010 1203h | SW6010C | 10.0 | **73.5** | |
| Copper | mg/L | 11/2/2010 1203h | 11/4/2010 0117h | SW6020A | 0.000800 | **0.00302** | |
| Iron | mg/L | 11/2/2010 1203h | 11/10/2010 1239h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 11/2/2010 1203h | 11/4/2010 0117h | SW6020A | 0.000400 | **0.00730** | |
| Magnesium | mg/L | 11/2/2010 1203h | 11/10/2010 1239h | SW6010C | 1.00 | **6.62** | |
| Manganese | mg/L | 11/2/2010 1203h | 11/4/2010 0117h | SW6020A | 0.00120 | **0.00372** | |
| Molybdenum | mg/L | 11/2/2010 1203h | 11/10/2010 1239h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 11/2/2010 1203h | 11/10/2010 1239h | SW6010C | 1.00 | **1.10** | |
| Selenium | mg/L | 11/2/2010 1203h | 11/4/2010 0117h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 11/2/2010 1203h | 11/10/2010 1239h | SW6010C | 1.00 | **17.2** | |
| Zinc | mg/L | 11/2/2010 1203h | 11/4/2010 0117h | SW6020A | 0.00500 | **0.0262** | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Kinney #2 (Scofield) Baseline
**Lab Sample ID:** 1011004-001
**Client Sample ID:** CR-10-11
**Collection Date:** 10/30/2010 1330h
**Received Date:** 11/1/2010 1115h


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 11/2/2010 0600h | A2310B | 15.0 | **22.0** | |
| Alkalinity (as CaCO3) | mg/L | | 11/4/2010 0700h | A2320B | 20.0 | **221** | |
| Ammonia (as N) | mg/L | 11/4/2010 1558h | 11/5/2010 1353h | E350.1 | 0.0500 | **0.0602** | |
| Bicarbonate (as CaCO3) | mg/L | | 11/4/2010 0700h | A2320B | 20.0 | **221** | |
| Carbonate (as CaCO3) | mg/L | | 11/4/2010 0700h | A2320B | 10.0 | < 10.0 | |
| Chloride | mg/L | | 11/2/2010 2024h | E300.0 | 1.00 | **14.5** | |
| Hardness (as CaCO3) | mg/L | | 11/10/2010 | A2340B | 10.0 | **223** | |
| Nitrate (as N) | mg/L | | 11/1/2010 1252h | E353.2 | 0.100 | **2.44** | ' |
| Nitrite (as N) | mg/L | | 11/1/2010 1248h | E353.2 | 0.0100 | **0.365** | |
| Phosphate, Total Ortho (as P) | mg/L | | 11/1/2010 1205h | E365.1 | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 11/2/2010 2024h | E300.0 | 7.50 | **30.1** | |
| Total Dissolved Solids | mg/L | | 11/2/2010 1300h | A2540C | 20.0 | **280** | |

*' - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*




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# INORGANIC ANALYTICAL REPORT

| | | | |
|---|---|---|---|
| **Client:** | Carbon Resources | **Contact:** | Brad Lindsay |
| **Project:** | Kinney #2 (Scofield) Baseline | | |
| **Lab Sample ID:** | 1011004-002 | | |
| **Client Sample ID:** | CR-10-12 | | |
| **Collection Date:** | 10/30/2010 1420h | | |
| **Received Date:** | 11/1/2010 1115h | | |


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Laboratory Director

Jose Rocha
QA Officer


| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 11/2/2010 0600h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 11/4/2010 0700h | A2320B | 20.0 | 177 | |
| Ammonia (as N) | mg/L | 11/4/2010 1558h | 11/5/2010 1357h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 11/4/2010 0700h | A2320B | 20.0 | 177 | |
| Carbonate (as CaCO3) | mg/L | | 11/4/2010 0700h | A2320B | 10.0 | < 10.0 | |
| Chloride | mg/L | | 11/2/2010 2220h | E300.0 | 1.00 | 18.9 | |
| Hardness (as CaCO3) | mg/L | | 11/10/2010 | A2340B | 10.0 | 211 | |
| Nitrate (as N) | mg/L | | 11/1/2010 1256h | E353.2 | 0.100 | 6.49 | |
| Nitrite (as N) | mg/L | | 11/1/2010 1301h | E353.2 | 0.0100 | 0.0107 | |
| Phosphate, Total Ortho (as P) | mg/L | | 11/1/2010 1317h | E365.1 | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 11/2/2010 2220h | E300.0 | 7.50 | 37.0 | |
| Total Dissolved Solids | mg/L | | 11/2/2010 1300h | A2540C | 20.0 | 264 | @ |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*




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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1011004
**Project:** Kinney #2 (Scofield) Baseline

**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-9221 | Iron | mg/L | SW6010C | 1.07 | 1.000 | 0 | 107 | 80-120 | | | | 11/5/2010 |
| LCS-9221 | Aluminum | mg/L | SW6010C | 1.00 | 1.000 | 0 | 100 | 80-120 | | | | 11/10/2010 |
| LCS-9221 | Boron | mg/L | SW6010C | 1.08 | 1.000 | 0 | 108 | 80-120 | | | | 11/10/2010 |
| LCS-9221 | Calcium | mg/L | SW6010C | 9.94 | 10.00 | 0 | 99.4 | 80-120 | | | | 11/10/2010 |
| LCS-9221 | Magnesium | mg/L | SW6010C | 10.3 | 10.00 | 0 | 103 | 80-120 | | | | 11/10/2010 |
| LCS-9221 | Molybdenum | mg/L | SW6010C | 0.206 | 0.2000 | 0 | 103 | 80-120 | | | | 11/10/2010 |
| LCS-9221 | Potassium | mg/L | SW6010C | 10.3 | 10.00 | 0 | 103 | 80-120 | | | | 11/10/2010 |
| LCS-9221 | Sodium | mg/L | SW6010C | 10.1 | 10.00 | 0 | 101 | 80-120 | | | | 11/10/2010 |
| LCS-9222 | Iron | mg/L | SW6010C | 1.02 | 1.000 | 0 | 102 | 80-120 | | | | 11/10/2010 |
| LCS-9221 | Arsenic | mg/L | SW6020A | 0.203 | 0.2000 | 0.00009300 | 101 | 85-115 | | | | 11/4/2010 |
| LCS-9221 | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 11/4/2010 |
| LCS-9221 | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 85-115 | | | | 11/4/2010 |
| LCS-9221 | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 11/4/2010 |
| LCS-9221 | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 85-115 | | | | 11/4/2010 |
| LCS-9221 | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 85-115 | | | | 11/4/2010 |
| LCS-9221 | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 85-115 | | | | 11/4/2010 |
| LCS-9222 | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.8 | 85-115 | | | | 11/3/2010 |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1011004
**Project:** Kinney #2 (Scofield) Baseline

**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-9221 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 11/5/2010 |
| MB-9221 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 11/10/2010 |
| MB-9221 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 11/10/2010 |
| MB-9221 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 11/10/2010 |
| MB-9221 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 11/10/2010 |
| MB-9221 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 11/10/2010 |
| MB-9221 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 11/10/2010 |
| MB-9221 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 11/10/2010 |
| MB-9222 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 11/10/2010 |
| MB-9221 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 11/4/2010 |
| MB-9221 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 11/4/2010 |
| MB-9221 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 11/4/2010 |
| MB-9221 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 11/4/2010 |
| MB-9221 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 11/4/2010 |
| MB-9221 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 11/4/2010 |
| MB-9221 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 11/4/2010 |
| MB-9222 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 11/3/2010 |



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Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1011004
**Project:** Kinney #2 (Scofield) Baseline

**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1011016-002GMS | Iron | mg/L | SW6010C | 1.03 | 1.000 | 0 | 103 | 75-125 | | | | 11/5/2010 |
| 1011004-001EMS | Calcium | mg/L | SW6010C | 76.8 | 10.00 | 69.09 | 77.1 | 75-125 | | | | 11/10/2010 |
| 1011004-001EMS | Aluminum | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 75-125 | | | | 11/10/2010 |
| 1011004-001EMS | Boron | mg/L | SW6010C | 1.21 | 1.000 | 0.03405 | 118 | 75-125 | | | | 11/10/2010 |
| 1011004-001EMS | Iron | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 75-125 | | | | 11/10/2010 |
| 1011004-001EMS | Magnesium | mg/L | SW6010C | 22.7 | 10.00 | 12.28 | 104 | 75-125 | | | | 11/10/2010 |
| 1011004-001EMS | Molybdenum | mg/L | SW6010C | 0.212 | 0.2000 | 0 | 106 | 75-125 | | | | 11/10/2010 |
| 1011004-001EMS | Potassium | mg/L | SW6010C | 11.9 | 10.00 | 1.248 | 107 | 75-125 | | | | 11/10/2010 |
| 1011004-001EMS | Sodium | mg/L | SW6010C | 21.4 | 10.00 | 11.17 | 102 | 75-125 | | | | 11/10/2010 |
| 1011004-001FMS | Iron | mg/L | SW6010C | 1.08 | 1.000 | 0.1213 | 96.2 | 75-125 | | | | 11/10/2010 |
| 1011004-001EMS | Arsenic | mg/L | SW6020A | 0.204 | 0.2000 | 0.0005190 | 102 | 75-125 | | | | 11/4/2010 |
| 1011004-001EMS | Cadmium | mg/L | SW6020A | 0.203 | 0.2000 | 0.00005000 | 101 | 75-125 | | | | 11/4/2010 |
| 1011004-001EMS | Copper | mg/L | SW6020A | 0.200 | 0.2000 | 0.001323 | 99.5 | 75-125 | | | | 11/4/2010 |
| 1011004-001EMS | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0.001248 | 99.9 | 75-125 | | | | 11/4/2010 |
| 1011004-001EMS | Manganese | mg/L | SW6020A | 0.203 | 0.2000 | 0.004449 | 99.1 | 75-125 | | | | 11/4/2010 |
| 1011004-001EMS | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.001468 | 100 | 75-125 | | | | 11/4/2010 |
| 1011004-001EMS | Zinc | mg/L | SW6020A | 1.17 | 1.000 | 0.1412 | 103 | 75-125 | | | | 11/4/2010 |
| 1011016-002GMS | Arsenic | mg/L | SW6020A | 0.241 | 0.2000 | 0.03915 | 101 | 75-125 | | | | 11/4/2010 |
| 1011016-002GMS | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0.0001120 | 100 | 75-125 | | | | 11/4/2010 |
| 1011016-002GMS | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0.004147 | 98.4 | 75-125 | | | | 11/4/2010 |
| 1011016-002GMS | Lead | mg/L | SW6020A | 0.202 | 0.2000 | 0.0003060 | 101 | 75-125 | | | | 11/4/2010 |
| 1011016-002GMS | Manganese | mg/L | SW6020A | 0.625 | 0.2000 | 0.4507 | 87.3 | 75-125 | | | | 11/4/2010 |
| 1011016-002GMS | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.001676 | 100 | 75-125 | | | | 11/4/2010 |



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1011004
**Project:** Kinney #2 (Scofield) Baseline

**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1011016-002GMS | Zinc | mg/L | SW6020A | 1.03 | 1.000 | 0.004894 | 103 | 75-125 | | | | 11/4/2010 |
| 1011004-001FMS | Manganese | mg/L | SW6020A | 0.206 | 0.2000 | 0.006533 | 99.5 | 75-125 | | | | 11/3/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1011004
**Project:** Kinney #2 (Scofield) Baseline

**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1011016-002GMSD | Iron | mg/L | SW6010C | 1.07 | 1.000 | 0 | 107 | 75-125 | 3.81 | 20 | | 11/5/2010 |
| 1011004-001EMSD | Calcium | mg/L | SW6010C | 78.9 | 10.00 | 69.09 | 97.7 | 75-125 | 2.65 | 20 | | 11/10/2010 |
| 1011004-001EMSD | Aluminum | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 75-125 | 0.539 | 20 | | 11/10/2010 |
| 1011004-001EMSD | Boron | mg/L | SW6010C | 1.22 | 1.000 | 0.03405 | 118 | 75-125 | 0.295 | 20 | | 11/10/2010 |
| 1011004-001EMSD | Iron | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 75-125 | 0.130 | 20 | | 11/10/2010 |
| 1011004-001EMSD | Magnesium | mg/L | SW6010C | 22.9 | 10.00 | 12.28 | 106 | 75-125 | 0.829 | 20 | | 11/10/2010 |
| 1011004-001EMSD | Molybdenum | mg/L | SW6010C | 0.214 | 0.2000 | 0 | 107 | 75-125 | 1.25 | 20 | | 11/10/2010 |
| 1011004-001EMSD | Potassium | mg/L | SW6010C | 12.0 | 10.00 | 1.248 | 108 | 75-125 | 0.607 | 20 | | 11/10/2010 |
| 1011004-001EMSD | Sodium | mg/L | SW6010C | 21.6 | 10.00 | 11.17 | 104 | 75-125 | 1.23 | 20 | | 11/10/2010 |
| 1011004-001FMSD | Iron | mg/L | SW6010C | 1.12 | 1.000 | 0.1213 | 99.7 | 75-125 | 3.20 | 20 | | 11/10/2010 |
| 1011004-001EMSD | Arsenic | mg/L | SW6020A | 0.206 | 0.2000 | 0.0005190 | 103 | 75-125 | 0.963 | 20 | | 11/4/2010 |
| 1011004-001EMSD | Cadmium | mg/L | SW6020A | 0.202 | 0.2000 | 0.00005000 | 101 | 75-125 | 0.190 | 20 | | 11/4/2010 |
| 1011004-001EMSD | Copper | mg/L | SW6020A | 0.200 | 0.2000 | 0.001323 | 99.2 | 75-125 | 0.288 | 20 | | 11/4/2010 |
| 1011004-001EMSD | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0.001248 | 100 | 75-125 | 0.0964 | 20 | | 11/4/2010 |
| 1011004-001EMSD | Manganese | mg/L | SW6020A | 0.201 | 0.2000 | 0.004449 | 98.4 | 75-125 | 0.663 | 20 | | 11/4/2010 |
| 1011004-001EMSD | Selenium | mg/L | SW6020A | 0.203 | 0.2000 | 0.001468 | 101 | 75-125 | 0.161 | 20 | | 11/4/2010 |
| 1011004-001EMSD | Zinc | mg/L | SW6020A | 1.15 | 1.000 | 0.1412 | 101 | 75-125 | 1.99 | 20 | | 11/4/2010 |
| 1011016-002GMSD | Arsenic | mg/L | SW6020A | 0.240 | 0.2000 | 0.03915 | 100 | 75-125 | 0.436 | 20 | | 11/4/2010 |
| 1011016-002GMSD | Cadmium | mg/L | SW6020A | 0.199 | 0.2000 | 0.0001120 | 99.6 | 75-125 | 0.419 | 20 | | 11/4/2010 |
| 1011016-002GMSD | Copper | mg/L | SW6020A | 0.204 | 0.2000 | 0.004147 | 99.8 | 75-125 | 1.37 | 20 | | 11/4/2010 |
| 1011016-002GMSD | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0.0003060 | 100 | 75-125 | 0.622 | 20 | | 11/4/2010 |
| 1011016-002GMSD | Manganese | mg/L | SW6020A | 0.624 | 0.2000 | 0.4507 | 86.6 | 75-125 | 0.217 | 20 | | 11/4/2010 |
| 1011016-002GMSD | Selenium | mg/L | SW6020A | 0.204 | 0.2000 | 0.001676 | 101 | 75-125 | 0.795 | 20 | | 11/4/2010 |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1011004
**Project:** Kinney #2 (Scofield) Baseline

**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1011016-002GMSD | Zinc | mg/L | SW6020A | 1.03 | 1.000 | 0.004894 | 103 | 75-125 | 0.194 | 20 | | 11/4/2010 |
| 1011004-001FMSD | Manganese | mg/L | SW6020A | 0.208 | 0.2000 | 0.006533 | 101 | 75-125 | 1.41 | 20 | | 11/4/2010 |



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Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1011004
**Project:** Kinney #2 (Scofield) Baseline

**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1010409-018BDUP | Total Dissolved Solids | mg/L | A2540C | 50,800 | | 50,700 | | - | 0.197 | 5 | | 11/2/2010 |
| 1010456-002DDUP | Total Dissolved Solids | mg/L | A2540C | 21,100 | | 25,600 | | - | 19.3 | 5 | @ | 11/2/2010 |
| 1011004-002ADUP | Total Dissolved Solids | mg/L | A2540C | 300 | | 264.0 | | - | 12.8 | 5 | @ | 11/2/2010 |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*



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Jose Rocha
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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1011004
**Project:** Kinney #2 (Scofield) Baseline

**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R20048 | Chloride | mg/L | E300.0 | 4.90 | 5.000 | 0 | 98.0 | 90-110 | | | | 11/2/2010 |
| LCS-R20048 | Sulfate | mg/L | E300.0 | 5.07 | 5.000 | 0 | 101 | 90-110 | | | | 11/2/2010 |
| LCS-R200002 | Acidity | mg/L | A2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | | | | 11/2/2010 |
| LCS-R20096 | Alkalinity (as CaCO3) | mg/L | A2320B | 50,800 | 50,000 | 0 | 102 | 90-110 | | | | 11/4/2010 |
| LCS-9278 | Ammonia (as N) | mg/L | E350.1 | 1.04 | 1.000 | 0 | 104 | 90-110 | | | | 11/5/2010 |
| LCS-R19968 | Nitrite (as N) | mg/L | E353.2 | 1.09 | 1.000 | 0 | 109 | 90-110 | | | | 11/1/2010 |
| LCS-R19969 | Nitrate (as N) | mg/L | E353.2 | 1.05 | 1.000 | 0.008700 | 104 | 90-110 | | | | 11/1/2010 |
| LCS-R19966 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.976 | 1.000 | 0.005600 | 97.1 | 90-110 | | | | 11/1/2010 |
| LCS-R20066 | Total Dissolved Solids | mg/L | A2540C | 194 | 205.0 | 0 | 94.6 | 80-120 | | | | 11/2/2010 |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1011004
**Project:** Kinney #2 (Scofield) Baseline

**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R20048 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | 11/2/2010 |
| MB-R20048 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | 11/2/2010 |
| MB-R20002 | Acidity | mg/L | A2310B | < 15.0 | | | | - | | | 11/2/2010 |
| MB-R20096 | Alkalinity (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | 11/4/2010 |
| MB-R20096 | Bicarbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | 11/4/2010 |
| MB-R20096 | Carbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | 11/4/2010 |
| MB-9278 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | 11/5/2010 |
| MB-R19968 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | 11/1/2010 |
| MB-R19969 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | 11/1/2010 |
| MB-R19966 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | < 0.0500 | | | | - | | | 11/1/2010 |
| MB-R20066 | Total Dissolved Solids | mg/L | A2540C | < 10.0 | | | | - | | | 11/2/2010 |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1011004
**Project:** Kinney #2 (Scofield) Baseline

**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1010432-001GMS | Sulfate | mg/L | E300.0 | 830 | 500.0 | 328.8 | 100 | 90-110 | | | | 11/2/2010 |
| 1011006-001AMS | Chloride | mg/L | E300.0 | 487 | 500.0 | 21.25 | 93.2 | 90-110 | | | | 11/2/2010 |
| 1011006-001AMS | Sulfate | mg/L | E300.0 | 501 | 500.0 | 5.734 | 99.0 | 90-110 | | | | 11/2/2010 |
| 1010456-002CMS | Chloride | mg/L | E300.0 | 14,600 | 5,000 | 8,970 | 113 | 90-110 | | | 1 | 11/2/2010 |
| 1010456-002CMS | Sulfate | mg/L | E300.0 | 7,960 | 5,000 | 2,944 | 100 | 90-110 | | | | 11/2/2010 |
| 1011004-001BMS | Chloride | mg/L | E300.0 | 63.6 | 50.00 | 14.52 | 98.2 | 90-110 | | | | 11/2/2010 |
| 1011004-001BMS | Sulfate | mg/L | E300.0 | 80.1 | 50.00 | 30.12 | 100 | 90-110 | | | | 11/2/2010 |
| 1011016-002CMS | Chloride | mg/L | E300.0 | 1,470 | 500.0 | 928.1 | 108 | 90-110 | | | | 11/2/2010 |
| 1011016-002CMS | Sulfate | mg/L | E300.0 | 637 | 500.0 | 134.7 | 101 | 90-110 | | | | 11/2/2010 |
| 1011004-001BMS | Acidity | mg/L | A2310B | 72.0 | 50.00 | 22.00 | 100 | 80-120 | | | | 11/2/2010 |
| 1010456-002CMS | Alkalinity (as CaCO3) | mg/L | A2320B | 1,290 | 500.0 | 770.0 | 103 | 80-120 | | | | 11/4/2010 |
| 1011004-001BMS | Alkalinity (as CaCO3) | mg/L | A2320B | 327 | 100.0 | 221.0 | 106 | 80-120 | | | | 11/4/2010 |
| 1011016-002CMS | Alkalinity (as CaCO3) | mg/L | A2320B | 1,510 | 500.0 | 998.0 | 103 | 80-120 | | | | 11/4/2010 |
| 1011004-001DMS | Ammonia (as N) | mg/L | E350.1 | 1.01 | 1.000 | 0.06020 | 94.6 | 90-110 | | | | 11/5/2010 |
| 1011004-001BMS | Nitrite (as N) | mg/L | E353.2 | 1.44 | 1.000 | 0.3650 | 107 | 90-110 | | | | 11/1/2010 |
| 1011004-001BMS | Nitrate (as N) | mg/L | E353.2 | 13.9 | 10.00 | 2.442 | 115 | 90-110 | | | 1 | 11/1/2010 |
| 1011004-001BMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.03 | 1.000 | 0.009300 | 102 | 90-110 | | | | 11/1/2010 |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1011004
**Project:** Kinney #2 (Scofield) Baseline

**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qualifiers | Analysis Date |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1010432-001GMSD | Sulfate | mg/L | E300.0 | 846 | 500.0 | 328.8 | 103 | 90-110 | 1.90 | 20 | | 11/2/2010 |
| 1011006-001AMSD | Chloride | mg/L | E300.0 | 487 | 500.0 | 21.25 | 93.1 | 90-110 | 0.109 | 20 | | 11/2/2010 |
| 1011006-001AMSD | Sulfate | mg/L | E300.0 | 501 | 500.0 | 5.734 | 99.1 | 90-110 | 0.0385 | 20 | | 11/2/2010 |
| 1010456-002CMSD | Chloride | mg/L | E300.0 | 14,500 | 5,000 | 8,970 | 110 | 90-110 | 0.860 | 20 | | 11/2/2010 |
| 1010456-002CMSD | Sulfate | mg/L | E300.0 | 7,860 | 5,000 | 2,944 | 98.4 | 90-110 | 1.26 | 20 | | 11/2/2010 |
| 1011004-001BMSD | Chloride | mg/L | E300.0 | 64.2 | 50.00 | 14.52 | 99.3 | 90-110 | 0.850 | 20 | | 11/2/2010 |
| 1011004-001BMSD | Sulfate | mg/L | E300.0 | 80.9 | 50.00 | 30.12 | 102 | 90-110 | 1.01 | 20 | | 11/2/2010 |
| 1011016-002CMSD | Chloride | mg/L | E300.0 | 1,440 | 500.0 | 928.1 | 103 | 90-110 | 1.64 | 20 | | 11/2/2010 |
| 1011016-002CMSD | Sulfate | mg/L | E300.0 | 636 | 500.0 | 134.7 | 100 | 90-110 | 0.147 | 20 | | 11/2/2010 |
| 1011004-001BMSD | Acidity | mg/L | A2310B | 68.0 | 50.00 | 22.00 | 92.0 | 80-120 | 5.71 | 0 | | 11/2/2010 |
| 1010456-002CMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 1,280 | 500.0 | 770.0 | 102 | 80-120 | 0.624 | 10 | | 11/4/2010 |
| 1011004-001BMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 322 | 100.0 | 221.0 | 101 | 80-120 | 1.54 | 10 | | 11/4/2010 |
| 1011016-002CMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 1,500 | 500.0 | 998.0 | 101 | 80-120 | 0.596 | 10 | | 11/4/2010 |
| 1011004-001DMSD | Ammonia (as N) | mg/L | E350.1 | 1.07 | 1.000 | 0.06020 | 101 | 90-110 | 5.86 | 10 | | 11/5/2010 |
| 1011004-001BMSD | Nitrite (as N) | mg/L | E353.2 | 1.42 | 1.000 | 0.3650 | 105 | 90-110 | 1.46 | 10 | | 11/1/2010 |
| 1011004-001BMSD | Nitrate (as N) | mg/L | E353.2 | 13.0 | 10.00 | 2.442 | 106 | 90-110 | 6.66 | 10 | | 11/1/2010 |
| 1011004-001BMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.943 | 1.000 | 0.009300 | 93.4 | 90-110 | 8.77 | 10 | | 11/1/2010 |

*' - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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# American West Analytical Laboratories

## WORK ORDER Summary

Work Order: **1011004**



**Client:** Carbon Resources
**Client ID:** CAR300
**Project:** Kinney #2 (Scofield) Baseline
**Comments:** No Hard Copies. QC 2+, EDD;

**Contact:** Brad Lindsay
**QC Level:** LEVEL II+

11/2/2010
**WO Type:** Project

HOLD

DB

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1011004-001A | CR-10-11 | 10/30/2010 1:30:00 PM | 11/1/2010 11:15:00 AM | 11/15/2010 | Aqueous | TDS-W-2540C | ☐ | ww - tds | 1 |
| 1011004-001B | | | | 11/15/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 11/15/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 11/15/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 11/15/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 11/15/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 11/15/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1011004-001C | | | | | | | ☐ | No sample | |
| 1011004-001D | | | | 11/15/2010 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 11/15/2010 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1011004-001E | | | | 11/15/2010 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 11/15/2010 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 11/15/2010 | | 6020-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 11/15/2010 | | HARD-2340B | ☐ | DF - dis met | |
| 1011004-001F | | | | 11/15/2010 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 11/15/2010 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 11/15/2010 | | 6020-W | ☑ | DF - total met | |
| | SEL Analytes: MN | | | | | | | | |
| 1011004-002A | CR-10-12 | 10/30/2010 2:20:00 PM | | 11/15/2010 | | TDS-W-2540C | ☐ | ww - tds | |
| 1011004-002B | | | | 11/15/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 11/15/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |

# WORK ORDER Summary

Work Order: **1011004**



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Carbon Resources | | | | 11/2/2010 |
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay | | |
| **Project:** | Kinney #2 (Scofield) Baseline | **QC Level:** | LEVEL II+ | **WO Type:** | Project |
| **Comments:** | No Hard Copies. QC 2+, EDD; | | | | |

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1011004-002B | CR-10-12 | 10/30/2010 2:20:00 PM | 11/1/2010 11:15:00 AM | 11/15/2010 | Aqueous | ALK-W-2320B | ☑ | DF - wc | 1 |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 11/15/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 11/15/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 11/15/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1011004-002C | | | | | | | ☐ | No sample | |
| 1011004-002D | | | | 11/15/2010 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 11/15/2010 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1011004-002E | | | | 11/15/2010 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 11/15/2010 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 11/15/2010 | | 6020-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 11/15/2010 | | HARD-2340B | ☐ | DF - dis met | |
| 1011004-002F | | | | 11/15/2010 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 11/15/2010 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 11/15/2010 | | 6020-W | ☑ | DF - total met | |
| | SEL Analytes: MN | | | | | | | | |

Client Carbon Resources c/o Rock Logic

Address P.O. Box 544

Cedaredge CO 81413
City State Zip

Phone 435 851-9044 Fax

Contact Brad Lindsay

E-mail Rocklogic.consulting@gmail.com

Project Name Kinney #2 (scofirad) Baseline

Project Number/P.O.#

Sampler Name Greg Hunt


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# CHAIN OF CUSTODY

Lab Sample Set # 1011004

Page _____ of _____

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day (Standard)

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TESTS REQUIRED: Table 4 | QC LEVEL | COMMENTS |
|---|---|---|---|---|---|---|
| CR-10-11 | 10/30/10 13:30 | GW | | ✓ | | |
| CR-10-12 | 10/30/10 14:20 | GW | | ✓ | | |

QC LEVEL: 1 2 2+ 3 3+ 4

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
Notes: Fed Ex

2 Ambient or (Chilled)
Notes:

3 Temperature 0.3°

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Checked at Bench
Y N
Notes:

6 Received Within Holding Times
(Y) N
Notes: pH out of hold DB 11/1/10

COC Tape Was:

1 Present on Outer Package
(Y) N NA

2 Unbroken on Outer Package
(Y) N NA

3 Present on Sample
Y (N) NA

4 Unbroken on Sample
Y N (NA)

Discrepancies Between Sample Labels and COC Record?
(Y) N
Notes: DB 11/2/10

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME Greg Hunt → Fed Ex | Time 10-31-10 | PRINT NAME Denise Brunn | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date 11/1/10 |
| PRINT NAME | Time | PRINT NAME | Time 11:15 |

Special Instructions:

PLEASE FILTER

Table 4 should be labeled "Ground water Monitoring"

Shipping 12°

TABLE 4

1 L HDPE
1 L HDPE
250 mL HDPE
1 500 mL HNO3
1 250 mL H2SO4

Ground Water

Utah Division of Oil, Gas & Mining
~~Surface Water~~ Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphate (Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 1011004

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (435) 851-9044

RE: Scofield Baseline (Kinney)

Dear Brad Lindsay: Lab Set ID: 1012038

American West Analytical Laboratories received 5 sample(s) on 12/2/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Jose G. Rocha

Digitally signed by Jose G. Rocha
DN: cn=Jose G. Rocha, o=American West Analytical Laboratories, ou=Quality Assurance Officer, email=jose@awal-labs.com, c=US
Date: 2010.12.09 14:10:35 -07'00'

Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-001
**Client Sample ID:** CR-10-11
**Collection Date:** 11/30/2010 1645h
**Received Date:** 12/2/2010 1040h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 12/3/2010 1111h | 12/6/2010 1540h | SW6010C | 0.100 | **5.76** | |
| Manganese | mg/L | 12/3/2010 1111h | 12/3/2010 2304h | SW6020A | 0.00120 | **0.0912** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-002
**Client Sample ID:** CR-10-12
**Collection Date:** 11/30/2010 1730h
**Received Date:** 12/2/2010 1040h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 12/3/2010 1111h | 12/6/2010 1556h | SW6010C | 1.00 | **86.7** | |
| Manganese | mg/L | 12/3/2010 1111h | 12/3/2010 2352h | SW6020A | 0.00120 | **1.37** | |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-003
**Client Sample ID:** Mud Creek
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 12/3/2010 1111h | 12/6/2010 1600h | SW6010C | 0.100 | **0.406** | |
| Manganese | mg/L | 12/3/2010 1111h | 12/3/2010 2358h | SW6020A | 0.00120 | **0.0301** | |



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Laboratory Director

Jose Rocha
QA Officer

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-004
**Client Sample ID:** Sulfur Spring
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 12/3/2010 1111h | 12/6/2010 1603h | SW6010C | 0.100 | < 0.100 | |
| Manganese | mg/L | 12/3/2010 1111h | 12/4/2010 0004h | SW6020A | 0.00120 | **0.0318** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-005
**Client Sample ID:** Miller Outlet
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 12/3/2010 1111h | 12/6/2010 1607h | SW6010C | 0.100 | **1.11** | |
| Manganese | mg/L | 12/3/2010 1111h | 12/4/2010 0009h | SW6020A | 0.00120 | **0.0722** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-001
**Client Sample ID:** CR-10-11
**Collection Date:** 11/30/2010 1645h
**Received Date:** 12/2/2010 1040h

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 12/3/2010 1109h | 12/4/2010 1650h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 12/3/2010 1109h | 12/3/2010 2140h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 12/3/2010 1109h | 12/4/2010 1650h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 12/3/2010 1109h | 12/3/2010 2140h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 12/3/2010 1109h | 12/4/2010 1603h | SW6010C | 10.0 | **82.2** | |
| Copper | mg/L | 12/3/2010 1109h | 12/3/2010 2140h | SW6020A | 0.000800 | **0.000928** | |
| Iron | mg/L | 12/3/2010 1109h | 12/4/2010 1650h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 12/3/2010 1109h | 12/3/2010 2140h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 12/3/2010 1109h | 12/4/2010 1650h | SW6010C | 1.00 | **12.3** | |
| Manganese | mg/L | 12/3/2010 1109h | 12/3/2010 2140h | SW6020A | 0.00120 | **0.00168** | |
| Molybdenum | mg/L | 12/3/2010 1109h | 12/4/2010 1650h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 12/3/2010 1109h | 12/4/2010 1650h | SW6010C | 1.00 | **1.47** | |
| Selenium | mg/L | 12/3/2010 1109h | 12/3/2010 2140h | SW6020A | 0.000800 | **0.00134** | |
| Sodium | mg/L | 12/3/2010 1109h | 12/4/2010 1650h | SW6010C | 1.00 | **11.2** | |
| Zinc | mg/L | 12/3/2010 1109h | 12/3/2010 2140h | SW6020A | 0.00500 | **0.0383** | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-002
**Client Sample ID:** CR-10-12
**Collection Date:** 11/30/2010 1730h
**Received Date:** 12/2/2010 1040h

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QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 12/3/2010 1109h | 12/4/2010 1707h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 12/3/2010 1109h | 12/3/2010 2228h | SW6020A | 0.000600 | **0.000637** | |
| Boron | mg/L | 12/3/2010 1109h | 12/4/2010 1707h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 12/3/2010 1109h | 12/3/2010 2228h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 12/3/2010 1109h | 12/4/2010 1616h | SW6010C | 10.0 | **69.1** | |
| Copper | mg/L | 12/3/2010 1109h | 12/3/2010 2228h | SW6020A | 0.000800 | **0.00146** | |
| Iron | mg/L | 12/3/2010 1109h | 12/4/2010 1707h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 12/3/2010 1109h | 12/3/2010 2228h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 12/3/2010 1109h | 12/4/2010 1707h | SW6010C | 1.00 | **6.48** | |
| Manganese | mg/L | 12/3/2010 1109h | 12/3/2010 2228h | SW6020A | 0.00120 | **0.00236** | |
| Molybdenum | mg/L | 12/3/2010 1109h | 12/4/2010 1707h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 12/3/2010 1109h | 12/4/2010 1707h | SW6010C | 1.00 | **1.01** | |
| Selenium | mg/L | 12/3/2010 1109h | 12/3/2010 2228h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 12/3/2010 1109h | 12/4/2010 1707h | SW6010C | 1.00 | **25.5** | |
| Zinc | mg/L | 12/3/2010 1109h | 12/3/2010 2228h | SW6020A | 0.00500 | **0.117** | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-003
**Client Sample ID:** Mud Creek
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 12/3/2010 1109h | 12/4/2010 1710h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 12/3/2010 1109h | 12/3/2010 2233h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 12/3/2010 1109h | 12/4/2010 1710h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 12/3/2010 1109h | 12/3/2010 2233h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 12/3/2010 1109h | 12/4/2010 1621h | SW6010C | 10.0 | **62.7** | |
| Copper | mg/L | 12/3/2010 1109h | 12/3/2010 2233h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 12/3/2010 1109h | 12/4/2010 1710h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 12/3/2010 1109h | 12/3/2010 2233h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 12/3/2010 1109h | 12/4/2010 1710h | SW6010C | 1.00 | **33.9** | |
| Manganese | mg/L | 12/3/2010 1109h | 12/3/2010 2233h | SW6020A | 0.00120 | **0.0135** | |
| Molybdenum | mg/L | 12/3/2010 1109h | 12/4/2010 1710h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 12/3/2010 1109h | 12/4/2010 1710h | SW6010C | 1.00 | **6.33** | |
| Selenium | mg/L | 12/3/2010 1109h | 12/3/2010 2233h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 12/3/2010 1109h | 12/4/2010 1621h | SW6010C | 10.0 | **41.1** | |
| Zinc | mg/L | 12/3/2010 1109h | 12/3/2010 2233h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-004
**Client Sample ID:** Sulfur Spring
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 12/3/2010 1109h | 12/4/2010 1714h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 12/3/2010 1109h | 12/3/2010 2239h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 12/3/2010 1109h | 12/4/2010 1714h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 12/3/2010 1109h | 12/3/2010 2239h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 12/3/2010 1109h | 12/4/2010 1625h | SW6010C | 10.0 | **91.3** | |
| Copper | mg/L | 12/3/2010 1109h | 12/3/2010 2239h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 12/3/2010 1109h | 12/4/2010 1714h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 12/3/2010 1109h | 12/3/2010 2239h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 12/3/2010 1109h | 12/4/2010 1714h | SW6010C | 1.00 | **37.5** | |
| Manganese | mg/L | 12/3/2010 1109h | 12/3/2010 2239h | SW6020A | 0.00120 | **0.0293** | |
| Molybdenum | mg/L | 12/3/2010 1109h | 12/4/2010 1714h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 12/3/2010 1109h | 12/4/2010 1714h | SW6010C | 1.00 | **5.05** | |
| Selenium | mg/L | 12/3/2010 1109h | 12/3/2010 2239h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 12/3/2010 1109h | 12/4/2010 1714h | SW6010C | 1.00 | **9.04** | |
| Zinc | mg/L | 12/3/2010 1109h | 12/3/2010 2239h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-005
**Client Sample ID:** Miller Outlet
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

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Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 12/3/2010 1109h | 12/4/2010 1718h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 12/3/2010 1109h | 12/3/2010 2245h | SW6020A | 0.000600 | **0.000756** | |
| Boron | mg/L | 12/3/2010 1109h | 12/4/2010 1718h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 12/3/2010 1109h | 12/3/2010 2245h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 12/3/2010 1109h | 12/4/2010 1642h | SW6010C | 10.0 | **90.9** | |
| Copper | mg/L | 12/3/2010 1109h | 12/3/2010 2245h | SW6020A | 0.000800 | **0.00100** | |
| Iron | mg/L | 12/3/2010 1109h | 12/4/2010 1718h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 12/3/2010 1109h | 12/3/2010 2245h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 12/3/2010 1109h | 12/4/2010 1718h | SW6010C | 1.00 | **17.2** | |
| Manganese | mg/L | 12/3/2010 1109h | 12/3/2010 2245h | SW6020A | 0.00120 | **0.0144** | |
| Molybdenum | mg/L | 12/3/2010 1109h | 12/4/2010 1718h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 12/3/2010 1109h | 12/4/2010 1718h | SW6010C | 1.00 | **1.87** | |
| Selenium | mg/L | 12/3/2010 1109h | 12/3/2010 2245h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 12/3/2010 1109h | 12/4/2010 1718h | SW6010C | 1.00 | **6.41** | |
| Zinc | mg/L | 12/3/2010 1109h | 12/3/2010 2245h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-001
**Client Sample ID:** CR-10-11
**Collection Date:** 11/30/2010 1645h
**Received Date:** 12/2/2010 1040h

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Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 12/3/2010 0700h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **224** | |
| Ammonia (as N) | mg/L | 12/7/2010 1059h | 12/8/2010 1216h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **224** | |
| Carbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 12/2/2010 1816h | E300.0 | 1.00 | **14.3** | |
| Hardness (as CaCO3) | mg/L | | 12/4/2010 | A2340B | 10.0 | **256** | |
| Nitrate (as N) | mg/L | | 12/2/2010 1359h | E353.2 | 0.100 | **2.36** | |
| Nitrite (as N) | mg/L | | 12/2/2010 1358h | E353.2 | 0.0100 | **0.0126** | |
| Phosphate, Total Ortho (as P) | mg/L | | 12/2/2010 1252h | E365.1 | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 12/2/2010 1816h | E300.0 | 7.50 | **28.1** | |
| Total Dissolved Solids | mg/L | | 12/3/2010 1500h | A2540C | 20.0 | **312** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-002
**Client Sample ID:** CR-10-12
**Collection Date:** 11/30/2010 1730h
**Received Date:** 12/2/2010 1040h

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Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 12/3/2010 0700h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **173** | |
| Ammonia (as N) | mg/L | 12/7/2010 1059h | 12/8/2010 1218h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **173** | |
| Carbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 12/2/2010 1620h | E300.0 | 1.00 | **19.0** | |
| Hardness (as CaCO3) | mg/L | | 12/4/2010 | A2340B | 10.0 | **199** | |
| Nitrate (as N) | mg/L | | 12/2/2010 1402h | E353.2 | 0.100 | **5.06** | |
| Nitrite (as N) | mg/L | | 12/2/2010 1400h | E353.2 | 0.0100 | **0.0195** | |
| Phosphate, Total Ortho (as P) | mg/L | | 12/2/2010 1255h | E365.1 | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 12/2/2010 1620h | E300.0 | 7.50 | **36.7** | |
| Total Dissolved Solids | mg/L | | 12/3/2010 1500h | A2540C | 20.0 | **400** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-003
**Client Sample ID:** Mud Creek
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

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| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 12/3/2010 0700h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **254** | |
| Ammonia (as N) | mg/L | 12/7/2010 1059h | 12/8/2010 1219h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **240** | |
| Carbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 12/2/2010 1643h | E300.0 | 1.00 | **14.5** | |
| Hardness (as CaCO3) | mg/L | | 12/4/2010 | A2340B | 10.0 | **296** | |
| Nitrate (as N) | mg/L | | 12/2/2010 1344h | E353.2 | 0.0100 | **0.251** | |
| Nitrite (as N) | mg/L | | 12/2/2010 1344h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 12/3/2010 1220h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total Ortho (as P) | mg/L | | 12/2/2010 1256h | E365.1 | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 12/2/2010 1125h | A2540F | 0.100 | **0.100** | |
| Sulfate | mg/L | | 12/2/2010 1643h | E300.0 | 7.50 | **118** | |
| Total Dissolved Solids | mg/L | | 12/3/2010 1500h | A2540C | 20.0 | **400** | |
| Total Suspended Solids | mg/L | | 12/2/2010 1500h | A2540D | 3.00 | **30.0** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-004
**Client Sample ID:** Sulfur Spring
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

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Jose Rocha
QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 12/3/2010 0700h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **338** | |
| Ammonia (as N) | mg/L | 12/7/2010 1059h | 12/8/2010 1225h | E350.1 | 0.0500 | **0.0571** | |
| Bicarbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **338** | |
| Carbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 12/2/2010 1533h | E300.0 | 1.00 | **6.53** | |
| Hardness (as CaCO3) | mg/L | | 12/4/2010 | A2340B | 10.0 | **382** | |
| Nitrate (as N) | mg/L | | 12/2/2010 1351h | E353.2 | 0.0100 | < 0.0100 | |
| Nitrite (as N) | mg/L | | 12/2/2010 1351h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 12/3/2010 1220h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total Ortho (as P) | mg/L | | 12/2/2010 1256h | E365.1 | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 12/2/2010 1125h | A2540F | 0.100 | < 0.100 | |
| Sulfate | mg/L | | 12/2/2010 1533h | E300.0 | 7.50 | **43.7** | |
| Total Dissolved Solids | mg/L | | 12/3/2010 1500h | A2540C | 20.0 | **384** | |
| Total Suspended Solids | mg/L | | 12/2/2010 1500h | A2540D | 3.00 | < 3.00 | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-005
**Client Sample ID:** Miller Outlet
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

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QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 12/3/2010 0700h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **268** | |
| Ammonia (as N) | mg/L | 12/7/2010 1059h | 12/8/2010 1228h | E350.1 | 0.0500 | **0.0507** | |
| Bicarbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **261** | |
| Carbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 12/2/2010 1556h | E300.0 | 1.00 | **9.50** | |
| Hardness (as CaCO3) | mg/L | | 12/4/2010 | A2340B | 10.0 | **298** | |
| Nitrate (as N) | mg/L | | 12/2/2010 1352h | E353.2 | 0.0100 | **0.645** | |
| Nitrite (as N) | mg/L | | 12/2/2010 1352h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 12/3/2010 1220h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total Ortho (as P) | mg/L | | 12/2/2010 1257h | E365.1 | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 12/2/2010 1125h | A2540F | 0.100 | **0.100** | |
| Sulfate | mg/L | | 12/2/2010 1556h | E300.0 | 7.50 | **28.0** | |
| Total Dissolved Solids | mg/L | | 12/3/2010 1500h | A2540C | 20.0 | **340** | @ |
| Total Suspended Solids | mg/L | | 12/2/2010 1500h | A2540D | 3.00 | **48.0** | |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-9687 | Aluminum | mg/L | SW6010C | 1.02 | 1.000 | 0 | 102 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9687 | Boron | mg/L | SW6010C | 1.09 | 1.000 | 0 | 109 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9687 | Calcium | mg/L | SW6010C | 10.3 | 10.00 | 0 | 103 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9687 | Iron | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9687 | Magnesium | mg/L | SW6010C | 10.5 | 10.00 | 0 | 105 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9687 | Molybdenum | mg/L | SW6010C | 0.212 | 0.2000 | 0 | 106 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9687 | Potassium | mg/L | SW6010C | 10.4 | 10.00 | 0 | 104 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9687 | Sodium | mg/L | SW6010C | 10.2 | 10.00 | 0 | 102 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9688 | Iron | mg/L | SW6010C | 1.07 | 1.000 | 0 | 107 | 80-120 | | | | 12/6/2010 1519h |
| LCS-9687 | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 12/3/2010 2132h |
| LCS-9687 | Cadmium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 12/3/2010 2132h |
| LCS-9687 | Copper | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.7 | 85-115 | | | | 12/3/2010 2132h |
| LCS-9687 | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 12/3/2010 2132h |
| LCS-9687 | Manganese | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 101 | 85-115 | | | | 12/3/2010 2132h |
| LCS-9687 | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 12/3/2010 2132h |
| LCS-9687 | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 85-115 | | | | 12/3/2010 2132h |
| LCS-9688 | Manganese | mg/L | SW6020A | 0.205 | 0.2000 | 0 | 102 | 85-115 | | | | 12/3/2010 2256h |



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Jose Rocha
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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-9687 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 12/4/2010 1555h |
| MB-9687 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 12/4/2010 1555h |
| MB-9687 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 12/4/2010 1555h |
| MB-9687 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 12/4/2010 1555h |
| MB-9687 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 12/4/2010 1555h |
| MB-9687 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 12/4/2010 1555h |
| MB-9687 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 12/4/2010 1555h |
| MB-9687 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 12/4/2010 1555h |
| MB-9688 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 12/6/2010 1515h |
| MB-9687 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 12/3/2010 2126h |
| MB-9687 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 12/3/2010 2126h |
| MB-9687 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 12/3/2010 2126h |
| MB-9687 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 12/3/2010 2126h |
| MB-9687 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 12/3/2010 2126h |
| MB-9687 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 12/3/2010 2126h |
| MB-9687 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 12/3/2010 2126h |
| MB-9688 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 12/3/2010 2251h |



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Kyle F. Gross
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Jose Rocha
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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1012038-001DMS | Aluminum | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 75-125 | | | | 12/4/2010 1659h |
| 1012038-001DMS | Boron | mg/L | SW6010C | 1.17 | 1.000 | 0.02380 | 115 | 75-125 | | | | 12/4/2010 1659h |
| 1012038-001DMS | Calcium | mg/L | SW6010C | 92.0 | 10.00 | 82.20 | 98.4 | 75-125 | | | | 12/4/2010 1608h |
| 1012038-001DMS | Iron | mg/L | SW6010C | 1.04 | 1.000 | 0 | 104 | 75-125 | | | | 12/4/2010 1659h |
| 1012038-001DMS | Magnesium | mg/L | SW6010C | 22.9 | 10.00 | 12.34 | 105 | 75-125 | | | | 12/4/2010 1659h |
| 1012038-001DMS | Molybdenum | mg/L | SW6010C | 0.210 | 0.2000 | 0 | 105 | 75-125 | | | | 12/4/2010 1659h |
| 1012038-001DMS | Potassium | mg/L | SW6010C | 12.2 | 10.00 | 1.468 | 107 | 75-125 | | | | 12/4/2010 1659h |
| 1012038-001DMS | Sodium | mg/L | SW6010C | 21.6 | 10.00 | 11.17 | 105 | 75-125 | | | | 12/4/2010 1659h |
| 1012038-001EMS | Iron | mg/L | SW6010C | 6.65 | 1.000 | 5.760 | 89.0 | 75-125 | | | | 12/6/2010 1548h |
| 1012038-001DMS | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0005760 | 100 | 75-125 | | | | 12/3/2010 2157h |
| 1012038-001DMS | Cadmium | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 101 | 75-125 | | | | 12/3/2010 2157h |
| 1012038-001DMS | Copper | mg/L | SW6020A | 0.194 | 0.2000 | 0.0009280 | 96.8 | 75-125 | | | | 12/3/2010 2157h |
| 1012038-001DMS | Lead | mg/L | SW6020A | 0.203 | 0.2000 | 0.0001530 | 101 | 75-125 | | | | 12/3/2010 2157h |
| 1012038-001DMS | Manganese | mg/L | SW6020A | 0.203 | 0.2000 | 0.001679 | 101 | 75-125 | | | | 12/3/2010 2157h |
| 1012038-001DMS | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.001339 | 101 | 75-125 | | | | 12/3/2010 2157h |
| 1012038-001DMS | Zinc | mg/L | SW6020A | 1.04 | 1.000 | 0.03831 | 101 | 75-125 | | | | 12/3/2010 2157h |
| 1012038-001EMS | Manganese | mg/L | SW6020A | 0.291 | 0.2000 | 0.09125 | 100 | 75-125 | | | | 12/3/2010 2339h |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1012038-001DMSD | Aluminum | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 75-125 | 0.0277 | 20 | | 12/4/2010 1703h |
| 1012038-001DMSD | Boron | mg/L | SW6010C | 1.18 | 1.000 | 0.02380 | 116 | 75-125 | 0.857 | 20 | | 12/4/2010 1703h |
| 1012038-001DMSD | Calcium | mg/L | SW6010C | 94.7 | 10.00 | 82.20 | 125 | 75-125 | 2.82 | 20 | | 12/4/2010 1612h |
| 1012038-001DMSD | Iron | mg/L | SW6010C | 1.04 | 1.000 | 0 | 104 | 75-125 | 0.800 | 20 | | 12/4/2010 1703h |
| 1012038-001DMSD | Magnesium | mg/L | SW6010C | 22.9 | 10.00 | 12.34 | 106 | 75-125 | 0.248 | 20 | | 12/4/2010 1703h |
| 1012038-001DMSD | Molybdenum | mg/L | SW6010C | 0.211 | 0.2000 | 0 | 106 | 75-125 | 0.368 | 20 | | 12/4/2010 1703h |
| 1012038-001DMSD | Potassium | mg/L | SW6010C | 12.0 | 10.00 | 1.468 | 105 | 75-125 | 1.40 | 20 | | 12/4/2010 1703h |
| 1012038-001DMSD | Sodium | mg/L | SW6010C | 21.5 | 10.00 | 11.17 | 103 | 75-125 | 0.623 | 20 | | 12/4/2010 1703h |
| 1012038-001EMSD | Iron | mg/L | SW6010C | 6.78 | 1.000 | 5.760 | 102 | 75-125 | 1.94 | 20 | | 12/6/2010 1552h |
| 1012038-001DMSD | Arsenic | mg/L | SW6020A | 0.202 | 0.2000 | 0.0005760 | 101 | 75-125 | 0.532 | 20 | | 12/3/2010 2220h |
| 1012038-001DMSD | Cadmium | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 102 | 75-125 | 0.227 | 20 | | 12/3/2010 2220h |
| 1012038-001DMSD | Copper | mg/L | SW6020A | 0.194 | 0.2000 | 0.0009280 | 96.7 | 75-125 | 0.0833 | 20 | | 12/3/2010 2220h |
| 1012038-001DMSD | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0.0001530 | 100 | 75-125 | 1.27 | 20 | | 12/3/2010 2220h |
| 1012038-001DMSD | Manganese | mg/L | SW6020A | 0.204 | 0.2000 | 0.001679 | 101 | 75-125 | 0.0418 | 20 | | 12/3/2010 2220h |
| 1012038-001DMSD | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.001339 | 100 | 75-125 | 0.0845 | 20 | | 12/3/2010 2220h |
| 1012038-001DMSD | Zinc | mg/L | SW6020A | 1.05 | 1.000 | 0.03831 | 101 | 75-125 | 0.401 | 20 | | 12/3/2010 2220h |
| 1012038-001EMSD | Manganese | mg/L | SW6020A | 0.289 | 0.2000 | 0.09125 | 98.9 | 75-125 | 0.742 | 20 | | 12/3/2010 2344h |



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Kyle F. Gross
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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1012038-005ADUP | Total Dissolved Solids | mg/L | A2540C | 308 | | 340.0 | | - | 9.88 | 5 | @ | 12/3/2010 1500h |
| 1012019-002ADUP | Total Suspended Solids | mg/L | A2540D | 32.0 | | 32.00 | | - | 0 | 5 | | 12/2/2010 1500h |
| 1012026-001ADUP | Total Suspended Solids | mg/L | A2540D | 640 | | 680.0 | | - | 6.06 | 5 | @ | 12/2/2010 1500h |
| 1012038-005ADUP | Total Suspended Solids | mg/L | A2540D | 48.0 | | 48.00 | | - | 0 | 5 | | 12/2/2010 1500h |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R21085 | Chloride | mg/L | E300.0 | 4.64 | 5.000 | 0 | 92.9 | 90-110 | | | | 12/2/2010 1400h |
| LCS-R21085 | Sulfate | mg/L | E300.0 | 4.98 | 5.000 | 0 | 99.6 | 90-110 | | | | 12/2/2010 1400h |
| LCS-R21080 | Acidity | mg/L | A2310B | 54.0 | 50.00 | 0 | 108 | 80-120 | | | | 12/3/2010 0700h |
| LCS-R21081 | Alkalinity (as CaCO3) | mg/L | A2320B | 54,200 | 50,000 | 0 | 108 | 90-110 | | | | 12/3/2010 0800h |
| LCS-9746 | Ammonia (as N) | mg/L | E350.1 | 0.963 | 1.000 | 0 | 96.3 | 90-110 | | | | 12/8/2010 1209h |
| LCS-R21045 | Nitrite (as N) | mg/L | E353.2 | 1.00 | 1.000 | 0 | 100 | 90-110 | | | | 12/2/2010 1341h |
| LCS-R21046 | Nitrate (as N) | mg/L | E353.2 | 1.04 | 1.000 | 0 | 104 | 90-110 | | | | 12/2/2010 1343h |
| LCS-R21123 | Oil & Grease | mg/L | E1664A | 37.6 | 40.00 | 0 | 94.0 | 78-114 | | | | 12/3/2010 1220h |
| LCS-R21039 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.03 | 1.000 | 0.003000 | 102 | 90-110 | | | | 12/2/2010 1251h |
| LCS-R21209 | Total Dissolved Solids | mg/L | A2540C | 204 | 205.0 | 0 | 99.5 | 80-120 | | | | 12/3/2010 1500h |
| LCS-R21083 | Total Suspended Solids | mg/L | A2540D | 89.0 | 100.0 | 0 | 89.0 | 80-120 | | | | 12/2/2010 1500h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R21085 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | | 12/2/2010 1336h |
| MB-R21085 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 12/2/2010 1336h |
| MB-R21080 | Acidity | mg/L | A2310B | < 15.0 | | | | - | | | | 12/3/2010 0700h |
| MB-R21081 | Alkalinity (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 12/3/2010 0800h |
| MB-R21081 | Bicarbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 12/3/2010 0800h |
| MB-R21081 | Carbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 12/3/2010 0800h |
| MB-9746 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 12/8/2010 1208h |
| MB-R21045 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 12/2/2010 1340h |
| MB-R21046 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 12/2/2010 1340h |
| MB-R21123 | Oil & Grease | mg/L | E1664A | < 3.00 | | | | - | | | | 12/3/2010 1220h |
| MB-R21039 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | < 0.0500 | | | | - | | | | 12/2/2010 1250h |
| MB-R21209 | Total Dissolved Solids | mg/L | A2540C | < 10.0 | | | | - | | | | 12/3/2010 1500h |
| MB-R21083 | Total Suspended Solids | mg/L | A2540D | < 3.00 | | | | - | | | | 12/2/2010 1500h |



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QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1011472-004CMS | Sulfate | mg/L | E300.0 | 129 | 50.00 | 78.53 | 102 | 90-110 | | | | 12/2/2010 1447h |
| 1012038-001BMS | Chloride | mg/L | E300.0 | 61.2 | 50.00 | 14.30 | 93.8 | 90-110 | | | | 12/2/2010 1839h |
| 1012038-001BMS | Sulfate | mg/L | E300.0 | 77.4 | 50.00 | 28.11 | 98.6 | 90-110 | | | | 12/2/2010 1839h |
| 1012038-001BMS | Acidity | mg/L | A2310B | 48.0 | 50.00 | 0 | 96.0 | 80-120 | | | | 12/3/2010 0700h |
| 1012038-001BMS | Alkalinity (as CaCO3) | mg/L | A2320B | 322 | 100.0 | 224.0 | 98.0 | 80-120 | | | | 12/3/2010 0800h |
| 1012038-004DMS | Ammonia (as N) | mg/L | E350.1 | 1.07 | 1.000 | 0.05710 | 101 | 90-110 | | | | 12/8/2010 1226h |
| 1012103-003AMS | Ammonia (as N) | mg/L | E350.1 | 1.28 | 1.000 | 0.2428 | 104 | 90-110 | | | | 12/8/2010 1212h |
| 1012038-003BMS | Nitrite (as N) | mg/L | E353.2 | 1.04 | 1.000 | 0.004500 | 104 | 90-110 | | | | 12/2/2010 1345h |
| 1012038-003BMS | Nitrate (as N) | mg/L | E353.2 | 1.30 | 1.000 | 0.2508 | 105 | 90-110 | | | | 12/2/2010 1348h |
| 1012038-001BMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.06 | 1.000 | 0.03770 | 103 | 90-110 | | | | 12/2/2010 1253h |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1011472-004CMSD | Sulfate | mg/L | E300.0 | 129 | 50.00 | 78.53 | 102 | 90-110 | 0.111 | 20 | | 12/2/2010 1510h |
| 1012038-001BMSD | Chloride | mg/L | E300.0 | 61.8 | 50.00 | 14.30 | 95.1 | 90-110 | 1.04 | 20 | | 12/2/2010 1903h |
| 1012038-001BMSD | Sulfate | mg/L | E300.0 | 77.7 | 50.00 | 28.11 | 99.1 | 90-110 | 0.349 | 20 | | 12/2/2010 1903h |
| 1012038-001BMSD | Acidity | mg/L | A2310B | 48.0 | 50.00 | 0 | 96.0 | 80-120 | 0 | 0 | | 12/3/2010 0700h |
| 1012038-001BMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 326 | 100.0 | 224.0 | 102 | 80-120 | 1.23 | 10 | | 12/3/2010 0800h |
| 1012038-004DMSD | Ammonia (as N) | mg/L | E350.1 | 1.05 | 1.000 | 0.05710 | 99.0 | 90-110 | 1.76 | 10 | | 12/8/2010 1227h |
| 1012103-003AMSD | Ammonia (as N) | mg/L | E350.1 | 1.22 | 1.000 | 0.2428 | 98.2 | 90-110 | 4.72 | 10 | | 12/8/2010 1213h |
| 1012038-003BMSD | Nitrite (as N) | mg/L | E353.2 | 1.01 | 1.000 | 0.004500 | 101 | 90-110 | 2.75 | 10 | | 12/2/2010 1347h |
| 1012038-003BMSD | Nitrate (as N) | mg/L | E353.2 | 1.24 | 1.000 | 0.2508 | 99.3 | 90-110 | 4.62 | 10 | | 12/2/2010 1350h |
| 1012038-001BMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.06 | 1.000 | 0.03770 | 103 | 90-110 | 0.0657 | 10 | | 12/2/2010 1254h |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# American West Analytical Laboratories

## WORK ORDER Summary

**Work Order:** 1012038

Page 1 of 5

**Client:** Carbon Resources

**Client ID:** CAR300 **Contact:** Brad Lindsay

12/2/2010

**Project:** Scofield Baseline (Kinney) **QC Level:** LEVEL II+ **WO Type:** Project

**Comments:** No Hard Copies. QC 2+, EDD. Watch hold times on NO2, NO3 and Ortho-phos and SS.;

HOLDS

DB

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1012038-001A | CR-10-11 | 11/30/2010 4:45:00 PM | 12/2/2010 10:40:00 AM | 12/16/2010 | Aqueous | TDS-W-2540C | ☐ | ww - tds | 1 |
| 1012038-001B | | | | 12/16/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 12/16/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 12/16/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 12/16/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1012038-001C | | | | 12/16/2010 | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | 12/16/2010 | | NH3-W-PR | ☐ | df - nh3 | |
| 1012038-001D | | | | 12/16/2010 | | 3005A-DIS-PR | ☐ | df - diss. Met. | 2 |
| | | | | 12/16/2010 | | 6010C-DIS | ☑ | df - diss. Met. | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 12/16/2010 | | 6020-DIS | ☑ | df - diss. Met. | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 12/16/2010 | | HARD-2340B | ☐ | df - diss. Met. | |
| 1012038-001E | | | | 12/16/2010 | | 3005A-ICPMS-PR | ☐ | df - total metals | 1 |
| | | | | 12/16/2010 | | 6010C-W | ☑ | df - total metals | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 12/16/2010 | | 6020-W | ☑ | df - total metals | |
| | SEL Analytes: MN | | | | | | | | |
| 1012038-002A | CR-10-12 | 11/30/2010 5:30:00 PM | | 12/16/2010 | | TDS-W-2540C | ☐ | ww - tds | |
| 1012038-002B | | | | 12/16/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |

# WORK ORDER Summary

Work Order: **1012038**



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Carbon Resources | | | | 12/2/2010 |
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay | | |
| **Project:** | Scofield Baseline (Kinney) | **QC Level:** | LEVEL II+ | **WO Type:** | Project |
| **Comments:** | No Hard Copies. QC 2+, EDD. Watch hold times on NO2, NO3 and Ortho-phos and SS.; | | | | |

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1012038-002B | CR-10-12 | 11/30/2010 5:30:00 PM | 12/2/2010 10:40:00 AM | 12/16/2010 | Aqueous | ACIDITY-W-2310B | ☐ | DF - wc | 1 |
| | | | | 12/16/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 12/16/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1012038-002C | | | | 12/16/2010 | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | 12/16/2010 | | NH3-W-PR | ☐ | df - nh3 | |
| 1012038-002D | | | | 12/16/2010 | | 3005A-DIS-PR | ☐ | df - diss. Met. | 2 |
| | | | | 12/16/2010 | | 6010C-DIS | ☑ | df - diss. Met. | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 12/16/2010 | | 6020-DIS | ☑ | df - diss. Met. | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 12/16/2010 | | HARD-2340B | ☐ | df - diss. Met. | |
| 1012038-002E | | | | 12/16/2010 | | 3005A-ICPMS-PR | ☐ | df - total metals | 1 |
| | | | | 12/16/2010 | | 6010C-W | ☑ | df - total metals | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 12/16/2010 | | 6020-W | ☑ | df - total metals | |
| | SEL Analytes: MN | | | | | | | | |
| 1012038-003A | Mud Creek | 12/1/2010 | | 12/16/2010 | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | 12/16/2010 | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | 12/16/2010 | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1012038-003B | | | | 12/16/2010 | | 300.0-W | ☑ | DF - wc | 2 |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 12/16/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 12/16/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |

# WORK ORDER Summary

Work Order: **1012038**



12/2/2010

| | | | |
|---|---|---|---|
| **Client:** | Carbon Resources | | |
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay |
| **Project:** | Scofield Baseline (Kinney) | **QC Level:** | LEVEL II+ |
| **Comments:** | No Hard Copies. QC 2+, EDD. Watch hold times on NO2, NO3 and Ortho-phos and SS.; | | |

**WO Type:** Project

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1012038-003B | Mud Creek | 12/1/2010 | 12/2/2010 10:40:00 AM | 12/16/2010 | Aqueous | NO2-W-353.2 | ☐ | DF - wc | 2 |
| | | | | 12/16/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1012038-003C | | | | 12/16/2010 | | OGB-W-1664A | ☐ | ogb | 1 |
| 1012038-003D | | | | 12/16/2010 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 12/16/2010 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1012038-003E | | | | 12/16/2010 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 12/16/2010 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | 12/16/2010 | | 6020-DIS | ☑ | DF - dis met | |
| 1012038-003F | SEL Analytes: AS CD CU PB MN SE ZN | | | 12/16/2010 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 12/16/2010 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | 12/16/2010 | | 6020-W | ☑ | DF - total met | |
| | SEL Analytes: MN | | | 12/16/2010 | | HARD-2340B | ☐ | DF - total met | |
| 1012038-004A | Sulfur Spring | | | 12/16/2010 | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | 12/16/2010 | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | 12/16/2010 | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1012038-004B | | | | 12/16/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | 12/16/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 12/16/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | 12/16/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1012038-004C | | | | 12/16/2010 | | OGB-W-1664A | ☐ | ogb | |

# WORK ORDER Summary

**Work Order:** 1012038



**Client:** Carbon Resources

**Client ID:** CAR300 **Contact:** Brad Lindsay

**Project:** Scofield Baseline (Kinney) **QC Level:** LEVEL II+

**WO Type:** Project

**Comments:** No Hard Copies. QC 2+, EDD. Watch hold times on NO2, NO3 and Ortho-phos and SS.;

12/2/2010

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1012038-004D | Sulfur Spring | 12/1/2010 | 12/2/2010 10:40:00 AM | 12/16/2010 | Aqueous | NH3-W-350.1 | ☐ | DF - nh3 | 1 |
| | | | | 12/16/2010 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1012038-004E | | | | 12/16/2010 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 12/16/2010 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 12/16/2010 | | 6020-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 12/16/2010 | | HARD-2340B | ☐ | DF - dis met | |
| 1012038-004F | | | | 12/16/2010 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 12/16/2010 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 12/16/2010 | | 6020-W | ☑ | DF - total met | |
| | SEL Analytes: MN | | | | | | | | |
| 1012038-005A | Miller Outlet | | | 12/16/2010 | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | 12/16/2010 | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | 12/16/2010 | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1012038-005B | | | | 12/16/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 12/16/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 12/16/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 12/16/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1012038-005C | | | | 12/16/2010 | | OGB-W-1664A | ☐ | ogb | |
| 1012038-005D | | | | 12/16/2010 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 12/16/2010 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1012038-005E | | | | 12/16/2010 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 12/16/2010 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |

# WORK ORDER Summary

**Work Order:** 1012038



**Client:** Carbon Resources

**Client ID:** CAR300 **Contact:** Brad Lindsay

**Project:** Scofield Baseline (Kinney) **QC Level:** LEVEL II+

**WO Type:** Project

**Comments:** No Hard Copies. QC 2+, EDD. Watch hold times on NO2, NO3 and Ortho-phos and SS.;

12/2/2010

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1012038-005E | Miller Outlet | 12/1/2010 | 12/2/2010 10:40:00 AM | 12/16/2010 | Aqueous | 6020-DIS | ☑ | DF - dis met | 2 |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 12/16/2010 | | HARD-2340B | ☐ | DF - dis met | |
| 1012038-005F | | | | 12/16/2010 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 12/16/2010 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 12/16/2010 | | 6020-W | ☑ | DF - total met | |
| | SEL Analytes: MN | | | | | | | | |

Client Carbon Resources c/o Rock Logic

Address P.O. Box 544

Cedaredge, CO 81413
City State Zip

Phone 435 851-9041 Fax

Contact Brad Lindsay

E-mail rocklogicconsulting@gmail.com

Project Name Scofield Baseline (Kinney)

Project Number/P.O.#

Sampler Name Greg Hunt


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# CHAIN OF CUSTODY

Lab Sample Set # 1012038

Page 1 of 1

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day Standard

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | Table 4 | Table 3 | | | | | | | | | | QC LEVEL | COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CR-10-11 | 11-30-10 / 16:45 | GW | 5 | ✓ | | | | | | | | | | | 1 2 2+ 3 3+ 4 | |
| CR-10-12 | 11 11 / 17:30 (per bottle) | | 5 | ✓ | | | | | | | | | | | | |
| Mud Creek | 12-1-10 / | | 6 | | ✓ | | | | | | | | | | | 1 unpreserved bottle ~~leaking~~ - DB 12/2/10 |
| Sulfur Spring | 11 11 / | | 6 | | ✓ | | | | | | | | | | | |
| Miller Outlet | 11 11 / | | 6 | | ✓ | | | | | | | | | | | |

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME Greg Hunt | Time 16:00 | PRINT NAME UPS |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date 12/2/10 | Received By: Signature Denise Bruun |
| PRINT NAME | Time 10:40 | PRINT NAME Denise Bruun |

Special Instructions:

PLEASE FILTER

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
Notes: UPS

2 Ambient or Chilled
Notes:

3 Temperature 1.2°

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Notes:

6 Received Within Holding Times
(Y) DB 12/2/10 N
Notes:
yes

COC Tape Was:

1 Present on Outer Package
(Y) N NA

2 Unbroken on Outer Package
(Y) N NA

3 Present on Sample
Y (N) NA

4 Unbroken on Sample
Y N (NA)
Notes:

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

TABLE 4

1L HDPE
1L HDPE
250mL HDPE
1 500 mL HNO3
1 250 mL H2SO4

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | | REPORTED AS |
|---|---|---|---|---|
| * | - | Water level or Flow | | Depth, Flow |
| * | - | pH | | Standard units |
| * | - | Specific Conductivity | | umhos/cm @ 25° C |
| * | - | Temperature | | °C |
| | | **LABORATORY MEASUREMENTS** | | |
| * | - | Total Dissolved Solids | | mg/l |
| * | - | Total Hardness ($CaCO_3$) | | mg/l |
| * | - | Total Alkalinity | | mg/l |
| | - | Acidity | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved)[1] | | mg/l |
| * | - | Carbonate | | mg/l |
| * | - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| * | - | Calcium (Dissolved) | | mg/l |
| * | - | Chloride | mg/l | |
| | - | Copper (Dissolved) | | mg/l |
| * | - | Iron (Dissolved) | | mg/l |
| * | - | Iron (Total) | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| * | - | Magnesium (Dissolved) | | mg/l |
| * | - | Manganese (Dissolved) | | mg/l |
| * | - | Manganese (Total) | | mg/l |
| | - | Molybdenum (Dissolved) | | mg/l |
| | - | Ammonia | | mg/l |
| | - | Nitrates | | mg/l |
| | - | Nitrites | | mg/l |
| * | - | Potassium (Dissolved) | | mg/l |
| | - | Phosphate (Ortho) | | mg/l |
| | - | Selenium[1] (Dissolved) | | mg/l |
| * | - | Sodium (Dissolved) | | mg/l |
| * | - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| * | - | Cations | | meq/l |
| * | - | Anions | | meq/l |

[1] These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 1012038

## Preservation Check Sheet

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (435) 851-9044

RE: Scofield Baseline (Kinney)

Dear Brad Lindsay: Lab Set ID: 1012515

American West Analytical Laboratories received 2 sample(s) on 12/30/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Kyle F. Gross — Digitally signed by Kyle F. Gross DN: cn=Kyle F. Gross, o=AWAL, ou=AWAL, email=kyle@awal-labs.com, c=US Date: 2011.01.11 13:07:00 -07'00'

Laboratory Director or designee



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# INORGANIC ANALYTICAL REPORT

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012515-001
**Client Sample ID:** CR-10-11
**Collection Date:** 12/29/2010 1300h
**Received Date:** 12/30/2010 1659h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 1/3/2011 1352h | 1/3/2011 1857h | SW6010C | 0.100 | **0.169** | |
| Manganese | mg/L | 1/3/2011 1352h | 1/4/2011 0009h | SW6020A | 0.00120 | **0.00314** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012515-002
**Client Sample ID:** CR-10-12
**Collection Date:** 12/29/2010 1410h
**Received Date:** 12/30/2010 1659h

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Laboratory Director

Jose Rocha
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 1/3/2011 1352h | 1/3/2011 1930h | SW6010C | 1.00 | **56.8** | |
| Manganese | mg/L | 1/3/2011 1352h | 1/4/2011 0057h | SW6020A | 0.00120 | **1.10** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012515-001
**Client Sample ID:** CR-10-11
**Collection Date:** 12/29/2010 1300h
**Received Date:** 12/30/2010 1659h

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Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 1/3/2011 1347h | 1/4/2011 2000h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 1/3/2011 1347h | 1/3/2011 2319h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 1/3/2011 1347h | 1/4/2011 2000h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 1/3/2011 1347h | 1/3/2011 2319h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 1/3/2011 1347h | 1/4/2011 1926h | SW6010C | 10.0 | **82.4** | |
| Copper | mg/L | 1/3/2011 1347h | 1/3/2011 2319h | SW6020A | 0.000800 | **0.00137** | |
| Iron | mg/L | 1/3/2011 1347h | 1/4/2011 2000h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 1/3/2011 1347h | 1/3/2011 2319h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 1/3/2011 1347h | 1/4/2011 2000h | SW6010C | 1.00 | **12.4** | |
| Manganese | mg/L | 1/3/2011 1347h | 1/3/2011 2319h | SW6020A | 0.00120 | **0.00120** | |
| Molybdenum | mg/L | 1/3/2011 1347h | 1/4/2011 2000h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 1/3/2011 1347h | 1/4/2011 2000h | SW6010C | 1.00 | **1.17** | |
| Selenium | mg/L | 1/3/2011 1347h | 1/3/2011 2319h | SW6020A | 0.000800 | **0.000912** | |
| Sodium | mg/L | 1/3/2011 1347h | 1/4/2011 2000h | SW6010C | 1.00 | **11.1** | |
| Zinc | mg/L | 1/3/2011 1347h | 1/3/2011 2319h | SW6020A | 0.00500 | **0.0558** | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012515-002
**Client Sample ID:** CR-10-12
**Collection Date:** 12/29/2010 1410h
**Received Date:** 12/30/2010 1659h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 1/3/2011 1347h | 1/4/2011 2015h | SW6010C | 0.100 | **0.320** | |
| Arsenic | mg/L | 1/3/2011 1347h | 1/3/2011 2350h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 1/3/2011 1347h | 1/4/2011 2015h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 1/3/2011 1347h | 1/3/2011 2350h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 1/3/2011 1347h | 1/4/2011 1939h | SW6010C | 10.0 | **74.2** | |
| Copper | mg/L | 1/3/2011 1347h | 1/3/2011 2350h | SW6020A | 0.000800 | **0.00219** | |
| Iron | mg/L | 1/3/2011 1347h | 1/4/2011 2015h | SW6010C | 0.100 | **0.169** | |
| Lead | mg/L | 1/3/2011 1347h | 1/3/2011 2350h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 1/3/2011 1347h | 1/4/2011 2015h | SW6010C | 1.00 | **6.72** | |
| Manganese | mg/L | 1/3/2011 1347h | 1/3/2011 2350h | SW6020A | 0.00120 | **0.0259** | |
| Molybdenum | mg/L | 1/3/2011 1347h | 1/4/2011 2015h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 1/3/2011 1347h | 1/4/2011 2015h | SW6010C | 1.00 | **1.14** | |
| Selenium | mg/L | 1/3/2011 1347h | 1/3/2011 2350h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 1/3/2011 1347h | 1/4/2011 2015h | SW6010C | 1.00 | **23.9** | |
| Zinc | mg/L | 1/3/2011 1347h | 1/3/2011 2350h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012515-001
**Client Sample ID:** CR-10-11
**Collection Date:** 12/29/2010 1300h
**Received Date:** 12/30/2010 1659h

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Laboratory Director

Jose Rocha
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| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 1/3/2011 1030h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 1/3/2011 0750h | A2320B | 20.0 | **221** | |
| Ammonia (as N) | mg/L | 1/7/2011 1212h | 1/10/2011 1400h | E350.1 | 0.100 | < 0.100 | |
| Bicarbonate (as CaCO3) | mg/L | | 1/3/2011 0750h | A2320B | 20.0 | **221** | |
| Carbonate (as CaCO3) | mg/L | | 1/3/2011 0750h | A2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 1/3/2011 1455h | E300.0 | 1.00 | **14.3** | |
| Hardness (as CaCO3) | mg/L | | 1/4/2011 | A2340B | 10.0 | **257** | |
| Nitrate (as N) | mg/L | | 12/30/2010 1720h | E353.2 | 0.100 | **2.60** | |
| Nitrite (as N) | mg/L | | 12/30/2010 1711h | E353.2 | 0.0100 | < 0.0100 | |
| Phosphate, Total Ortho (as P) | mg/L | | 12/30/2010 1758h | E365.1 | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 1/3/2011 1455h | E300.0 | 7.50 | **27.6** | |
| Total Dissolved Solids | mg/L | | 1/4/2011 1300h | A2540C | 20.0 | **284** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012515-002
**Client Sample ID:** CR-10-12
**Collection Date:** 12/29/2010 1410h
**Received Date:** 12/30/2010 1659h

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QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 1/3/2011 1030h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 1/3/2011 0750h | A2320B | 20.0 | **179** | |
| Ammonia (as N) | mg/L | 1/7/2011 1212h | 1/10/2011 1404h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 1/3/2011 0750h | A2320B | 20.0 | **179** | |
| Carbonate (as CaCO3) | mg/L | | 1/3/2011 0750h | A2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 1/3/2011 1605h | E300.0 | 1.00 | **17.9** | |
| Hardness (as CaCO3) | mg/L | | 1/4/2011 | A2340B | 10.0 | **213** | |
| Nitrate (as N) | mg/L | | 12/30/2010 1726h | E353.2 | 0.100 | **5.56** | |
| Nitrite (as N) | mg/L | | 12/30/2010 1719h | E353.2 | 0.0100 | **0.0154** | |
| Phosphate, Total Ortho (as P) | mg/L | | 12/30/2010 1801h | E365.1 | 0.0500 | **0.0790** | |
| Sulfate | mg/L | | 1/3/2011 1605h | E300.0 | 7.50 | **41.1** | |
| Total Dissolved Solids | mg/L | | 1/4/2011 1300h | A2540C | 50.0 | **370** | @ |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012515
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-10104 | Aluminum | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 80-120 | | | | 1/4/2011 1922h |
| LCS-10104 | Boron | mg/L | SW6010C | 1.12 | 1.000 | 0 | 112 | 80-120 | | | | 1/4/2011 1922h |
| LCS-10104 | Calcium | mg/L | SW6010C | 9.76 | 10.00 | 0 | 97.6 | 80-120 | | | | 1/4/2011 1922h |
| LCS-10104 | Iron | mg/L | SW6010C | 0.989 | 1.000 | 0 | 98.9 | 80-120 | | | | 1/4/2011 1922h |
| LCS-10104 | Magnesium | mg/L | SW6010C | 10.6 | 10.00 | 0 | 106 | 80-120 | | | | 1/4/2011 1922h |
| LCS-10104 | Molybdenum | mg/L | SW6010C | 0.213 | 0.2000 | 0 | 106 | 80-120 | | | | 1/4/2011 1922h |
| LCS-10104 | Potassium | mg/L | SW6010C | 10.6 | 10.00 | 0 | 106 | 80-120 | | | | 1/4/2011 1922h |
| LCS-10104 | Sodium | mg/L | SW6010C | 10.5 | 10.00 | 0 | 105 | 80-120 | | | | 1/4/2011 1922h |
| LCS-10105 | Iron | mg/L | SW6010C | 1.08 | 1.000 | 0 | 108 | 80-120 | | | | 1/3/2011 1849h |
| LCS-10104 | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.8 | 85-115 | | | | 1/3/2011 2311h |
| LCS-10104 | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 85-115 | | | | 1/3/2011 2311h |
| LCS-10104 | Copper | mg/L | SW6020A | 0.198 | 0.2000 | 0 | 99.0 | 85-115 | | | | 1/3/2011 2311h |
| LCS-10104 | Lead | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.3 | 85-115 | | | | 1/3/2011 2311h |
| LCS-10104 | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 1/3/2011 2311h |
| LCS-10104 | Selenium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 85-115 | | | | 1/3/2011 2311h |
| LCS-10104 | Zinc | mg/L | SW6020A | 0.990 | 1.000 | 0 | 99.0 | 85-115 | | | | 1/3/2011 2311h |
| LCS-10105 | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 85-115 | | | | 1/4/2011 0001h |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012515
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-10104 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 1/4/2011 1917h |
| MB-10104 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 1/4/2011 1917h |
| MB-10104 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 1/4/2011 1917h |
| MB-10104 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 1/4/2011 1917h |
| MB-10104 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 1/4/2011 1917h |
| MB-10104 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 1/4/2011 1917h |
| MB-10104 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 1/4/2011 1917h |
| MB-10104 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 1/4/2011 1917h |
| MB-10105 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 1/3/2011 1845h |
| MB-10104 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 1/3/2011 2248h |
| MB-10104 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 1/3/2011 2248h |
| MB-10104 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 1/3/2011 2248h |
| MB-10104 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 1/3/2011 2248h |
| MB-10104 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 1/3/2011 2248h |
| MB-10104 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 1/3/2011 2248h |
| MB-10104 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 1/3/2011 2248h |
| MB-10105 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 1/3/2011 2355h |



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Kyle F. Gross
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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012515
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1012515-001DMS | Aluminum | mg/L | SW6010C | 1.10 | 1.000 | 0 | 110 | 75-125 | | | | 1/4/2011 2008h |
| 1012515-001DMS | Boron | mg/L | SW6010C | 1.18 | 1.000 | 0 | 118 | 75-125 | | | | 1/4/2011 2008h |
| 1012515-001DMS | Calcium | mg/L | SW6010C | 91.2 | 10.00 | 82.38 | 88.2 | 75-125 | | | | 1/4/2011 1930h |
| 1012515-001DMS | Iron | mg/L | SW6010C | 0.995 | 1.000 | 0 | 99.5 | 75-125 | | | | 1/4/2011 2008h |
| 1012515-001DMS | Magnesium | mg/L | SW6010C | 22.8 | 10.00 | 12.42 | 104 | 75-125 | | | | 1/4/2011 2008h |
| 1012515-001DMS | Molybdenum | mg/L | SW6010C | 0.208 | 0.2000 | 0 | 104 | 75-125 | | | | 1/4/2011 2008h |
| 1012515-001DMS | Potassium | mg/L | SW6010C | 12.2 | 10.00 | 1.168 | 110 | 75-125 | | | | 1/4/2011 2008h |
| 1012515-001DMS | Sodium | mg/L | SW6010C | 21.9 | 10.00 | 11.07 | 108 | 75-125 | | | | 1/4/2011 2008h |
| 1012515-001EMS | Iron | mg/L | SW6010C | 1.20 | 1.000 | 0.1690 | 103 | 75-125 | | | | 1/3/2011 1905h |
| 1012515-001DMS | Arsenic | mg/L | SW6020A | 0.203 | 0.2000 | 0.0004180 | 101 | 75-125 | | | | 1/3/2011 2336h |
| 1012515-001DMS | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | | | | 1/3/2011 2336h |
| 1012515-001DMS | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0.001366 | 100 | 75-125 | | | | 1/3/2011 2336h |
| 1012515-001DMS | Lead | mg/L | SW6020A | 0.197 | 0.2000 | 0.0001530 | 98.6 | 75-125 | | | | 1/3/2011 2336h |
| 1012515-001DMS | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0.001201 | 100 | 75-125 | | | | 1/3/2011 2336h |
| 1012515-001DMS | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.0009120 | 101 | 75-125 | | | | 1/3/2011 2336h |
| 1012515-001DMS | Zinc | mg/L | SW6020A | 1.05 | 1.000 | 0.05582 | 99.4 | 75-125 | | | | 1/3/2011 2336h |
| 1012515-001EMS | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0.003135 | 99.6 | 75-125 | | | | 1/4/2011 0043h |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012515
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1012515-001DMSD | Aluminum | mg/L | SW6010C | 1.10 | 1.000 | 0 | 110 | 75-125 | 0.658 | 20 | | 1/4/2011 2012h |
| 1012515-001DMSD | Boron | mg/L | SW6010C | 1.18 | 1.000 | 0 | 118 | 75-125 | 0.0692 | 20 | | 1/4/2011 2012h |
| 1012515-001DMSD | Calcium | mg/L | SW6010C | 91.6 | 10.00 | 82.38 | 92.2 | 75-125 | 0.437 | 20 | | 1/4/2011 1934h |
| 1012515-001DMSD | Iron | mg/L | SW6010C | 0.967 | 1.000 | 0 | 96.7 | 75-125 | 2.81 | 20 | | 1/4/2011 2012h |
| 1012515-001DMSD | Magnesium | mg/L | SW6010C | 22.9 | 10.00 | 12.42 | 105 | 75-125 | 0.546 | 20 | | 1/4/2011 2012h |
| 1012515-001DMSD | Molybdenum | mg/L | SW6010C | 0.209 | 0.2000 | 0 | 105 | 75-125 | 0.429 | 20 | | 1/4/2011 2012h |
| 1012515-001DMSD | Potassium | mg/L | SW6010C | 12.0 | 10.00 | 1.168 | 108 | 75-125 | 1.43 | 20 | | 1/4/2011 2012h |
| 1012515-001DMSD | Sodium | mg/L | SW6010C | 21.7 | 10.00 | 11.07 | 107 | 75-125 | 0.774 | 20 | | 1/4/2011 2012h |
| 1012515-001EMSD | Iron | mg/L | SW6010C | 1.18 | 1.000 | 0.1690 | 101 | 75-125 | 1.68 | 20 | | 1/3/2011 1909h |
| 1012515-001DMSD | Arsenic | mg/L | SW6020A | 0.202 | 0.2000 | 0.0004180 | 101 | 75-125 | 0.578 | 20 | | 1/3/2011 2342h |
| 1012515-001DMSD | Cadmium | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.7 | 75-125 | 0.266 | 20 | | 1/3/2011 2342h |
| 1012515-001DMSD | Copper | mg/L | SW6020A | 0.203 | 0.2000 | 0.001366 | 101 | 75-125 | 0.775 | 20 | | 1/3/2011 2342h |
| 1012515-001DMSD | Lead | mg/L | SW6020A | 0.197 | 0.2000 | 0.0001530 | 98.6 | 75-125 | 0.0314 | 20 | | 1/3/2011 2342h |
| 1012515-001DMSD | Manganese | mg/L | SW6020A | 0.203 | 0.2000 | 0.001201 | 101 | 75-125 | 0.629 | 20 | | 1/3/2011 2342h |
| 1012515-001DMSD | Selenium | mg/L | SW6020A | 0.203 | 0.2000 | 0.0009120 | 101 | 75-125 | 0.563 | 20 | | 1/3/2011 2342h |
| 1012515-001DMSD | Zinc | mg/L | SW6020A | 1.06 | 1.000 | 0.05582 | 99.9 | 75-125 | 0.508 | 20 | | 1/3/2011 2342h |
| 1012515-001EMSD | Manganese | mg/L | SW6020A | 0.204 | 0.2000 | 0.003135 | 100 | 75-125 | 0.685 | 20 | | 1/4/2011 0049h |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012515
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1012515-002ADUP | Total Dissolved Solids | mg/L | A2540C | 460 | | 370.0 | | - | 21.7 | 5 | @ | 1/4/2011 1300h |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012515
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R22140 | Chloride | mg/L | E300.0 | 4.99 | 5.000 | 0 | 99.7 | 90-110 | | | | 1/3/2011 1125h |
| LCS-R22140 | Sulfate | mg/L | E300.0 | 5.33 | 5.000 | 0 | 107 | 90-110 | | | | 1/3/2011 1125h |
| LCS-R22120 | Acidity | mg/L | A2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | | | | 1/3/2011 1030h |
| LCS-R22109 | Alkalinity (as CaCO3) | mg/L | A2320B | 52,500 | 50,000 | 0 | 105 | 90-110 | | | | 1/3/2011 0750h |
| LCS-10218 | Ammonia (as N) | mg/L | E350.1 | 0.972 | 1.000 | 0 | 97.2 | 90-110 | | | | 1/10/2011 1345h |
| LCS-R22098 | Nitrite (as N) | mg/L | E353.2 | 0.954 | 1.000 | 0 | 95.4 | 90-110 | | | | 12/30/2010 1708h |
| LCS-R22099 | Nitrate (as N) | mg/L | E353.2 | 1.02 | 1.000 | 0 | 102 | 90-110 | | | | 12/30/2010 1710h |
| LCS-R22100 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.988 | 1.000 | 0.004700 | 98.3 | 90-110 | | | | 12/30/2010 1757h |
| LCS-R22175 | Total Dissolved Solids | mg/L | A2540C | 206 | 205.0 | 0 | 100 | 80-120 | | | | 1/4/2011 1300h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012515
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R22140 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | | 1/3/2011 1102h |
| MB-R22140 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 1/3/2011 1102h |
| MB-R22120 | Acidity | mg/L | A2310B | < 15.0 | | | | - | | | | 1/3/2011 1030h |
| MB-R22109 | Alkalinity (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 1/3/2011 0750h |
| MB-R22109 | Bicarbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 1/3/2011 0750h |
| MB-R22109 | Carbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 1/3/2011 0750h |
| MB-10218 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 1/10/2011 1344h |
| MB-R22098 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 12/30/2010 1707h |
| MB-R22099 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 12/30/2010 1707h |
| MB-R22100 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | < 0.0500 | | | | - | | | | 12/30/2010 1756h |
| MB-R22175 | Total Dissolved Solids | mg/L | A2540C | < 10.0 | | | | - | | | | 1/4/2011 1300h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012515
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1012505-001BMS | Chloride | mg/L | E300.0 | 104 | 50.00 | 51.95 | 104 | 90-110 | | | | 1/3/2011 1212h |
| 1012505-001BMS | Sulfate | mg/L | E300.0 | 88.9 | 50.00 | 38.26 | 101 | 90-110 | | | | 1/3/2011 1212h |
| 1012515-001BMS | Chloride | mg/L | E300.0 | 63.2 | 50.00 | 14.27 | 97.8 | 90-110 | | | | 1/3/2011 1518h |
| 1012515-001BMS | Sulfate | mg/L | E300.0 | 78.2 | 50.00 | 27.56 | 101 | 90-110 | | | | 1/3/2011 1518h |
| 1012515-001BMS | Acidity | mg/L | A2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | | | | 1/3/2011 1030h |
| 1012515-001BMS | Alkalinity (as CaCO3) | mg/L | A2320B | 324 | 100.0 | 221.0 | 103 | 80-120 | | | | 1/3/2011 0750h |
| 1012515-001CMS | Ammonia (as N) | mg/L | E350.1 | 2.00 | 2.000 | 0 | 99.9 | 90-110 | | | | 1/10/2011 1401h |
| 1101032-003AMS | Ammonia (as N) | mg/L | E350.1 | 2.70 | 1.000 | 1.689 | 101 | 90-110 | | | | 1/10/2011 1347h |
| 1012515-001BMS | Nitrite (as N) | mg/L | E353.2 | 1.09 | 1.000 | 0.007700 | 108 | 90-110 | | | | 12/30/2010 1712h |
| 1012515-001BMS | Nitrate (as N) | mg/L | E353.2 | 13.3 | 10.00 | 2.598 | 107 | 90-110 | | | | 12/30/2010 1716h |
| 1012515-001BMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.05 | 1.000 | 0.02270 | 103 | 90-110 | | | | 12/30/2010 1759h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012515
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1012505-001BMSD | Chloride | mg/L | E300.0 | 103 | 50.00 | 51.95 | 101 | 90-110 | 1.22 | 20 | | 1/3/2011 1235h |
| 1012505-001BMSD | Sulfate | mg/L | E300.0 | 90.7 | 50.00 | 38.26 | 105 | 90-110 | 1.99 | 20 | | 1/3/2011 1235h |
| 1012515-001BMSD | Chloride | mg/L | E300.0 | 62.8 | 50.00 | 14.27 | 97.0 | 90-110 | 0.645 | 20 | | 1/3/2011 1541h |
| 1012515-001BMSD | Sulfate | mg/L | E300.0 | 78.0 | 50.00 | 27.56 | 101 | 90-110 | 0.200 | 20 | | 1/3/2011 1541h |
| 1012515-001BMSD | Acidity | mg/L | A2310B | 54.0 | 50.00 | 0 | 108 | 80-120 | 3.77 | 0 | | 1/3/2011 1030h |
| 1012515-001BMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 324 | 100.0 | 221.0 | 103 | 80-120 | 0 | 10 | | 1/3/2011 0750h |
| 1012515-001CMSD | Ammonia (as N) | mg/L | E350.1 | 1.95 | 2.000 | 0 | 97.7 | 90-110 | 2.25 | 10 | | 1/10/2011 1403h |
| 1101032-003AMSD | Ammonia (as N) | mg/L | E350.1 | 2.67 | 1.000 | 1.689 | 98.6 | 90-110 | 0.967 | 10 | | 1/10/2011 1348h |
| 1012515-001BMSD | Nitrite (as N) | mg/L | E353.2 | 1.09 | 1.000 | 0.007700 | 108 | 90-110 | 0 | 10 | | 12/30/2010 1715h |
| 1012515-001BMSD | Nitrate (as N) | mg/L | E353.2 | 13.1 | 10.00 | 2.598 | 105 | 90-110 | 1.70 | 10 | | 12/30/2010 1717h |
| 1012515-001BMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.05 | 1.000 | 0.02270 | 102 | 90-110 | 0.572 | 10 | | 12/30/2010 1800h |



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# American West Analytical Laboratories

## WORK ORDER Summary

Work Order: **1012515**



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Carbon Resources | | | | 1/11/2011 |
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay | | |
| **Project:** | Scofield Baseline (Kinney) | **QC Level:** | LEVEL II+ | **WO Type:** | Project |
| **Comments:** | No Hard Copies. QC 2+, EDD; | | | | |

DB

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1012515-001A | CR-10-11 | 12/29/2010 1:00:00 PM | 12/30/2010 4:59:00 PM | 1/14/2011 | Aqueous | TDS-W-2540C | ☐ | ww - tds | 1 |
| 1012515-001B | | | | 1/14/2011 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 1/14/2011 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 1/14/2011 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 1/14/2011 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 1/14/2011 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 1/14/2011 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1012515-001C | | | | 1/14/2011 | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | 1/14/2011 | | NH3-W-PR | ☐ | df - nh3 | |
| 1012515-001D | | | | 1/14/2011 | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | 1/14/2011 | | 6010C-DIS | ☑ | df - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 1/14/2011 | | 6020-DIS | ☑ | df - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 1/14/2011 | | HARD-2340B | ☐ | df - dis met | |
| 1012515-001E | | | | 1/14/2011 | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | 1/14/2011 | | 6010C-W | ☑ | df - metals | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 1/14/2011 | | 6020-W | ☑ | df - metals | |
| | SEL Analytes: MN | | | | | | | | |
| 1012515-002A | CR-10-12 | 12/29/2010 2:10:00 PM | | 1/14/2011 | | TDS-W-2540C | ☐ | ww - tds | |
| 1012515-002B | | | | 1/14/2011 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 1/14/2011 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 1/14/2011 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 1/14/2011 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 1/14/2011 | | NO3-W-353.2 | ☐ | DF - wc | |

# WORK ORDER Summary

Work Order: **1012515**



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Carbon Resources | | | | 1/11/2011 |
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay | | |
| **Project:** | Scofield Baseline (Kinney) | **QC Level:** | LEVEL II+ | **WO Type:** | Project |
| **Comments:** | No Hard Copies. QC 2+, EDD; | | | | |

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1012515-002B | CR-10-12 | 12/29/2010 2:10:00 PM | 12/30/2010 4:59:00 PM | 1/14/2011 | Aqueous | PO4-O-365.1 | ☐ | DF - wc | 1 |
| 1012515-002C | | | | 1/14/2011 | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | 1/14/2011 | | NH3-W-PR | ☐ | df - nh3 | |
| 1012515-002D | | | | 1/14/2011 | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | 1/14/2011 | | 6010C-DIS | ☑ | df - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 1/14/2011 | | 6020-DIS | ☑ | df - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 1/14/2011 | | HARD-2340B | ☐ | df - dis met | |
| 1012515-002E | | | | 1/14/2011 | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | 1/14/2011 | | 6010C-W | ☑ | df - metals | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 1/14/2011 | | 6020-W | ☑ | df - metals | |
| | SEL Analytes: MN | | | | | | | | |

Client: Carbon Resources c/o Rock Logic

Address: P.O. Box 544

Cedaredge CO 81413
City State Zip

Phone: 435 851-9041 Fax:

Contact: Brad Lindsay

E-mail: rocklogic consulting@gmail.com

Project Name: Seofield Baseline (Kinney)

Project Number/P.O.#:

Sampler Name: Greg Hunt


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Salt Lake City, Utah 84115


# CHAIN OF CUSTODY


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Lab Sample Set # 1012515

Page 1 of 1

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day Standard

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TESTS REQUIRED: Table 4 | QC LEVEL | COMMENTS |
|---|---|---|---|---|---|---|
| CR-10-11 | 12/29/10 13:00 | GW | 5 | ✓ | | |
| CR-10-12 | 12/29/10 14:10 | GW | 5 | ✓ | | |

QC LEVEL: 1 2 2+ 3 3+ 4

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes:

3 Temperature 0.2°

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Checked at Bench
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME: Greg Hunt | Time | PRINT NAME: Delivered in Person to AWAL | Time |
| Relinquished By: Signature | Date | Received By: Signature: Denise Brown | Date: 12/30/10 |
| PRINT NAME | Time | PRINT NAME: Denise Brown | Time: 16:59 |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |

Special Instructions:

PLEASE

FILTER

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Requirements
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphate (Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

[1] These parameters will be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters required for Baseline monitoring.
* Indicates parameters required for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 1012515

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (435) 851-9044

RE: Scofield Baseline (Kinney)

Dear Brad Lindsay: Lab Set ID: 1101337

American West Analytical Laboratories received 2 sample(s) on 1/24/2011 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Kyle F. Gross — Digitally signed by Kyle F. Gross DN: cn=Kyle F. Gross, o=AWAL, ou=AWAL, email=kyle@awal-labs.com, c=US Date: 2011.02.03 15:41:27 -07'00'

Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1101337-001
**Client Sample ID:** CR-10-11
**Collection Date:** 1/22/2011 1200h
**Received Date:** 1/24/2011 1010h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 1/24/2011 1205h | 2/1/2011 2028h | SW6010C | 0.100 | **0.549** | |
| Manganese | mg/L | 1/24/2011 1205h | 1/24/2011 2345h | SW6020A | 0.00120 | **0.0106** | |

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Kyle F. Gross
Laboratory Director

Jose Rocha
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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1101337-002
**Client Sample ID:** CR-10-12
**Collection Date:** 1/22/2011 1310h
**Received Date:** 1/24/2011 1010h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 1/24/2011 1205h | 2/1/2011 1827h | SW6010C | 1.00 | **135** | |
| Manganese | mg/L | 1/24/2011 1205h | 1/25/2011 0014h | SW6020A | 0.00120 | **2.65** | |

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1101337-001
**Client Sample ID:** CR-10-11
**Collection Date:** 1/22/2011 1200h
**Received Date:** 1/24/2011 1010h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 1/24/2011 1201h | 2/2/2011 2004h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 1/24/2011 1201h | 1/24/2011 2252h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 1/24/2011 1201h | 2/2/2011 2004h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 1/24/2011 1201h | 1/24/2011 2252h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 1/24/2011 1201h | 2/2/2011 1859h | SW6010C | 10.0 | **80.8** | 2 |
| Copper | mg/L | 1/24/2011 1201h | 1/24/2011 2252h | SW6020A | 0.000800 | **0.00294** | |
| Iron | mg/L | 1/24/2011 1201h | 2/2/2011 2004h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 1/24/2011 1201h | 1/24/2011 2252h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 1/24/2011 1201h | 2/2/2011 2004h | SW6010C | 1.00 | **13.0** | |
| Manganese | mg/L | 1/24/2011 1201h | 1/24/2011 2252h | SW6020A | 0.00120 | **0.00142** | |
| Molybdenum | mg/L | 1/24/2011 1201h | 2/2/2011 2004h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 1/24/2011 1201h | 2/2/2011 2004h | SW6010C | 1.00 | **1.34** | |
| Selenium | mg/L | 1/24/2011 1201h | 1/24/2011 2252h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 1/24/2011 1201h | 2/2/2011 1859h | SW6010C | 10.0 | **10.7** | |
| Zinc | mg/L | 1/24/2011 1201h | 1/24/2011 2252h | SW6020A | 0.00500 | **0.0104** | |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*
*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1101337-002
**Client Sample ID:** CR-10-12
**Collection Date:** 1/22/2011 1310h
**Received Date:** 1/24/2011 1010h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 1/24/2011 1201h | 2/2/2011 2015h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 1/24/2011 1201h | 1/24/2011 2311h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 1/24/2011 1201h | 2/2/2011 2015h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 1/24/2011 1201h | 1/24/2011 2311h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 1/24/2011 1201h | 2/2/2011 1915h | SW6010C | 10.0 | **77.1** | |
| Copper | mg/L | 1/24/2011 1201h | 1/24/2011 2311h | SW6020A | 0.000800 | **0.00180** | |
| Iron | mg/L | 1/24/2011 1201h | 2/2/2011 2015h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 1/24/2011 1201h | 1/24/2011 2311h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 1/24/2011 1201h | 2/2/2011 2015h | SW6010C | 1.00 | **6.65** | |
| Manganese | mg/L | 1/24/2011 1201h | 1/24/2011 2311h | SW6020A | 0.00120 | **0.0946** | |
| Molybdenum | mg/L | 1/24/2011 1201h | 2/2/2011 2015h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 1/24/2011 1201h | 2/2/2011 2015h | SW6010C | 1.00 | **1.21** | |
| Selenium | mg/L | 1/24/2011 1201h | 1/24/2011 2311h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 1/24/2011 1201h | 2/2/2011 1915h | SW6010C | 10.0 | **25.5** | |
| Zinc | mg/L | 1/24/2011 1201h | 1/24/2011 2311h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1101337-001
**Client Sample ID:** CR-10-11
**Collection Date:** 1/22/2011 1200h
**Received Date:** 1/24/2011 1010h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 1/26/2011 0800h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 1/26/2011 0640h | A2320B | 20.0 | **235** | |
| Ammonia (as N) | mg/L | 2/1/2011 1353h | 2/2/2011 1138h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 1/26/2011 0640h | A2320B | 20.0 | **235** | |
| Carbonate (as CaCO3) | mg/L | | 1/26/2011 0640h | A2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 1/25/2011 1849h | E300.0 | 1.00 | **14.6** | |
| Hardness (as CaCO3) | mg/L | | 2/2/2011 | A2340B | 10.0 | **255** | |
| Nitrate (as N) | mg/L | | 1/24/2011 1353h | E353.2 | 0.100 | **2.68** | H |
| Nitrite (as N) | mg/L | | 1/24/2011 1348h | E353.2 | 0.0100 | **0.0136** | H |
| Phosphate, Total Ortho (as P) | mg/L | | 1/24/2011 1256h | E365.1 | 0.0500 | **0.0784** | H |
| Sulfate | mg/L | | 1/25/2011 1849h | E300.0 | 7.50 | **26.7** | |
| Total Dissolved Solids | mg/L | | 1/25/2011 1330h | A2540C | 20.0 | **288** | |

*H - Insufficient time remained after receipt to complete analysis within the holding time.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1101337-002
**Client Sample ID:** CR-10-12
**Collection Date:** 1/22/2011 1310h
**Received Date:** 1/24/2011 1010h

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Kyle F. Gross
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Jose Rocha
QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 1/26/2011 0800h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 1/26/2011 0640h | A2320B | 20.0 | **186** | |
| Ammonia (as N) | mg/L | 2/1/2011 1353h | 2/2/2011 1142h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 1/26/2011 0640h | A2320B | 20.0 | **186** | |
| Carbonate (as CaCO3) | mg/L | | 1/26/2011 0640h | A2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 1/25/2011 1959h | E300.0 | 1.00 | **18.1** | |
| Hardness (as CaCO3) | mg/L | | 2/2/2011 | A2340B | 10.0 | **220** | |
| Nitrate (as N) | mg/L | | 1/24/2011 1405h | E353.2 | 0.100 | **4.67** | H |
| Nitrite (as N) | mg/L | | 1/24/2011 1357h | E353.2 | 0.0100 | **0.0430** | H |
| Phosphate, Total Ortho (as P) | mg/L | | 1/24/2011 1259h | E365.1 | 0.0500 | **0.140** | |
| Sulfate | mg/L | | 1/25/2011 1959h | E300.0 | 7.50 | **38.4** | |
| Total Dissolved Solids | mg/L | | 1/25/2011 1330h | A2540C | 50.0 | **560** | @ |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*
*H - Insufficient time remained after receipt to complete analysis within the holding time.*



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Kyle F. Gross
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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1101337
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-10456 | Aluminum | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 80-120 | | | | 2/2/2011 1851h |
| LCS-10456 | Boron | mg/L | SW6010C | 1.08 | 1.000 | 0 | 108 | 80-120 | | | | 2/2/2011 1851h |
| LCS-10456 | Calcium | mg/L | SW6010C | 10.1 | 10.00 | 0 | 101 | 80-120 | | | | 2/2/2011 1851h |
| LCS-10456 | Iron | mg/L | SW6010C | 1.04 | 1.000 | 0 | 104 | 80-120 | | | | 2/2/2011 1851h |
| LCS-10456 | Magnesium | mg/L | SW6010C | 10.4 | 10.00 | 0 | 104 | 80-120 | | | | 2/2/2011 1851h |
| LCS-10456 | Molybdenum | mg/L | SW6010C | 0.202 | 0.2000 | 0 | 101 | 80-120 | | | | 2/2/2011 1851h |
| LCS-10456 | Potassium | mg/L | SW6010C | 10.5 | 10.00 | 0 | 105 | 80-120 | | | | 2/2/2011 1851h |
| LCS-10456 | Sodium | mg/L | SW6010C | 10.4 | 10.00 | 0 | 104 | 80-120 | | | | 2/2/2011 1851h |
| LCS-10457 | Calcium | mg/L | SW6010C | 9.49 | 10.00 | 0 | 94.9 | 80-120 | | | | 2/1/2011 1804h |
| LCS-10457 | Iron | mg/L | SW6010C | 1.01 | 1.000 | 0 | 101 | 80-120 | | | | 2/1/2011 1804h |
| LCS-10457 | Magnesium | mg/L | SW6010C | 9.84 | 10.00 | 0 | 98.4 | 80-120 | | | | 2/1/2011 1804h |
| LCS-10457 | Potassium | mg/L | SW6010C | 10.1 | 10.00 | 0 | 101 | 80-120 | | | | 2/1/2011 1804h |
| LCS-10457 | Sodium | mg/L | SW6010C | 9.91 | 10.00 | 0 | 99.1 | 80-120 | | | | 2/1/2011 1804h |
| LCS-10456 | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 1/24/2011 2132h |
| LCS-10456 | Cadmium | mg/L | SW6020A | 0.198 | 0.2000 | 0 | 99.2 | 85-115 | | | | 1/24/2011 2132h |
| LCS-10456 | Copper | mg/L | SW6020A | 0.198 | 0.2000 | 0 | 98.9 | 85-115 | | | | 1/24/2011 2132h |
| LCS-10456 | Lead | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 85-115 | | | | 1/24/2011 2132h |
| LCS-10456 | Manganese | mg/L | SW6020A | 0.198 | 0.2000 | 0 | 99.2 | 85-115 | | | | 1/24/2011 2132h |
| LCS-10456 | Selenium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 1/24/2011 2132h |
| LCS-10456 | Zinc | mg/L | SW6020A | 0.990 | 1.000 | 0 | 99.0 | 85-115 | | | | 1/24/2011 2132h |
| LCS-10457 | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 85-115 | | | | 1/24/2011 2340h |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1101337
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-10456 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 2/2/2011 1847h |
| MB-10456 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 2/2/2011 1847h |
| MB-10456 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 2/2/2011 1847h |
| MB-10456 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 2/2/2011 1847h |
| MB-10456 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 2/2/2011 1847h |
| MB-10456 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 2/2/2011 1847h |
| MB-10456 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 2/2/2011 1847h |
| MB-10456 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 2/2/2011 1847h |
| MB-10457 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 2/1/2011 1800h |
| MB-10457 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 2/1/2011 1800h |
| MB-10457 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 2/1/2011 1800h |
| MB-10457 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 2/1/2011 1800h |
| MB-10457 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 2/1/2011 1800h |
| MB-10456 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 1/24/2011 2126h |
| MB-10456 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 1/24/2011 2126h |
| MB-10456 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 1/24/2011 2126h |
| MB-10456 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 1/24/2011 2126h |
| MB-10456 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 1/24/2011 2126h |
| MB-10456 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 1/24/2011 2126h |
| MB-10456 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 1/24/2011 2126h |
| MB-10457 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 1/24/2011 2317h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1101337
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1101331-001GMS | Iron | mg/L | SW6010C | 1.01 | 1.000 | 0 | 101 | 75-125 | | | | 2/2/2011 1935h |
| 1101337-001DMS | Aluminum | mg/L | SW6010C | 1.12 | 1.000 | 0 | 112 | 75-125 | | | | 2/2/2011 2007h |
| 1101337-001DMS | Boron | mg/L | SW6010C | 1.16 | 1.000 | 0.02640 | 113 | 75-125 | | | | 2/2/2011 2007h |
| 1101337-001DMS | Calcium | mg/L | SW6010C | 87.7 | 10.00 | 80.75 | 69.7 | 75-125 | | | 2 | 2/2/2011 1907h |
| 1101337-001DMS | Iron | mg/L | SW6010C | 1.12 | 1.000 | 0 | 112 | 75-125 | | | | 2/2/2011 2007h |
| 1101337-001DMS | Magnesium | mg/L | SW6010C | 22.9 | 10.00 | 13.00 | 99.0 | 75-125 | | | | 2/2/2011 2007h |
| 1101337-001DMS | Molybdenum | mg/L | SW6010C | 0.207 | 0.2000 | 0 | 104 | 75-125 | | | | 2/2/2011 2007h |
| 1101337-001DMS | Potassium | mg/L | SW6010C | 11.8 | 10.00 | 1.340 | 105 | 75-125 | | | | 2/2/2011 2007h |
| 1101337-001DMS | Sodium | mg/L | SW6010C | 20.7 | 10.00 | 10.75 | 99.5 | 75-125 | | | | 2/2/2011 1907h |
| 1101331-001FMS | Calcium | mg/L | SW6010C | 74.4 | 10.00 | 64.10 | 103 | 75-125 | | | | 2/1/2011 1812h |
| 1101331-001FMS | Iron | mg/L | SW6010C | 1.69 | 1.000 | 0.5120 | 118 | 75-125 | | | | 2/1/2011 2044h |
| 1101331-001FMS | Magnesium | mg/L | SW6010C | 153 | 10.00 | 144.0 | 89.3 | 75-125 | | | | 2/1/2011 1812h |
| 1101331-001FMS | Potassium | mg/L | SW6010C | 77.8 | 10.00 | 68.19 | 96.4 | 75-125 | | | | 2/1/2011 1812h |
| 1101331-001FMS | Sodium | mg/L | SW6010C | 3,070 | 10.00 | 3,075 | -98.9 | 75-125 | | | 2 | 2/1/2011 1859h |
| 1101337-001EMS | Iron | mg/L | SW6010C | 1.67 | 1.000 | 0.5490 | 112 | 75-125 | | | | 2/1/2011 2032h |
| 1101331-001GMS | Arsenic | mg/L | SW6020A | 0.210 | 0.2000 | 0.01120 | 99.2 | 75-125 | | | | 1/24/2011 2221h |
| 1101331-001GMS | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0.0006370 | 99.7 | 75-125 | | | | 1/24/2011 2221h |
| 1101331-001GMS | Copper | mg/L | SW6020A | 0.203 | 0.2000 | 0.01331 | 95.0 | 75-125 | | | | 1/24/2011 2221h |
| 1101331-001GMS | Lead | mg/L | SW6020A | 0.197 | 0.2000 | 0 | 98.3 | 75-125 | | | | 1/24/2011 2221h |
| 1101331-001GMS | Manganese | mg/L | SW6020A | 0.293 | 0.2000 | 0.09782 | 97.5 | 75-125 | | | | 1/24/2011 2221h |
| 1101331-001GMS | Selenium | mg/L | SW6020A | 0.227 | 0.2000 | 0.02625 | 100 | 75-125 | | | | 1/24/2011 2221h |
| 1101331-001GMS | Zinc | mg/L | SW6020A | 0.992 | 1.000 | 0.007485 | 98.4 | 75-125 | | | | 1/24/2011 2221h |
| 1101337-001DMS | Arsenic | mg/L | SW6020A | 0.199 | 0.2000 | 0.0003650 | 99.5 | 75-125 | | | | 1/24/2011 2258h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1101337
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1101337-001DMS | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0.00004500 | 100 | 75-125 | | | | 1/24/2011 2258h |
| 1101337-001DMS | Copper | mg/L | SW6020A | 0.203 | 0.2000 | 0.002936 | 100 | 75-125 | | | | 1/24/2011 2258h |
| 1101337-001DMS | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 75-125 | | | | 1/24/2011 2258h |
| 1101337-001DMS | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0.001424 | 99.1 | 75-125 | | | | 1/24/2011 2258h |
| 1101337-001DMS | Selenium | mg/L | SW6020A | 0.201 | 0.2000 | 0.0007920 | 100 | 75-125 | | | | 1/24/2011 2258h |
| 1101337-001DMS | Zinc | mg/L | SW6020A | 1.02 | 1.000 | 0.01045 | 101 | 75-125 | | | | 1/24/2011 2258h |
| 1101337-001EMS | Manganese | mg/L | SW6020A | 0.209 | 0.2000 | 0.01058 | 99.0 | 75-125 | | | | 1/25/2011 0003h |

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1101337
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1101331-001GMSD | Iron | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 75-125 | 3.88 | 20 | | 2/2/2011 1939h |
| 1101337-001DMSD | Aluminum | mg/L | SW6010C | 1.10 | 1.000 | 0 | 110 | 75-125 | 1.80 | 20 | | 2/2/2011 2011h |
| 1101337-001DMSD | Boron | mg/L | SW6010C | 1.13 | 1.000 | 0.02640 | 110 | 75-125 | 2.62 | 20 | | 2/2/2011 2011h |
| 1101337-001DMSD | Calcium | mg/L | SW6010C | 90.3 | 10.00 | 80.75 | 95.9 | 75-125 | 2.94 | 20 | | 2/2/2011 1911h |
| 1101337-001DMSD | Iron | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 75-125 | 5.50 | 20 | | 2/2/2011 2011h |
| 1101337-001DMSD | Magnesium | mg/L | SW6010C | 22.9 | 10.00 | 13.00 | 99.0 | 75-125 | 0 | 20 | | 2/2/2011 2011h |
| 1101337-001DMSD | Molybdenum | mg/L | SW6010C | 0.201 | 0.2000 | 0 | 101 | 75-125 | 2.94 | 20 | | 2/2/2011 2011h |
| 1101337-001DMSD | Potassium | mg/L | SW6010C | 11.6 | 10.00 | 1.340 | 103 | 75-125 | 1.71 | 20 | | 2/2/2011 2011h |
| 1101337-001DMSD | Sodium | mg/L | SW6010C | 20.7 | 10.00 | 10.75 | 99.9 | 75-125 | 0.193 | 20 | | 2/2/2011 1911h |
| 1101331-001FMSD | Calcium | mg/L | SW6010C | 77.2 | 10.00 | 64.10 | 131 | 75-125 | 3.70 | 20 | 2 | 2/1/2011 1815h |
| 1101331-001FMSD | Iron | mg/L | SW6010C | 1.62 | 1.000 | 0.5120 | 111 | 75-125 | 4.23 | 20 | | 2/1/2011 2048h |
| 1101331-001FMSD | Magnesium | mg/L | SW6010C | 155 | 10.00 | 144.0 | 113 | 75-125 | 1.54 | 20 | | 2/1/2011 1815h |
| 1101331-001FMSD | Potassium | mg/L | SW6010C | 77.4 | 10.00 | 68.19 | 92.0 | 75-125 | 0.568 | 20 | | 2/1/2011 1815h |
| 1101331-001FMSD | Sodium | mg/L | SW6010C | 3,080 | 10.00 | 3,075 | 20.8 | 75-125 | 0.390 | 20 | 2 | 2/1/2011 1903h |
| 1101337-001EMSD | Iron | mg/L | SW6010C | 1.66 | 1.000 | 0.5490 | 111 | 75-125 | 0.601 | 20 | | 2/1/2011 2036h |
| 1101331-001GMSD | Arsenic | mg/L | SW6020A | 0.209 | 0.2000 | 0.01120 | 99.0 | 75-125 | 0.226 | 20 | | 1/24/2011 2227h |
| 1101331-001GMSD | Cadmium | mg/L | SW6020A | 0.202 | 0.2000 | 0.0006370 | 100 | 75-125 | 0.741 | 20 | | 1/24/2011 2227h |
| 1101331-001GMSD | Copper | mg/L | SW6020A | 0.204 | 0.2000 | 0.01331 | 95.2 | 75-125 | 0.170 | 20 | | 1/24/2011 2227h |
| 1101331-001GMSD | Lead | mg/L | SW6020A | 0.196 | 0.2000 | 0 | 98.2 | 75-125 | 0.0402 | 20 | | 1/24/2011 2227h |
| 1101331-001GMSD | Manganese | mg/L | SW6020A | 0.292 | 0.2000 | 0.09782 | 97.1 | 75-125 | 0.296 | 20 | | 1/24/2011 2227h |
| 1101331-001GMSD | Selenium | mg/L | SW6020A | 0.224 | 0.2000 | 0.02625 | 99.0 | 75-125 | 1.34 | 20 | | 1/24/2011 2227h |
| 1101331-001GMSD | Zinc | mg/L | SW6020A | 0.990 | 1.000 | 0.007485 | 98.2 | 75-125 | 0.205 | 20 | | 1/24/2011 2227h |
| 1101337-001DMSD | Arsenic | mg/L | SW6020A | 0.199 | 0.2000 | 0.0003650 | 99.4 | 75-125 | 0.0923 | 20 | | 1/24/2011 2303h |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1101337
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1101337-001DMSD | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0.00004500 | 99.8 | 75-125 | 0.408 | 20 | | 1/24/2011 2303h |
| 1101337-001DMSD | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0.002936 | 98.8 | 75-125 | 1.30 | 20 | | 1/24/2011 2303h |
| 1101337-001DMSD | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 75-125 | 0.300 | 20 | | 1/24/2011 2303h |
| 1101337-001DMSD | Manganese | mg/L | SW6020A | 0.201 | 0.2000 | 0.001424 | 99.8 | 75-125 | 0.684 | 20 | | 1/24/2011 2303h |
| 1101337-001DMSD | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.0007920 | 101 | 75-125 | 0.600 | 20 | | 1/24/2011 2303h |
| 1101337-001DMSD | Zinc | mg/L | SW6020A | 1.03 | 1.000 | 0.01045 | 102 | 75-125 | 0.277 | 20 | | 1/24/2011 2303h |
| 1101337-001EMSD | Manganese | mg/L | SW6020A | 0.207 | 0.2000 | 0.01058 | 98.2 | 75-125 | 0.803 | 20 | | 1/25/2011 0008h |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1101337
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1101337-002ADUP | Total Dissolved Solids | mg/L | A2540C | 520 | | 560.0 | | - | 7.41 | 5 | @ | 1/25/2011 1330h |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1101337
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R22819 | Chloride | mg/L | E300.0 | 4.86 | 5.000 | 0 | 97.1 | 90-110 | | | | 1/25/2011 1716h |
| LCS-R22819 | Sulfate | mg/L | E300.0 | 5.10 | 5.000 | 0 | 102 | 90-110 | | | | 1/25/2011 1716h |
| LCS-R22821 | Acidity | mg/L | A2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | | | | 1/26/2011 0800h |
| LCS-R22820 | Alkalinity (as CaCO3) | mg/L | A2320B | 51,600 | 50,000 | 0 | 103 | 90-110 | | | | 1/26/2011 0640h |
| LCS-10592 | Ammonia (as N) | mg/L | E350.1 | 0.958 | 1.000 | 0 | 95.8 | 90-110 | | | | 2/2/2011 1123h |
| LCS-R22745 | Nitrite (as N) | mg/L | E353.2 | 1.00 | 1.000 | 0 | 100 | 90-110 | | | | 1/24/2011 1346h |
| LCS-R22746 | Nitrate (as N) | mg/L | E353.2 | 0.990 | 1.000 | 0 | 99.0 | 90-110 | | | | 1/24/2011 1347h |
| LCS-R22741 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.956 | 1.000 | 0.003400 | 95.3 | 90-110 | | | | 1/24/2011 1255h |
| LCS-R22848 | Total Dissolved Solids | mg/L | A2540C | 204 | 205.0 | 0 | 99.5 | 80-120 | | | | 1/25/2011 1330h |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1101337
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R22819 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | | 1/25/2011 1652h |
| MB-R22819 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 1/25/2011 1652h |
| MB-R22821 | Acidity | mg/L | A2310B | < 15.0 | | | | - | | | | 1/26/2011 0800h |
| MB-R22820 | Alkalinity (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 1/26/2011 0640h |
| MB-R22820 | Bicarbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 1/26/2011 0640h |
| MB-R22820 | Carbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 1/26/2011 0640h |
| MB-10592 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 2/2/2011 1121h |
| MB-R22745 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 1/24/2011 1344h |
| MB-R22746 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 1/24/2011 1344h |
| MB-R22741 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | < 0.0500 | | | | - | | | | 1/24/2011 1254h |
| MB-R22848 | Total Dissolved Solids | mg/L | A2540C | < 10.0 | | | | - | | | | 1/25/2011 1330h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1101337
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1101331-002BMS | Chloride | mg/L | E300.0 | 66,100 | 50,000 | 15,050 | 102 | 90-110 | | | | 1/25/2011 1802h |
| 1101337-001BMS | Chloride | mg/L | E300.0 | 64.0 | 50.00 | 14.57 | 98.8 | 90-110 | | | | 1/25/2011 1912h |
| 1101337-001BMS | Sulfate | mg/L | E300.0 | 78.2 | 50.00 | 26.66 | 103 | 90-110 | | | | 1/25/2011 1912h |
| 1101337-001BMS | Acidity | mg/L | A2310B | 54.0 | 50.00 | 0 | 108 | 80-120 | | | | 1/26/2011 0800h |
| 1101337-001BMS | Alkalinity (as CaCO3) | mg/L | A2320B | 334 | 100.0 | 235.0 | 99.0 | 80-120 | | | | 1/26/2011 0640h |
| 1101331-002EMS | Ammonia (as N) | mg/L | E350.1 | 4.55 | 1.000 | 3.527 | 102 | 90-110 | | | | 2/2/2011 1125h |
| 1101337-001CMS | Ammonia (as N) | mg/L | E350.1 | 0.946 | 1.000 | 0 | 94.6 | 90-110 | | | | 2/2/2011 1139h |
| 1101337-001BMS | Nitrite (as N) | mg/L | E353.2 | 0.984 | 1.000 | 0.01360 | 97.0 | 90-110 | | | H | 1/24/2011 1350h |
| 1101337-001BMS | Nitrate (as N) | mg/L | E353.2 | 12.4 | 10.00 | 2.684 | 96.9 | 90-110 | | | H | 1/24/2011 1354h |
| 1101337-001BMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.06 | 1.000 | 0.07840 | 98.5 | 90-110 | | | H | 1/24/2011 1257h |

*H - Insufficient time remained after receipt to complete analysis within the holding time.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1101337
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1101331-002BMSD | Chloride | mg/L | E300.0 | 65,000 | 50,000 | 15,050 | 100 | 90-110 | 1.61 | 20 | | 1/25/2011 1826h |
| 1101337-001BMSD | Chloride | mg/L | E300.0 | 64.1 | 50.00 | 14.57 | 99.0 | 90-110 | 0.125 | 20 | | 1/25/2011 1935h |
| 1101337-001BMSD | Sulfate | mg/L | E300.0 | 78.7 | 50.00 | 26.66 | 104 | 90-110 | 0.693 | 20 | | 1/25/2011 1935h |
| 1101337-001BMSD | Acidity | mg/L | A2310B | 58.0 | 50.00 | 0 | 116 | 80-120 | 7.14 | 0 | | 1/26/2011 0800h |
| 1101337-001BMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 334 | 100.0 | 235.0 | 99.0 | 80-120 | 0 | 10 | | 1/26/2011 0640h |
| 1101331-002EMSD | Ammonia (as N) | mg/L | E350.1 | 4.70 | 1.000 | 3.527 | 117 | 90-110 | 3.26 | 10 | [1] | 2/2/2011 1126h |
| 1101337-001CMSD | Ammonia (as N) | mg/L | E350.1 | 0.958 | 1.000 | 0 | 95.8 | 90-110 | 1.23 | 10 | | 2/2/2011 1140h |
| 1101337-001BMSD | Nitrite (as N) | mg/L | E353.2 | 0.982 | 1.000 | 0.01360 | 96.9 | 90-110 | 0.193 | 10 | H | 1/24/2011 1351h |
| 1101337-001BMSD | Nitrate (as N) | mg/L | E353.2 | 12.0 | 10.00 | 2.684 | 92.7 | 90-110 | 3.47 | 10 | H | 1/24/2011 1355h |
| 1101337-001BMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.03 | 1.000 | 0.07840 | 94.8 | 90-110 | 3.63 | 10 | H | 1/24/2011 1258h |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*
*H - Insufficient time remained after receipt to complete analysis within the holding time.*



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# American West Analytical Laboratories

## WORK ORDER Summary

**Work Order:** 1101337



**Client:** Carbon Resources
**Client ID:** CAR300 **Contact:** Brad Lindsay 1/24/2011
**Project:** Scofield Baseline **QC Level:** LEVEL II+ **WO Type:** Project
**Comments:** No Hard Copies. QC 2+, EDD / Footnote report, pH received outside of hold. Also, samples received with insufficient time to run.;

HOLD

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1101337-001A | CR-10-11 | 1/22/2011 12:00:00 PM | 1/24/2011 10:10:00 AM | 2/7/2011 | Aqueous | TDS-W-2540C | ☐ | ww - tds | 1 |
| 1101337-001B | | | | 2/7/2011 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 2/7/2011 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 2/7/2011 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 2/7/2011 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 2/7/2011 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 2/7/2011 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1101337-001C | | | | 2/7/2011 | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | 2/7/2011 | | NH3-W-PR | ☐ | df - nh3 | |
| 1101337-001D | | | | 2/7/2011 | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | 2/7/2011 | | 6010C-DIS | ☑ | df - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 2/7/2011 | | 6020-DIS | ☑ | df - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 2/7/2011 | | HARD-2340B | ☐ | df - dis met | |
| 1101337-001E | | | | 2/7/2011 | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | 2/7/2011 | | 6010C-W | ☑ | df - metals | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 2/7/2011 | | 6020-W | ☑ | df - metals | |
| | SEL Analytes: MN | | | | | | | | |
| 1101337-002A | CR-10-12 | 1/22/2011 1:10:00 PM | | 2/7/2011 | | TDS-W-2540C | ☐ | ww - tds | |
| 1101337-002B | | | | 2/7/2011 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 2/7/2011 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 2/7/2011 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 2/7/2011 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 2/7/2011 | | NO3-W-353.2 | ☐ | DF - wc | |

# WORK ORDER Summary

**Work Order:** 1101337



**Client:** Carbon Resources

**Client ID:** CAR300 **Contact:** Brad Lindsay 1/24/2011

**Project:** Scofield Baseline **QC Level:** LEVEL II+ **WO Type:** Project

**Comments:** No Hard Copies. QC 2+, EDD / Footnote report, pH received outside of hold. Also, samples received with insufficient time to run.;

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1101337-002B | CR-10-12 | 1/22/2011 1:10:00 PM | 1/24/2011 10:10:00 AM | 2/7/2011 | Aqueous | PO4-O-365.1 | ☐ | DF - wc | 1 |
| 1101337-002C | | | | 2/7/2011 | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | 2/7/2011 | | NH3-W-PR | ☐ | df - nh3 | |
| 1101337-002D | | | | 2/7/2011 | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | 2/7/2011 | | 6010C-DIS | ☑ | df - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 2/7/2011 | | 6020-DIS | ☑ | df - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 2/7/2011 | | HARD-2340B | ☐ | df - dis met | |
| 1101337-002E | | | | 2/7/2011 | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | 2/7/2011 | | 6010C-W | ☑ | df - metals | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 2/7/2011 | | 6020-W | ☑ | df - metals | |
| | SEL Analytes: MN | | | | | | | | |

Client Carbon Resources c/o Rock Legrie

Address P.O. Box 544

Cedaredge, CO 81413
City State Zip

Phone 435-851-9041 Fax —

Contact Brad Lindsay

E-mail

Project Name Seafield Baseline (Kinney)

Project Number/P.O.#

Sampler Name Greg Hunt


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# CHAIN OF CUSTODY

Lab Sample Set # 1141337

Page 1 of 1

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day Standard

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TESTS REQUIRED: Table 4 | QC LEVEL | COMMENTS |
|---|---|---|---|---|---|---|
| CR-10-11 | 1/22/11 NOON | GW | 5 | ✓ | 1 2 2+ 3 3+ 4 | |
| CR-10-12 | 1/22/11 13:10 | GW | 5 | ✓ | | |

**LABORATORY USE ONLY**

SAMPLES WERE:
1 Shipped or hand delivered (Y) N
Notes: Fed-X
2 Ambient or Chilled (Y) N
Notes: on ice
3 Temperature 1.8
4 Received Broken/Leaking (Improperly Sealed) Y (N)
Notes:
5 Properly Preserved (Y) N
Checked at Bench Y N
Notes:
6 Received Within Holding Times Y (N)
Notes: ~~NO2, NO3~~, pH

COC Tape Was:
1 Present on Outer Package (Y) N NA
2 Unbroken on Outer Package (Y) N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA

Discrepancies Between Sample Labels and COC Record? Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME Greg Hunt | Time 15:25 | PRINT NAME FED EX | Time 15:20 |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date 1-24-11 |
| PRINT NAME | Time | PRINT NAME Elma Haviland | Time 7810 |

Special Instructions:

PLEASE FILTER

TABLE 4

1L HDPE
1 L HDPE
250 mL HDPE
1 500 mL HNO3
1 250 mL H2SO4

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphate (Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 1101337

## Preservation Check Sheet

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Scofield Baseline (Kinney #2)

Dear Brad Lindsay: Lab Set ID: 1102368

American West Analytical Laboratories received 4 sample(s) on 2/25/2011 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Kyle F. Gross — Digitally signed by Kyle F. Gross DN: cn=Kyle F. Gross, o=AWAL, ou=AWAL, email=kyle@awal-labs.com, c=US Date: 2011.03.08 14:40:09 -07'00'

Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney #2)
**Lab Sample ID:** 1102368-001
**Client Sample ID:** CR-10-11
**Collection Date:** 2/24/2011 1230h
**Received Date:** 2/25/2011 0950h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 2/25/2011 1423h | 2/25/2011 2042h | SW6010C | 0.100 | **14.2** | [2] |
| Manganese | mg/L | 2/25/2011 1423h | 2/28/2011 0726h | SW6020A | 0.00120 | **0.304** | |

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney #2)
**Lab Sample ID:** 1102368-002
**Client Sample ID:** CR-10-12
**Collection Date:** 2/24/2011 1420h
**Received Date:** 2/25/2011 0950h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 2/25/2011 1423h | 2/25/2011 2122h | SW6010C | 1.00 | **70.2** | |
| Manganese | mg/L | 2/25/2011 1423h | 2/28/2011 0816h | SW6020A | 0.00120 | **1.05** | |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney #2)
**Lab Sample ID:** 1102368-003
**Client Sample ID:** Mud Creek
**Collection Date:** 2/24/2011 1320h
**Received Date:** 2/25/2011 0950h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 2/25/2011 1423h | 2/25/2011 2102h | SW6010C | 0.100 | **0.339** | |
| Manganese | mg/L | 2/25/2011 1423h | 2/28/2011 0822h | SW6020A | 0.00120 | **0.0275** | |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney #2)
**Lab Sample ID:** 1102368-004
**Client Sample ID:** Sulfur Spring
**Collection Date:** 2/24/2011 1510h
**Received Date:** 2/25/2011 0950h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 2/25/2011 1423h | 2/25/2011 2106h | SW6010C | 0.100 | < 0.100 | |
| Manganese | mg/L | 2/25/2011 1423h | 2/28/2011 0827h | SW6020A | 0.00120 | **0.0343** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney #2)
**Lab Sample ID:** 1102368-001
**Client Sample ID:** CR-10-11
**Collection Date:** 2/24/2011 1230h
**Received Date:** 2/25/2011 0950h

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## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 2/25/2011 1421h | 2/28/2011 1745h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 2/25/2011 1421h | 2/28/2011 0608h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 2/25/2011 1421h | 2/28/2011 1745h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 2/25/2011 1421h | 2/28/2011 0608h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 2/25/2011 1421h | 2/28/2011 1709h | SW6010C | 10.0 | **81.2** | |
| Copper | mg/L | 2/25/2011 1421h | 2/28/2011 0608h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 2/25/2011 1421h | 2/28/2011 1745h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 2/25/2011 1421h | 2/28/2011 0608h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 2/25/2011 1421h | 2/28/2011 1745h | SW6010C | 1.00 | **12.0** | |
| Manganese | mg/L | 2/25/2011 1421h | 2/28/2011 0608h | SW6020A | 0.00120 | < 0.00120 | |
| Molybdenum | mg/L | 2/25/2011 1421h | 2/28/2011 1745h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 2/25/2011 1421h | 2/28/2011 1745h | SW6010C | 1.00 | **1.35** | |
| Selenium | mg/L | 2/25/2011 1421h | 2/28/2011 0608h | SW6020A | 0.000800 | **0.000963** | |
| Sodium | mg/L | 2/25/2011 1421h | 2/28/2011 1745h | SW6010C | 1.00 | **10.7** | |
| Zinc | mg/L | 2/25/2011 1421h | 2/28/2011 0608h | SW6020A | 0.00500 | **0.00550** | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney #2)
**Lab Sample ID:** 1102368-002
**Client Sample ID:** CR-10-12
**Collection Date:** 2/24/2011 1420h
**Received Date:** 2/25/2011 0950h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 2/25/2011 1421h | 2/28/2011 1749h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 2/25/2011 1421h | 2/28/2011 0613h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 2/25/2011 1421h | 2/28/2011 1749h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 2/25/2011 1421h | 2/28/2011 0613h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 2/25/2011 1421h | 2/28/2011 1714h | SW6010C | 10.0 | **76.4** | |
| Copper | mg/L | 2/25/2011 1421h | 2/28/2011 0613h | SW6020A | 0.000800 | **0.000992** | |
| Iron | mg/L | 2/25/2011 1421h | 2/28/2011 1749h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 2/25/2011 1421h | 2/28/2011 0613h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 2/25/2011 1421h | 2/28/2011 1749h | SW6010C | 1.00 | **6.75** | |
| Manganese | mg/L | 2/25/2011 1421h | 2/28/2011 0613h | SW6020A | 0.00120 | **0.0322** | |
| Molybdenum | mg/L | 2/25/2011 1421h | 2/28/2011 1749h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 2/25/2011 1421h | 2/28/2011 1749h | SW6010C | 1.00 | **1.06** | |
| Selenium | mg/L | 2/25/2011 1421h | 2/28/2011 0613h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 2/25/2011 1421h | 2/28/2011 1749h | SW6010C | 1.00 | **20.7** | |
| Zinc | mg/L | 2/25/2011 1421h | 2/28/2011 0613h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney #2)
**Lab Sample ID:** 1102368-003
**Client Sample ID:** Mud Creek
**Collection Date:** 2/24/2011 1320h
**Received Date:** 2/25/2011 0950h

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Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 2/25/2011 1421h | 2/28/2011 1757h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 2/25/2011 1421h | 2/28/2011 0619h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 2/25/2011 1421h | 2/28/2011 1757h | SW6010C | 0.500 | < 0.500 | 1 |
| Cadmium | mg/L | 2/25/2011 1421h | 2/28/2011 0619h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 2/25/2011 1421h | 2/28/2011 1717h | SW6010C | 10.0 | **62.2** | |
| Copper | mg/L | 2/25/2011 1421h | 2/28/2011 0619h | SW6020A | 0.000800 | **0.00119** | |
| Iron | mg/L | 2/25/2011 1421h | 2/28/2011 1757h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 2/25/2011 1421h | 2/28/2011 0619h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 2/25/2011 1421h | 2/28/2011 1757h | SW6010C | 1.00 | **33.4** | 1 |
| Manganese | mg/L | 2/25/2011 1421h | 2/28/2011 0619h | SW6020A | 0.00120 | **0.0166** | |
| Molybdenum | mg/L | 2/25/2011 1421h | 2/28/2011 1757h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 2/25/2011 1421h | 2/28/2011 1757h | SW6010C | 1.00 | **6.47** | 1 |
| Selenium | mg/L | 2/25/2011 1421h | 2/28/2011 0619h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 2/25/2011 1421h | 2/28/2011 1717h | SW6010C | 10.0 | **41.6** | |
| Zinc | mg/L | 2/25/2011 1421h | 2/28/2011 0619h | SW6020A | 0.00500 | < 0.00500 | |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*
*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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Laboratory Director

Jose Rocha
QA Officer

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney #2)
**Lab Sample ID:** 1102368-004
**Client Sample ID:** Sulfur Spring
**Collection Date:** 2/24/2011 1510h
**Received Date:** 2/25/2011 0950h

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 2/25/2011 1421h | 2/28/2011 1813h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 2/25/2011 1421h | 2/28/2011 0705h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 2/25/2011 1421h | 2/28/2011 1813h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 2/25/2011 1421h | 2/28/2011 0705h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 2/25/2011 1421h | 2/28/2011 1729h | SW6010C | 10.0 | **91.7** | |
| Copper | mg/L | 2/25/2011 1421h | 2/28/2011 0705h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 2/25/2011 1421h | 2/28/2011 1813h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 2/25/2011 1421h | 2/28/2011 0705h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 2/25/2011 1421h | 2/28/2011 1813h | SW6010C | 1.00 | **37.6** | |
| Manganese | mg/L | 2/25/2011 1421h | 2/28/2011 0705h | SW6020A | 0.00120 | **0.0326** | |
| Molybdenum | mg/L | 2/25/2011 1421h | 2/28/2011 1813h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 2/25/2011 1421h | 2/28/2011 1813h | SW6010C | 1.00 | **5.24** | |
| Selenium | mg/L | 2/25/2011 1421h | 2/28/2011 0705h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 2/25/2011 1421h | 2/28/2011 1813h | SW6010C | 1.00 | **9.28** | |
| Zinc | mg/L | 2/25/2011 1421h | 2/28/2011 0705h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney #2)
**Lab Sample ID:** 1102368-001
**Client Sample ID:** CR-10-11
**Collection Date:** 2/24/2011 1230h
**Received Date:** 2/25/2011 0950h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 2/28/2011 1000h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 2/28/2011 0750h | SM2320B | 20.0 | **231** | |
| Ammonia (as N) | mg/L | 2/28/2011 1223h | 3/2/2011 1623h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 2/28/2011 0750h | SM2320B | 20.0 | **231** | |
| Carbonate (as CaCO3) | mg/L | | 2/28/2011 0750h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 2/28/2011 1214h | E300.0 | 1.00 | **14.7** | |
| Hardness (as CaCO3) | mg/L | | 2/28/2011 | SM2340B | 10.0 | **252** | |
| Nitrate (as N) | mg/L | | 2/25/2011 1616h | E353.2 | 0.100 | **2.78** | |
| Nitrite (as N) | mg/L | | 2/25/2011 1615h | E353.2 | 0.0100 | < 0.0100 | |
| Phosphate, Total Ortho (as P) | mg/L | | 2/25/2011 1240h | E365.1 | 0.0500 | **0.238** | |
| Sulfate | mg/L | | 2/28/2011 1214h | E300.0 | 7.50 | **27.7** | |
| Total Dissolved Solids | mg/L | | 2/25/2011 1445h | SM2540C | 20.0 | **336** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney #2)
**Lab Sample ID:** 1102368-002
**Client Sample ID:** CR-10-12
**Collection Date:** 2/24/2011 1420h
**Received Date:** 2/25/2011 0950h

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Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 2/28/2011 1000h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 2/28/2011 0750h | SM2320B | 20.0 | **187** | |
| Ammonia (as N) | mg/L | 2/28/2011 1223h | 3/2/2011 1628h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 2/28/2011 0750h | SM2320B | 20.0 | **187** | |
| Carbonate (as CaCO3) | mg/L | | 2/28/2011 0750h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 2/28/2011 1410h | E300.0 | 1.00 | **19.0** | |
| Hardness (as CaCO3) | mg/L | | 2/28/2011 | SM2340B | 10.0 | **219** | |
| Nitrate (as N) | mg/L | | 2/25/2011 1626h | E353.2 | 0.100 | **5.47** | |
| Nitrite (as N) | mg/L | | 2/25/2011 1624h | E353.2 | 0.0100 | **0.0142** | |
| Phosphate, Total Ortho (as P) | mg/L | | 2/25/2011 1243h | E365.1 | 0.0500 | **0.184** | |
| Sulfate | mg/L | | 2/28/2011 1410h | E300.0 | 7.50 | **40.4** | |
| Total Dissolved Solids | mg/L | | 2/25/2011 1445h | SM2540C | 20.0 | **380** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney #2)
**Lab Sample ID:** 1102368-003
**Client Sample ID:** Mud Creek
**Collection Date:** 2/24/2011 1320h
**Received Date:** 2/25/2011 0950h

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Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 2/28/2011 1000h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 2/28/2011 0750h | SM2320B | 20.0 | **259** | |
| Ammonia (as N) | mg/L | 2/28/2011 1223h | 3/2/2011 1630h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 2/28/2011 0750h | SM2320B | 20.0 | **259** | |
| Carbonate (as CaCO3) | mg/L | | 2/28/2011 0750h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 2/28/2011 1433h | E300.0 | 1.00 | **20.4** | |
| Hardness (as CaCO3) | mg/L | | 2/28/2011 | SM2340B | 10.0 | **293** | |
| Nitrate (as N) | mg/L | | 2/25/2011 1627h | E353.2 | 0.0100 | **0.230** | |
| Nitrite (as N) | mg/L | | 2/25/2011 1627h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 2/25/2011 1216h | E1664A | 3.00 | **3.01** | |
| Phosphate, Total Ortho (as P) | mg/L | | 2/25/2011 1244h | E365.1 | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 2/25/2011 1050h | SM2540F | 0.100 | < 0.100 | |
| Sulfate | mg/L | | 2/28/2011 1433h | E300.0 | 7.50 | **103** | |
| Total Dissolved Solids | mg/L | | 2/25/2011 1445h | SM2540C | 20.0 | **408** | |
| Total Suspended Solids | mg/L | | 2/25/2011 1615h | SM2540D | 3.00 | **17.0** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney #2)
**Lab Sample ID:** 1102368-004
**Client Sample ID:** Sulfur Spring
**Collection Date:** 2/24/2011 1510h
**Received Date:** 2/25/2011 0950h

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Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 2/28/2011 1000h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 2/28/2011 0750h | SM2320B | 20.0 | **366** | |
| Ammonia (as N) | mg/L | 2/28/2011 1223h | 3/2/2011 1631h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 2/28/2011 0750h | SM2320B | 20.0 | **366** | |
| Carbonate (as CaCO3) | mg/L | | 2/28/2011 0750h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 2/28/2011 1457h | E300.0 | 1.00 | **6.49** | |
| Hardness (as CaCO3) | mg/L | | 2/28/2011 | SM2340B | 10.0 | **384** | |
| Nitrate (as N) | mg/L | | 2/25/2011 1608h | E353.2 | 0.0100 | < 0.0100 | |
| Nitrite (as N) | mg/L | | 2/25/2011 1608h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 2/25/2011 1216h | E1664A | 3.00 | **3.20** | |
| Phosphate, Total Ortho (as P) | mg/L | | 2/25/2011 1245h | E365.1 | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 2/25/2011 1050h | SM2540F | 0.100 | < 0.100 | |
| Sulfate | mg/L | | 2/28/2011 1457h | E300.0 | 7.50 | **44.9** | |
| Total Dissolved Solids | mg/L | | 2/25/2011 1445h | SM2540C | 20.0 | **380** | |
| Total Suspended Solids | mg/L | | 2/25/2011 1615h | SM2540D | 3.00 | < 3.00 | |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1102368
**Project:** Scofield Baseline (Kinney #2)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-10990 | Aluminum | mg/L | SW6010C | 1.03 | 1.000 | 0 | 103 | 80-120 | | | | 2/28/2011 1705h |
| LCS-10990 | Boron | mg/L | SW6010C | 1.11 | 1.000 | 0 | 111 | 80-120 | | | | 2/28/2011 1705h |
| LCS-10990 | Calcium | mg/L | SW6010C | 9.98 | 10.00 | 0 | 99.8 | 80-120 | | | | 2/28/2011 1705h |
| LCS-10990 | Iron | mg/L | SW6010C | 0.999 | 1.000 | 0 | 99.9 | 80-120 | | | | 2/28/2011 1705h |
| LCS-10990 | Magnesium | mg/L | SW6010C | 10.5 | 10.00 | 0 | 105 | 80-120 | | | | 2/28/2011 1705h |
| LCS-10990 | Molybdenum | mg/L | SW6010C | 0.206 | 0.2000 | 0 | 103 | 80-120 | | | | 2/28/2011 1705h |
| LCS-10990 | Potassium | mg/L | SW6010C | 10.6 | 10.00 | 0 | 106 | 80-120 | | | | 2/28/2011 1705h |
| LCS-10990 | Sodium | mg/L | SW6010C | 10.4 | 10.00 | 0 | 104 | 80-120 | | | | 2/28/2011 1705h |
| LCS-10991 | Iron | mg/L | SW6010C | 1.09 | 1.000 | 0 | 109 | 80-120 | | | | 2/25/2011 2034h |
| LCS-10990 | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 2/28/2011 0602h |
| LCS-10990 | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 85-115 | | | | 2/28/2011 0602h |
| LCS-10990 | Copper | mg/L | SW6020A | 0.202 | 0.2000 | 0.0004800 | 101 | 85-115 | | | | 2/28/2011 0602h |
| LCS-10990 | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 2/28/2011 0602h |
| LCS-10990 | Manganese | mg/L | SW6020A | 0.199 | 0.2000 | 0.0007530 | 99.2 | 85-115 | | | | 2/28/2011 0602h |
| LCS-10990 | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0.0002470 | 100 | 85-115 | | | | 2/28/2011 0602h |
| LCS-10990 | Zinc | mg/L | SW6020A | 0.998 | 1.000 | 0.003744 | 99.5 | 85-115 | | | | 2/28/2011 0602h |
| LCS-10991 | Manganese | mg/L | SW6020A | 0.204 | 0.2000 | 0 | 102 | 85-115 | | | | 2/28/2011 0716h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1102368
**Project:** Scofield Baseline (Kinney #2)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-10990 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 2/28/2011 1701h |
| MB-10990 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 2/28/2011 1701h |
| MB-10990 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 2/28/2011 1701h |
| MB-10990 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 2/28/2011 1701h |
| MB-10990 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 2/28/2011 1701h |
| MB-10990 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 2/28/2011 1701h |
| MB-10990 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 2/28/2011 1701h |
| MB-10990 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 2/28/2011 1701h |
| MB-10991 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 2/25/2011 2030h |
| MB-10990 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 2/28/2011 0556h |
| MB-10990 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 2/28/2011 0556h |
| MB-10990 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 2/28/2011 0556h |
| MB-10990 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 2/28/2011 0556h |
| MB-10990 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 2/28/2011 0556h |
| MB-10990 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 2/28/2011 0556h |
| MB-10990 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 2/28/2011 0556h |
| MB-10991 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 2/28/2011 0711h |



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QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1102368
**Project:** Scofield Baseline (Kinney #2)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1102368-003EMS | Aluminum | mg/L | SW6010C | 0.978 | 1.000 | 0 | 97.8 | 75-125 | | | | 2/28/2011 1805h |
| 1102368-003EMS | Boron | mg/L | SW6010C | 1.25 | 1.000 | 0 | 125 | 75-125 | | | [1] | 2/28/2011 1805h |
| 1102368-003EMS | Calcium | mg/L | SW6010C | 70.7 | 10.00 | 62.15 | 85.4 | 75-125 | | | | 2/28/2011 1721h |
| 1102368-003EMS | Iron | mg/L | SW6010C | 0.986 | 1.000 | 0 | 98.6 | 75-125 | | | | 2/28/2011 1805h |
| 1102368-003EMS | Magnesium | mg/L | SW6010C | 41.3 | 10.00 | 0 | 413 | 75-125 | | | [1] | 2/28/2011 1805h |
| 1102368-003EMS | Molybdenum | mg/L | SW6010C | 0.195 | 0.2000 | 0 | 97.5 | 75-125 | | | | 2/28/2011 1805h |
| 1102368-003EMS | Potassium | mg/L | SW6010C | 16.3 | 10.00 | 0 | 163 | 75-125 | | | [1] | 2/28/2011 1805h |
| 1102368-003EMS | Sodium | mg/L | SW6010C | 50.7 | 10.00 | 41.63 | 90.2 | 75-125 | | | | 2/28/2011 1721h |
| 1102368-001EMS | Iron | mg/L | SW6010C | 16.0 | 1.000 | 14.20 | 180 | 75-125 | | | [2] | 2/25/2011 2050h |
| 1102368-003EMS | Arsenic | mg/L | SW6020A | 0.202 | 0.2000 | 0.0002700 | 101 | 75-125 | | | | 2/28/2011 0653h |
| 1102368-003EMS | Cadmium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 75-125 | | | | 2/28/2011 0653h |
| 1102368-003EMS | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0.001193 | 99.9 | 75-125 | | | | 2/28/2011 0653h |
| 1102368-003EMS | Lead | mg/L | SW6020A | 0.202 | 0.2000 | 0.0001070 | 101 | 75-125 | | | | 2/28/2011 0653h |
| 1102368-003EMS | Manganese | mg/L | SW6020A | 0.219 | 0.2000 | 0.01662 | 101 | 75-125 | | | | 2/28/2011 0653h |
| 1102368-003EMS | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 75-125 | | | | 2/28/2011 0653h |
| 1102368-003EMS | Zinc | mg/L | SW6020A | 1.02 | 1.000 | 0.003941 | 101 | 75-125 | | | | 2/28/2011 0653h |
| 1102368-001EMS | Manganese | mg/L | SW6020A | 0.505 | 0.2000 | 0.3043 | 100 | 75-125 | | | | 2/28/2011 0800h |

[1] - *Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1102368
**Project:** Scofield Baseline (Kinney #2)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1102368-003EMSD | Aluminum | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 75-125 | 7.01 | 20 | | 2/28/2011 1809h |
| 1102368-003EMSD | Boron | mg/L | SW6010C | 1.33 | 1.000 | 0 | 133 | 75-125 | 5.75 | 20 | [1] | 2/28/2011 1809h |
| 1102368-003EMSD | Calcium | mg/L | SW6010C | 72.6 | 10.00 | 62.15 | 105 | 75-125 | 2.74 | 20 | | 2/28/2011 1725h |
| 1102368-003EMSD | Iron | mg/L | SW6010C | 1.01 | 1.000 | 0 | 101 | 75-125 | 2.52 | 20 | | 2/28/2011 1809h |
| 1102368-003EMSD | Magnesium | mg/L | SW6010C | 43.2 | 10.00 | 0 | 432 | 75-125 | 4.60 | 20 | [1] | 2/28/2011 1809h |
| 1102368-003EMSD | Molybdenum | mg/L | SW6010C | 0.207 | 0.2000 | 0 | 104 | 75-125 | 6.02 | 20 | | 2/28/2011 1809h |
| 1102368-003EMSD | Potassium | mg/L | SW6010C | 17.2 | 10.00 | 0 | 172 | 75-125 | 5.50 | 20 | [1] | 2/28/2011 1809h |
| 1102368-003EMSD | Sodium | mg/L | SW6010C | 52.2 | 10.00 | 41.63 | 106 | 75-125 | 3.00 | 20 | | 2/28/2011 1725h |
| 1102368-001EMSD | Iron | mg/L | SW6010C | 15.9 | 1.000 | 14.20 | 170 | 75-125 | 0.627 | 20 | [2] | 2/25/2011 2054h |
| 1102368-003EMSD | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0002700 | 100 | 75-125 | 0.274 | 20 | | 2/28/2011 0659h |
| 1102368-003EMSD | Cadmium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 75-125 | 0.317 | 20 | | 2/28/2011 0659h |
| 1102368-003EMSD | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0.001193 | 99.9 | 75-125 | 0.0209 | 20 | | 2/28/2011 0659h |
| 1102368-003EMSD | Lead | mg/L | SW6020A | 0.199 | 0.2000 | 0.0001070 | 99.3 | 75-125 | 1.57 | 20 | | 2/28/2011 0659h |
| 1102368-003EMSD | Manganese | mg/L | SW6020A | 0.219 | 0.2000 | 0.01662 | 101 | 75-125 | 0.198 | 20 | | 2/28/2011 0659h |
| 1102368-003EMSD | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | 0.144 | 20 | | 2/28/2011 0659h |
| 1102368-003EMSD | Zinc | mg/L | SW6020A | 1.02 | 1.000 | 0.003941 | 101 | 75-125 | 0.144 | 20 | | 2/28/2011 0659h |
| 1102368-001EMSD | Manganese | mg/L | SW6020A | 0.502 | 0.2000 | 0.3043 | 98.6 | 75-125 | 0.595 | 20 | | 2/28/2011 0806h |

[1] - *Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1102368
**Project:** Scofield Baseline (Kinney #2)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1102368-004ADUP | Total Dissolved Solids | mg/L | SM2540C | 376 | | 380.0 | | - | 1.06 | 5 | | 2/25/2011 1445h |
| 1102368-004ADUP | Total Suspended Solids | mg/L | SM2540D | < 3.00 | | 1.000 | | - | 0 | 5 | | 2/25/2011 1615h |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1102368
**Project:** Scofield Baseline (Kinney #2)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R23901 | Chloride | mg/L | E300.0 | 4.92 | 5.000 | 0 | 98.4 | 90-110 | | | | 2/28/2011 1041h |
| LCS-R23901 | Sulfate | mg/L | E300.0 | 4.96 | 5.000 | 0 | 99.2 | 90-110 | | | | 2/28/2011 1041h |
| LCS-R23854 | Acidity | mg/L | SM2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | | | | 2/28/2011 1000h |
| LCS-R23850 | Alkalinity (as CaCO3) | mg/L | SM2320B | 50,800 | 50,000 | 0 | 102 | 90-110 | | | | 2/28/2011 0750h |
| LCS-11007 | Ammonia (as N) | mg/L | E350.1 | 0.902 | 1.000 | 0 | 90.2 | 90-110 | | | | 3/2/2011 1613h |
| LCS-R23815 | Nitrite (as N) | mg/L | E353.2 | 1.02 | 1.000 | 0 | 102 | 90-110 | | | | 2/25/2011 1605h |
| LCS-R23816 | Nitrate (as N) | mg/L | E353.2 | 0.986 | 1.000 | 0 | 98.6 | 90-110 | | | | 2/25/2011 1607h |
| LCS-R23859 | Oil & Grease | mg/L | E1664A | 38.3 | 40.00 | 0 | 95.8 | 78-114 | | | | 2/25/2011 1216h |
| LCS-R23808 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.993 | 1.000 | 0 | 99.3 | 90-110 | | | | 2/25/2011 1240h |
| LCS-R23882 | Total Dissolved Solids | mg/L | SM2540C | 194 | 205.0 | 0 | 94.6 | 80-120 | | | | 2/25/2011 1445h |
| LCS-R23853 | Total Suspended Solids | mg/L | SM2540D | 103 | 100.0 | 0 | 103 | 80-120 | | | | 2/25/2011 1615h |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1102368
**Project:** Scofield Baseline (Kinney #2)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R23901 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | | 2/28/2011 1017h |
| MB-R23901 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 2/28/2011 1017h |
| MB-R23854 | Acidity | mg/L | SM2310B | < 15.0 | | | | - | | | | 2/28/2011 1000h |
| MB-R23850 | Alkalinity (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 2/28/2011 0750h |
| MB-R23850 | Bicarbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 2/28/2011 0750h |
| MB-R23850 | Carbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 2/28/2011 0750h |
| MB-11007 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 3/2/2011 1612h |
| MB-R23815 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 2/25/2011 1604h |
| MB-R23816 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 2/25/2011 1604h |
| MB-R23859 | Oil & Grease | mg/L | E1664A | < 3.00 | | | | - | | | | 2/25/2011 1216h |
| MB-R23808 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | < 0.0500 | | | | - | | | | 2/25/2011 1239h |
| MB-R23882 | Total Dissolved Solids | mg/L | SM2540C | < 10.0 | | | | - | | | | 2/25/2011 1445h |
| MB-R23853 | Total Suspended Solids | mg/L | SM2540D | < 3.00 | | | | - | | | | 2/25/2011 1615h |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1102368
**Project:** Scofield Baseline (Kinney #2)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1102368-001BMS | Chloride | mg/L | E300.0 | 63.9 | 50.00 | 14.74 | 98.4 | 90-110 | | | | 2/28/2011 1237h |
| 1102368-001BMS | Sulfate | mg/L | E300.0 | 76.8 | 50.00 | 27.75 | 98.2 | 90-110 | | | | 2/28/2011 1237h |
| 1102368-001BMS | Acidity | mg/L | SM2310B | 54.0 | 50.00 | 0 | 108 | 80-120 | | | | 2/28/2011 1000h |
| 1102368-001BMS | Alkalinity (as CaCO3) | mg/L | SM2320B | 334 | 100.0 | 231.0 | 103 | 80-120 | | | | 2/28/2011 0750h |
| 1102339-003AMS | Ammonia (as N) | mg/L | E350.1 | 1.60 | 1.000 | 0.6794 | 92.1 | 90-110 | | | | 3/2/2011 1615h |
| 1102368-004DMS | Ammonia (as N) | mg/L | E350.1 | 0.973 | 1.000 | 0 | 97.3 | 90-110 | | | | 3/2/2011 1632h |
| 1102368-004BMS NO2 | Nitrite (as N) | mg/L | E353.2 | 1.03 | 1.000 | 0 | 103 | 90-110 | | | | 2/25/2011 1610h |
| 1102368-004BMS NO3 | Nitrate (as N) | mg/L | E353.2 | 1.02 | 1.000 | 0 | 102 | 90-110 | | | | 2/25/2011 1612h |
| 1102368-001BMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.25 | 1.000 | 0.2377 | 101 | 90-110 | | | | 2/25/2011 1241h |



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1102368
**Project:** Scofield Baseline (Kinney #2)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1102368-001BMSD | Chloride | mg/L | E300.0 | 64.2 | 50.00 | 14.74 | 99.0 | 90-110 | 0.481 | 20 | | 2/28/2011 1300h |
| 1102368-001BMSD | Sulfate | mg/L | E300.0 | 76.6 | 50.00 | 27.75 | 97.6 | 90-110 | 0.339 | 20 | | 2/28/2011 1300h |
| 1102368-001BMSD | Acidity | mg/L | SM2310B | 46.0 | 50.00 | 0 | 92.0 | 80-120 | 16.0 | 0 | | 2/28/2011 1000h |
| 1102368-001BMSD | Alkalinity (as CaCO3) | mg/L | SM2320B | 329 | 100.0 | 231.0 | 98.0 | 80-120 | 1.51 | 10 | | 2/28/2011 0750h |
| 1102339-003AMSD | Ammonia (as N) | mg/L | E350.1 | 1.58 | 1.000 | 0.6794 | 89.6 | 90-110 | 1.59 | 10 | [1] | 3/2/2011 1617h |
| 1102368-004DMSD | Ammonia (as N) | mg/L | E350.1 | 0.916 | 1.000 | 0 | 91.6 | 90-110 | 6.11 | 10 | | 3/2/2011 1633h |
| 1102368-004BMSD NO2 | Nitrite (as N) | mg/L | E353.2 | 1.03 | 1.000 | 0 | 103 | 90-110 | 0.0775 | 10 | | 2/25/2011 1611h |
| 1102368-004BMSD NO3 | Nitrate (as N) | mg/L | E353.2 | 0.999 | 1.000 | 0 | 99.9 | 90-110 | 1.81 | 10 | | 2/25/2011 1614h |
| 1102368-001BMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.23 | 1.000 | 0.2377 | 99.2 | 90-110 | 1.43 | 10 | | 2/25/2011 1242h |

[1] - *Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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# American West Analytical Laboratories

## WORK ORDER Summary

**Work Order:** 1102368



**Client:** Carbon Resources
**Client ID:** CAR300 **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney #2) **QC Level:** LEVEL II+
**Comments:** No Hard Copies. QC 2+, EDD. E-mail 2 people.;

2/28/2011
**WO Type:** Project

DB

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1102368-001A | CR-10-11 | 2/24/2011 12:30:00 PM | 2/25/2011 9:50:00 AM | 3/11/2011 | Aqueous | TDS-W-2540C | ☐ | ww - tds | 1 |
| 1102368-001B | | | | 3/11/2011 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 3/11/2011 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 3/11/2011 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 3/11/2011 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 3/11/2011 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 3/11/2011 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1102368-001C | | | | 3/11/2011 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 3/11/2011 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1102368-001D | | | | 3/11/2011 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 3/11/2011 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 3/11/2011 | | 6020-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 3/11/2011 | | HARD-2340B | ☐ | DF - dis met | |
| 1102368-001E | | | | 3/11/2011 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 3/11/2011 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 3/11/2011 | | 6020-W | ☑ | DF - total met | |
| | SEL Analytes: MN | | | | | | | | |
| 1102368-002A | CR-10-12 | 2/24/2011 2:20:00 PM | | 3/11/2011 | | TDS-W-2540C | ☐ | ww - tds | |
| 1102368-002B | | | | 3/11/2011 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 3/11/2011 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 3/11/2011 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |

# WORK ORDER Summary

**Work Order:** 1102368



**Client:** Carbon Resources
**Client ID:** CAR300
**Project:** Scofield Baseline (Kinney #2)
**Comments:** No Hard Copies. QC 2+, EDD. E-mail 2 people.;

**Contact:** Brad Lindsay
**QC Level:** LEVEL II+

2/28/2011
**WO Type:** Project

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1102368-002B | CR-10-12 | 2/24/2011 2:20:00 PM | 2/25/2011 9:50:00 AM | 3/11/2011 | Aqueous | NO2-W-353.2 | ☐ | DF - wc | 1 |
| | | | | 3/11/2011 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 3/11/2011 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1102368-002C | | | | 3/11/2011 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 3/11/2011 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1102368-002D | | | | 3/11/2011 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 3/11/2011 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 3/11/2011 | | 6020-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 3/11/2011 | | HARD-2340B | ☐ | DF - dis met | |
| 1102368-002E | | | | 3/11/2011 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 3/11/2011 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 3/11/2011 | | 6020-W | ☑ | DF - total met | |
| | SEL Analytes: MN | | | | | | | | |
| 1102368-003A | Mud Creek | 2/24/2011 1:20:00 PM | | 3/11/2011 | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | 3/11/2011 | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | 3/11/2011 | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1102368-003B | | | | 3/11/2011 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 3/11/2011 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 3/11/2011 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 3/11/2011 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 3/11/2011 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 3/11/2011 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1102368-003C | | | | 3/11/2011 | | OGB-W-1664A | ☐ | ogb | |
| 1102368-003D | | | | 3/11/2011 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 3/11/2011 | | NH3-W-PR | ☐ | DF - nh3 | |

# WORK ORDER Summary

**Work Order:** 1102368



**Client:** Carbon Resources
**Client ID:** CAR300
**Project:** Scofield Baseline (Kinney #2)
**Comments:** No Hard Copies. QC 2+, EDD. E-mail 2 people.;

**Contact:** Brad Lindsay
**QC Level:** LEVEL II+

2/28/2011
**WO Type:** Project

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1102368-003E | Mud Creek | 2/24/2011 1:20:00 PM | 2/25/2011 9:50:00 AM | 3/11/2011 | Aqueous | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 3/11/2011 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 3/11/2011 | | 6020-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 3/11/2011 | | HARD-2340B | ☐ | DF - dis met | |
| 1102368-003F | | | | 3/11/2011 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 3/11/2011 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 3/11/2011 | | 6020-W | ☑ | DF - total met | |
| | SEL Analytes: MN | | | | | | | | |
| 1102368-004A | Sulfur Spring | 2/24/2011 3:10:00 PM | | 3/11/2011 | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | 3/11/2011 | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | 3/11/2011 | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1102368-004B | | | | 3/11/2011 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 3/11/2011 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 3/11/2011 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 3/11/2011 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 3/11/2011 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 3/11/2011 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1102368-004C | | | | 3/11/2011 | | OGB-W-1664A | ☐ | ogb | |
| 1102368-004D | | | | 3/11/2011 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 3/11/2011 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1102368-004E | | | | 3/11/2011 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 3/11/2011 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 3/11/2011 | | 6020-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |

# WORK ORDER Summary

**Work Order:** 1102368



**Client:** Carbon Resources

**Client ID:** CAR300 **Contact:** Brad Lindsay

**Project:** Scofield Baseline (Kinney #2) **QC Level:** LEVEL II+ **WO Type:** Project

**Comments:** No Hard Copies. QC 2+, EDD. E-mail 2 people.;

2/28/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1102368-004E | Sulfur Spring | 2/24/2011 3:10:00 PM | 2/25/2011 9:50:00 AM | 3/11/2011 | Aqueous | HARD-2340B | ☐ | DF - dis met | 2 |
| 1102368-004F | | | | 3/11/2011 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 3/11/2011 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 3/11/2011 | | 6020-W | ☑ | DF - total met | |
| | SEL Analytes: MN | | | | | | | | |

Client: Carbon Resources c/o Rock Logic
Address: Box 544
Cedaredge CO 81413
City State Zip
Phone: 970-260-0448 Fax:
Contact: Greg Hunt or Brad Lindsay
E-mail:
Project Name: Scofield Baseline (Kinney #2)
Project Number/P.O.#:
Sampler Name: Greg Hunt


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# CHAIN OF CUSTODY

Lab Sample Set # 1102368
Page _____ of _____

**Turn Around Time (Circle One)**
1 day 2 day 3 day 4 day 5 day Standard

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TESTS REQUIRED: Table 4 | TESTS REQUIRED: Table 3 | QC LEVEL | COMMENTS |
|---|---|---|---|---|---|---|---|
| CR-10-11 | 2/24/11 12:30 | GW | 5 | ✓ | | 1 2 2+ 3 3+ 4 | |
| CR-10-12 | 2/24/11 14:20 | GW | 5 | ✓ | | | |
| Mud Creek | 2/24/11 13:20 | SW | 6 | | ✓ | | |
| Sulfur Spring | 2/24/11 15:10 | SW | 6 | | ✓ | | |

**LABORATORY USE ONLY**

SAMPLES WERE:
1 Shipped or hand delivered (Y) N
Notes: UPS
2 Ambient or Chilled (Y) N
Notes:
3 Temperature 3.6°
4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:
5 Properly Preserved
(Y) N
Checked at Bench
(Y) N
Notes:
6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:
1 Present on Outer Package?
Y (N) NA
2 Unbroken on Outer Package
Y N (NA)
3 Present on Sample
Y (N) NA
4 Unbroken on Sample
Y N (NA)

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME: Greg Hunt | Time: 16:15 | PRINT NAME: UPS | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature: Denise Brown | Date: 2/25/11 |
| PRINT NAME | Time | PRINT NAME: Denise Brown | Time: 9:50 |

Special Instructions:

PLEASE FILTER

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Requirements
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphate (Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

[1] These parameters will be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters required for Baseline monitoring.
* Indicates parameters required for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Requirements
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1 Parameters will be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters required for Baseline monitoring.
* Parameters required for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 1102368

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Scofield Baseline (Kinney 1 & 2)

Dear Brad Lindsay: Lab Set ID: 1104009

American West Analytical Laboratories received 2 sample(s) on 4/1/2011 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Kyle F. Gross Digitally signed by Kyle F. Gross DN: cn=Kyle F. Gross, o=AWAL, ou=AWAL, email=kyle@awal-labs.com, c=US Date: 2011.04.14 13:56:19 -06'00'

Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney 1 & 2)
**Lab Sample ID:** 1104009-001
**Client Sample ID:** CR-10-12
**Collection Date:** 3/31/2011 1010h
**Received Date:** 4/1/2011 0945h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 4/5/2011 1527h | 4/7/2011 1948h | SW6010C | 1.00 | **85.5** | |
| Manganese | mg/L | 4/5/2011 1527h | 4/6/2011 1752h | SW6020A | 0.00120 | **2.10** | |

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney 1 & 2)
**Lab Sample ID:** 1104009-002
**Client Sample ID:** CR-10-11
**Collection Date:** 3/31/2011 1100h
**Received Date:** 4/1/2011 0945h

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email: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 4/5/2011 1527h | 4/8/2011 2047h | SW6010C | 1.00 | **25.9** | [2] |
| Manganese | mg/L | 4/5/2011 1527h | 4/6/2011 1758h | SW6020A | 0.00120 | **0.753** | |

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney 1 & 2)
**Lab Sample ID:** 1104009-001
**Client Sample ID:** CR-10-12
**Collection Date:** 3/31/2011 1010h
**Received Date:** 4/1/2011 0945h

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Kyle F. Gross
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Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 4/5/2011 1522h | 4/13/2011 1310h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 4/5/2011 1522h | 4/5/2011 2328h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 4/5/2011 1522h | 4/12/2011 1213h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 4/5/2011 1522h | 4/5/2011 2328h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 4/5/2011 1522h | 4/12/2011 1144h | SW6010C | 10.0 | **74.9** | |
| Copper | mg/L | 4/5/2011 1522h | 4/5/2011 2328h | SW6020A | 0.000800 | **0.000853** | |
| Iron | mg/L | 4/5/2011 1522h | 4/12/2011 1213h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 4/5/2011 1522h | 4/5/2011 2328h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 4/5/2011 1522h | 4/12/2011 1213h | SW6010C | 1.00 | **7.12** | |
| Manganese | mg/L | 4/5/2011 1522h | 4/5/2011 2328h | SW6020A | 0.00120 | **0.0176** | |
| Molybdenum | mg/L | 4/5/2011 1522h | 4/12/2011 1213h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 4/5/2011 1522h | 4/12/2011 1213h | SW6010C | 1.00 | **1.04** | |
| Selenium | mg/L | 4/5/2011 1522h | 4/5/2011 2328h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 4/5/2011 1522h | 4/12/2011 1144h | SW6010C | 10.0 | **19.1** | |
| Zinc | mg/L | 4/5/2011 1522h | 4/5/2011 2328h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney 1 & 2)
**Lab Sample ID:** 1104009-002
**Client Sample ID:** CR-10-11
**Collection Date:** 3/31/2011 1100h
**Received Date:** 4/1/2011 0945h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 4/5/2011 1522h | 4/13/2011 1314h | SW6010C | 0.100 | **0.100** | |
| Arsenic | mg/L | 4/5/2011 1522h | 4/5/2011 2334h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 4/5/2011 1522h | 4/12/2011 1222h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 4/5/2011 1522h | 4/5/2011 2334h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 4/5/2011 1522h | 4/12/2011 1149h | SW6010C | 10.0 | **79.9** | |
| Copper | mg/L | 4/5/2011 1522h | 4/5/2011 2334h | SW6020A | 0.000800 | **0.00153** | |
| Iron | mg/L | 4/5/2011 1522h | 4/12/2011 1222h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 4/5/2011 1522h | 4/5/2011 2334h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 4/5/2011 1522h | 4/12/2011 1222h | SW6010C | 1.00 | **13.1** | |
| Manganese | mg/L | 4/5/2011 1522h | 4/5/2011 2334h | SW6020A | 0.00120 | < 0.00120 | |
| Molybdenum | mg/L | 4/5/2011 1522h | 4/12/2011 1222h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 4/5/2011 1522h | 4/12/2011 1222h | SW6010C | 1.00 | **1.47** | |
| Selenium | mg/L | 4/5/2011 1522h | 4/5/2011 2334h | SW6020A | 0.000800 | **0.000970** | |
| Sodium | mg/L | 4/5/2011 1522h | 4/12/2011 1222h | SW6010C | 1.00 | **12.8** | |
| Zinc | mg/L | 4/5/2011 1522h | 4/5/2011 2334h | SW6020A | 0.00500 | **0.00551** | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney 1 & 2)
**Lab Sample ID:** 1104009-001
**Client Sample ID:** CR-10-12
**Collection Date:** 3/31/2011 1010h
**Received Date:** 4/1/2011 0945h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 4/6/2011 0530h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 4/5/2011 0710h | SM2320B | 20.0 | **173** | |
| Ammonia (as N) | mg/L | 4/5/2011 1446h | 4/6/2011 1055h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 4/5/2011 0710h | SM2320B | 20.0 | **173** | |
| Carbonate (as CaCO3) | mg/L | | 4/5/2011 0710h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 4/4/2011 1943h | E300.0 | 1.00 | **18.8** | 1 |
| Hardness (as CaCO3) | mg/L | | 4/12/2011 | SM2340B | 10.0 | **216** | |
| Nitrate (as N) | mg/L | | 4/1/2011 1618h | E353.2 | 0.100 | **5.17** | 1 |
| Nitrite (as N) | mg/L | | 4/1/2011 1613h | E353.2 | 0.0100 | **0.0212** | |
| Phosphate, Total Ortho (as P) | mg/L | | 4/1/2011 1348h | E365.1 | 0.0500 | **0.106** | |
| Sulfate | mg/L | | 4/4/2011 1943h | E300.0 | 7.50 | **36.5** | 1 |
| Total Dissolved Solids | mg/L | | 4/1/2011 1315h | SM2540C | 50.0 | **580** | |

*1 - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney 1 & 2)
**Lab Sample ID:** 1104009-002
**Client Sample ID:** CR-10-11
**Collection Date:** 3/31/2011 1100h
**Received Date:** 4/1/2011 0945h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 4/6/2011 0530h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 4/5/2011 0710h | SM2320B | 20.0 | **228** | |
| Ammonia (as N) | mg/L | 4/5/2011 1446h | 4/6/2011 1051h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 4/5/2011 0710h | SM2320B | 20.0 | **228** | |
| Carbonate (as CaCO3) | mg/L | | 4/5/2011 0710h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 4/4/2011 2139h | E300.0 | 1.00 | **14.5** | |
| Hardness (as CaCO3) | mg/L | | 4/12/2011 | SM2340B | 10.0 | **254** | |
| Nitrate (as N) | mg/L | | 4/1/2011 1623h | E353.2 | 0.100 | **2.45** | |
| Nitrite (as N) | mg/L | | 4/1/2011 1622h | E353.2 | 0.0100 | **0.0170** | |
| Phosphate, Total Ortho (as P) | mg/L | | 4/1/2011 1350h | E365.1 | 0.0500 | **0.0845** | |
| Sulfate | mg/L | | 4/4/2011 2139h | E300.0 | 7.50 | **26.7** | |
| Total Dissolved Solids | mg/L | | 4/1/2011 1315h | SM2540C | 50.0 | **410** | |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104009
**Project:** Scofield Baseline (Kinney 1 & 2)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-11545 | Aluminum | mg/L | SW6010C | 1.08 | 1.000 | 0 | 108 | 80-120 | | | | 4/13/2011 1306h |
| LCS-11545 | Boron | mg/L | SW6010C | 1.19 | 1.000 | 0 | 119 | 80-120 | | | | 4/12/2011 1141h |
| LCS-11545 | Calcium | mg/L | SW6010C | 10.6 | 10.00 | 0 | 106 | 80-120 | | | | 4/12/2011 1141h |
| LCS-11545 | Iron | mg/L | SW6010C | 1.17 | 1.000 | 0 | 117 | 80-120 | | | | 4/12/2011 1141h |
| LCS-11545 | Magnesium | mg/L | SW6010C | 11.3 | 10.00 | 0 | 113 | 80-120 | | | | 4/12/2011 1141h |
| LCS-11545 | Molybdenum | mg/L | SW6010C | 0.218 | 0.2000 | 0 | 109 | 80-120 | | | | 4/12/2011 1141h |
| LCS-11545 | Potassium | mg/L | SW6010C | 11.9 | 10.00 | 0 | 119 | 80-120 | | | | 4/12/2011 1141h |
| LCS-11545 | Sodium | mg/L | SW6010C | 11.9 | 10.00 | 0 | 119 | 80-120 | | | | 4/12/2011 1141h |
| LCS-11547 | Iron | mg/L | SW6010C | 1.00 | 1.000 | 0 | 100 | 80-120 | | | | 4/7/2011 1817h |
| LCS-11545 | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 4/5/2011 2320h |
| LCS-11545 | Cadmium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 85-115 | | | | 4/5/2011 2320h |
| LCS-11545 | Copper | mg/L | SW6020A | 0.198 | 0.2000 | 0.0003840 | 99.0 | 85-115 | | | | 4/5/2011 2320h |
| LCS-11545 | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 85-115 | | | | 4/5/2011 2320h |
| LCS-11545 | Manganese | mg/L | SW6020A | 0.196 | 0.2000 | 0.0002360 | 97.9 | 85-115 | | | | 4/5/2011 2320h |
| LCS-11545 | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 4/5/2011 2320h |
| LCS-11545 | Zinc | mg/L | SW6020A | 1.00 | 1.000 | 0 | 100 | 85-115 | | | | 4/5/2011 2320h |
| LCS-11547 | Manganese | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 4/6/2011 1622h |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104009
**Project:** Scofield Baseline (Kinney 1 & 2)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-11545 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 4/13/2011 1301h |
| MB-11545 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 4/12/2011 1136h |
| MB-11545 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 4/12/2011 1136h |
| MB-11545 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 4/12/2011 1136h |
| MB-11545 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 4/12/2011 1136h |
| MB-11545 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 4/12/2011 1136h |
| MB-11545 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 4/12/2011 1136h |
| MB-11545 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 4/12/2011 1136h |
| MB-11547 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 4/7/2011 1813h |
| MB-11545 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 4/5/2011 2314h |
| MB-11545 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 4/5/2011 2314h |
| MB-11545 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 4/5/2011 2314h |
| MB-11545 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 4/5/2011 2314h |
| MB-11545 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 4/5/2011 2314h |
| MB-11545 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 4/5/2011 2314h |
| MB-11545 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 4/5/2011 2314h |
| MB-11547 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 4/6/2011 1617h |



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QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104009
**Project:** Scofield Baseline (Kinney 1 & 2)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1103520-041DMS | Boron | mg/L | SW6010C | 6.34 | 1.000 | 5.230 | 111 | 75-125 | | | | 4/12/2011 1413h |
| 1103520-041DMS | Calcium | mg/L | SW6010C | 513 | 10.00 | 503.5 | 90.0 | 75-125 | | | | 4/12/2011 2059h |
| 1103520-041DMS | Magnesium | mg/L | SW6010C | 491 | 10.00 | 485.3 | 54.9 | 75-125 | | | 2 | 4/12/2011 2059h |
| 1103520-041DMS | Potassium | mg/L | SW6010C | 34.1 | 10.00 | 23.29 | 108 | 75-125 | | | | 4/13/2011 1349h |
| 1103520-041DMS | Sodium | mg/L | SW6010C | 2,740 | 10.00 | 2,837 | -993 | 75-125 | | | 2 | 4/12/2011 1241h |
| 1104009-002DMS | Aluminum | mg/L | SW6010C | 1.22 | 1.000 | 0.1005 | 112 | 75-125 | | | | 4/13/2011 1317h |
| 1104009-002DMS | Boron | mg/L | SW6010C | 1.24 | 1.000 | 0.03064 | 121 | 75-125 | | | | 4/12/2011 1229h |
| 1104009-002DMS | Calcium | mg/L | SW6010C | 89.3 | 10.00 | 79.86 | 94.0 | 75-125 | | | | 4/12/2011 1153h |
| 1104009-002DMS | Iron | mg/L | SW6010C | 1.16 | 1.000 | 0.09161 | 107 | 75-125 | | | | 4/12/2011 1229h |
| 1104009-002DMS | Magnesium | mg/L | SW6010C | 23.8 | 10.00 | 13.15 | 107 | 75-125 | | | | 4/12/2011 1229h |
| 1104009-002DMS | Molybdenum | mg/L | SW6010C | 0.212 | 0.2000 | 0 | 106 | 75-125 | | | | 4/12/2011 1229h |
| 1104009-002DMS | Potassium | mg/L | SW6010C | 13.4 | 10.00 | 1.465 | 119 | 75-125 | | | | 4/12/2011 1229h |
| 1104009-002DMS | Sodium | mg/L | SW6010C | 21.4 | 10.00 | 10.26 | 111 | 75-125 | | | | 4/12/2011 1153h |
| 1103519-001CMS | Iron | mg/L | SW6010C | 2.44 | 1.000 | 1.389 | 105 | 75-125 | | | | 4/8/2011 2015h |
| 1104009-002EMS | Iron | mg/L | SW6010C | 26.2 | 1.000 | 25.87 | 33.7 | 75-125 | | | 2 | 4/8/2011 2052h |
| 1103520-041DMS | Selenium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 75-125 | | | | 4/8/2011 2256h |
| 1104009-002DMS | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0003920 | 100 | 75-125 | | | | 4/5/2011 2351h |
| 1104009-002DMS | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 75-125 | | | | 4/5/2011 2351h |
| 1104009-002DMS | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0.001532 | 99.8 | 75-125 | | | | 4/5/2011 2351h |
| 1104009-002DMS | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 75-125 | | | | 4/5/2011 2351h |
| 1104009-002DMS | Manganese | mg/L | SW6020A | 0.201 | 0.2000 | 0.0008730 | 99.8 | 75-125 | | | | 4/5/2011 2351h |
| 1104009-002DMS | Selenium | mg/L | SW6020A | 0.201 | 0.2000 | 0.0009700 | 99.8 | 75-125 | | | | 4/5/2011 2351h |
| 1104009-002DMS | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0.005511 | 100 | 75-125 | | | | 4/5/2011 2351h |



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QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104009
**Project:** Scofield Baseline (Kinney 1 & 2)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1103519-001CMS | Manganese | mg/L | SW6020A | 0.218 | 0.2000 | 0.01921 | 99.2 | 75-125 | | | | 4/6/2011 1656h |
| 1104009-002EMS | Manganese | mg/L | SW6020A | 0.932 | 0.2000 | 0.7533 | 89.2 | 75-125 | | | | 4/6/2011 1803h |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104009
**Project:** Scofield Baseline (Kinney 1 & 2)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1103520-041DMSD | Boron | mg/L | SW6010C | 6.25 | 1.000 | 5.230 | 102 | 75-125 | 1.43 | 20 | | 4/12/2011 1417h |
| 1103520-041DMSD | Calcium | mg/L | SW6010C | 481 | 10.00 | 503.5 | -224 | 75-125 | 6.32 | 20 | 2 | 4/12/2011 2103h |
| 1103520-041DMSD | Magnesium | mg/L | SW6010C | 465 | 10.00 | 485.3 | -202 | 75-125 | 5.39 | 20 | 2 | 4/12/2011 2103h |
| 1103520-041DMSD | Potassium | mg/L | SW6010C | 34.8 | 10.00 | 23.29 | 115 | 75-125 | 2.08 | 20 | | 4/13/2011 1353h |
| 1103520-041DMSD | Sodium | mg/L | SW6010C | 2,670 | 10.00 | 2,837 | -1,690 | 75-125 | 2.60 | 20 | 2 | 4/12/2011 1245h |
| 1104009-002DMSD | Aluminum | mg/L | SW6010C | 1.21 | 1.000 | 0.1005 | 111 | 75-125 | 0.581 | 20 | | 4/13/2011 1321h |
| 1104009-002DMSD | Boron | mg/L | SW6010C | 1.25 | 1.000 | 0.03064 | 122 | 75-125 | 0.610 | 20 | | 4/12/2011 1233h |
| 1104009-002DMSD | Calcium | mg/L | SW6010C | 88.8 | 10.00 | 79.86 | 89.3 | 75-125 | 0.535 | 20 | | 4/12/2011 1157h |
| 1104009-002DMSD | Iron | mg/L | SW6010C | 1.22 | 1.000 | 0.09161 | 113 | 75-125 | 5.03 | 20 | | 4/12/2011 1233h |
| 1104009-002DMSD | Magnesium | mg/L | SW6010C | 23.9 | 10.00 | 13.15 | 108 | 75-125 | 0.316 | 20 | | 4/12/2011 1233h |
| 1104009-002DMSD | Molybdenum | mg/L | SW6010C | 0.212 | 0.2000 | 0 | 106 | 75-125 | 0.269 | 20 | | 4/12/2011 1233h |
| 1104009-002DMSD | Potassium | mg/L | SW6010C | 13.4 | 10.00 | 1.465 | 119 | 75-125 | 0.0214 | 20 | | 4/12/2011 1233h |
| 1104009-002DMSD | Sodium | mg/L | SW6010C | 21.3 | 10.00 | 10.26 | 110 | 75-125 | 0.456 | 20 | | 4/12/2011 1157h |
| 1103519-001CMSD | Iron | mg/L | SW6010C | 2.61 | 1.000 | 1.389 | 122 | 75-125 | 6.69 | 20 | | 4/8/2011 2018h |
| 1104009-002EMSD | Iron | mg/L | SW6010C | 26.5 | 1.000 | 25.87 | 62.8 | 75-125 | 1.11 | 20 | 2 | 4/8/2011 2056h |
| 1103520-041DMSD | Selenium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 75-125 | 0.149 | 20 | | 4/8/2011 2302h |
| 1104009-002DMSD | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0003920 | 100 | 75-125 | 0.331 | 20 | | 4/5/2011 2357h |
| 1104009-002DMSD | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.8 | 75-125 | 0.109 | 20 | | 4/5/2011 2357h |
| 1104009-002DMSD | Copper | mg/L | SW6020A | 0.200 | 0.2000 | 0.001532 | 99.5 | 75-125 | 0.336 | 20 | | 4/5/2011 2357h |
| 1104009-002DMSD | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 75-125 | 0.357 | 20 | | 4/5/2011 2357h |
| 1104009-002DMSD | Manganese | mg/L | SW6020A | 0.201 | 0.2000 | 0.0008730 | 99.9 | 75-125 | 0.0907 | 20 | | 4/5/2011 2357h |
| 1104009-002DMSD | Selenium | mg/L | SW6020A | 0.201 | 0.2000 | 0.0009700 | 100 | 75-125 | 0.297 | 20 | | 4/5/2011 2357h |
| 1104009-002DMSD | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0.005511 | 100 | 75-125 | 0.0437 | 20 | | 4/5/2011 2357h |



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QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104009
**Project:** Scofield Baseline (Kinney 1 & 2)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1103519-001CMSD | Manganese | mg/L | SW6020A | 0.216 | 0.2000 | 0.01921 | 98.6 | 75-125 | 0.560 | 20 | | 4/6/2011 1701h |
| 1104009-002EMSD | Manganese | mg/L | SW6020A | 0.927 | 0.2000 | 0.7533 | 86.7 | 75-125 | 0.536 | 20 | | 4/6/2011 1809h |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104009
**Project:** Scofield Baseline (Kinney 1 & 2)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1103519-005BDUP | Total Dissolved Solids | mg/L | SM2540C | 4,050 | | 3,912 | | - | 3.42 | 5 | | 4/1/2011 1315h |
| 1104009-002ADUP | Total Dissolved Solids | mg/L | SM2540C | 400 | | 410.0 | | - | 2.47 | 5 | | 4/1/2011 1315h |



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Kyle F. Gross
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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104009
**Project:** Scofield Baseline (Kinney 1 & 2)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R25245 | Chloride | mg/L | E300.0 | 4.90 | 5.000 | 0 | 98.0 | 90-110 | | | | 4/4/2011 1330h |
| LCS-R25245 | Sulfate | mg/L | E300.0 | 5.00 | 5.000 | 0 | 99.9 | 90-110 | | | | 4/4/2011 1330h |
| LCS-R25287 | Acidity | mg/L | SM2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | | | | 4/6/2011 0530h |
| LCS-R25252 | Alkalinity (as CaCO3) | mg/L | SM2320B | 52,500 | 50,000 | 0 | 105 | 90-110 | | | | 4/5/2011 0710h |
| LCS-11539 | Ammonia (as N) | mg/L | E350.1 | 0.982 | 1.000 | 0 | 98.2 | 90-110 | | | | 4/6/2011 1033h |
| LCS-R25158 | Nitrite (as N) | mg/L | E353.2 | 1.04 | 1.000 | 0 | 104 | 90-110 | | | | 4/1/2011 1552h |
| LCS-R25159 | Nitrate (as N) | mg/L | E353.2 | 0.969 | 1.000 | 0 | 96.9 | 90-110 | | | | 4/1/2011 1553h |
| LCS-R25151 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.955 | 1.000 | 0 | 95.5 | 90-110 | | | | 4/1/2011 1347h |
| LCS-R25237 | Total Dissolved Solids | mg/L | SM2540C | 200 | 205.0 | 0 | 97.6 | 80-120 | | | | 4/1/2011 1315h |



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Jose Rocha
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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104009
**Project:** Scofield Baseline (Kinney 1 & 2)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R25245 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | | 4/4/2011 1307h |
| MB-R25245 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 4/4/2011 1307h |
| MB-R25287 | Acidity | mg/L | SM2310B | < 15.0 | | | | - | | | | 4/6/2011 0530h |
| MB-R25252 | Alkalinity (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 4/5/2011 0710h |
| MB-R25252 | Bicarbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 4/5/2011 0710h |
| MB-R25252 | Carbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 4/5/2011 0710h |
| MB-11539 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 4/6/2011 1032h |
| MB-R25158 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 4/1/2011 1550h |
| MB-R25159 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 4/1/2011 1550h |
| MB-R25151 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | < 0.0500 | | | | - | | | | 4/1/2011 1346h |
| MB-R25237 | Total Dissolved Solids | mg/L | SM2540C | < 10.0 | | | | - | | | | 4/1/2011 1315h |



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Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104009
**Project:** Scofield Baseline (Kinney 1 & 2)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1103519-004AMS | Chloride | mg/L | E300.0 | 5.28 | 5.000 | 0.3040 | 99.4 | 90-110 | | | | 4/4/2011 1417h |
| 1103519-004AMS | Sulfate | mg/L | E300.0 | 5.36 | 5.000 | 1.217 | 82.8 | 90-110 | | | [1] | 4/4/2011 1417h |
| 1104009-001BMS | Chloride | mg/L | E300.0 | 76.0 | 50.00 | 18.81 | 114 | 90-110 | | | [1] | 4/4/2011 2006h |
| 1104009-001BMS | Sulfate | mg/L | E300.0 | 87.6 | 50.00 | 36.52 | 102 | 90-110 | | | | 4/4/2011 2006h |
| 1104009-002BMS | Acidity | mg/L | SM2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | | | | 4/6/2011 0530h |
| 1103519-001AMS | Alkalinity (as CaCO3) | mg/L | SM2320B | 483 | 200.0 | 273.0 | 105 | 80-120 | | | | 4/5/2011 0710h |
| 1104009-001BMS | Alkalinity (as CaCO3) | mg/L | SM2320B | 273 | 100.0 | 173.3 | 99.7 | 80-120 | | | | 4/5/2011 0710h |
| 1104009-002CMS | Ammonia (as N) | mg/L | E350.1 | 0.996 | 1.000 | 0 | 99.6 | 90-110 | | | | 4/6/2011 1052h |
| 1104049-005AMS | Ammonia (as N) | mg/L | E350.1 | 4.02 | 1.000 | 2.815 | 121 | 90-110 | | | [1] | 4/6/2011 1038h |
| 1104009-001BMS | Nitrite (as N) | mg/L | E353.2 | 1.10 | 1.000 | 0.02120 | 108 | 90-110 | | | | 4/1/2011 1615h |
| 1103519-004AMS | Nitrate (as N) | mg/L | E353.2 | 1.00 | 1.000 | 0.01940 | 98.5 | 90-110 | | | | 4/1/2011 1559h |
| 1104009-001BMS | Nitrate (as N) | mg/L | E353.2 | 14.4 | 10.00 | 5.167 | 92.3 | 90-110 | | | | 4/1/2011 1619h |
| 1104009-001BMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.01 | 1.000 | 0.1055 | 90.0 | 90-110 | | | | 4/1/2011 1348h |

[1] - *Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104009
**Project:** Scofield Baseline (Kinney 1 & 2)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1103519-004AMSD | Chloride | mg/L | E300.0 | 5.36 | 5.000 | 0.3040 | 101 | 90-110 | 1.54 | 20 | | 4/4/2011 1440h |
| 1103519-004AMSD | Sulfate | mg/L | E300.0 | 5.44 | 5.000 | 1.217 | 84.5 | 90-110 | 1.54 | 20 | 1 | 4/4/2011 1440h |
| 1104009-001BMSD | Chloride | mg/L | E300.0 | 81.4 | 50.00 | 18.81 | 125 | 90-110 | 6.95 | 20 | 1 | 4/4/2011 2116h |
| 1104009-001BMSD | Sulfate | mg/L | E300.0 | 95.0 | 50.00 | 36.52 | 117 | 90-110 | 8.07 | 20 | 1 | 4/4/2011 2116h |
| 1104009-002BMSD | Acidity | mg/L | SM2310B | 58.0 | 50.00 | 0 | 116 | 80-120 | 10.9 | 0 | | 4/6/2011 0530h |
| 1103519-001AMSD | Alkalinity (as CaCO3) | mg/L | SM2320B | 483 | 200.0 | 273.0 | 105 | 80-120 | 0 | 10 | | 4/5/2011 0710h |
| 1104009-001BMSD | Alkalinity (as CaCO3) | mg/L | SM2320B | 275 | 100.0 | 173.3 | 102 | 80-120 | 0.657 | 10 | | 4/5/2011 0710h |
| 1104009-002CMSD | Ammonia (as N) | mg/L | E350.1 | 0.983 | 1.000 | 0 | 98.3 | 90-110 | 1.29 | 10 | | 4/6/2011 1054h |
| 1104049-005AMSD | Ammonia (as N) | mg/L | E350.1 | 3.85 | 1.000 | 2.815 | 103 | 90-110 | 4.40 | 10 | | 4/6/2011 1039h |
| 1104009-001BMSD | Nitrite (as N) | mg/L | E353.2 | 1.05 | 1.000 | 0.02120 | 103 | 90-110 | 4.63 | 10 | | 4/1/2011 1616h |
| 1103519-004AMSD | Nitrate (as N) | mg/L | E353.2 | 0.949 | 1.000 | 0.01940 | 92.9 | 90-110 | 5.71 | 10 | | 4/1/2011 1600h |
| 1104009-001BMSD | Nitrate (as N) | mg/L | E353.2 | 14.1 | 10.00 | 5.167 | 88.9 | 90-110 | 2.43 | 10 | 1 | 4/1/2011 1620h |
| 1104009-001BMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.05 | 1.000 | 0.1055 | 94.4 | 90-110 | 4.22 | 10 | | 4/1/2011 1349h |

[1] - *Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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# American West Analytical Laboratories

## WORK ORDER Summary

**Work Order:** **1104009**



**Client:** Carbon Resources
**Client ID:** CAR300
**Project:** Scofield Baseline (Kinney 1 & 2)
**Comments:** No Hard Copies. QC 2+, EDD;

**Contact:** Brad Lindsay
**QC Level:** LEVEL II+

4/1/2011
**WO Type:** Project

DB

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1104009-001A | CR-10-12 | 3/31/2011 10:10:00 AM | 4/1/2011 9:45:00 AM | 4/15/2011 | Aqueous | TDS-W-2540C | ☐ | ww - tds | 1 |
| 1104009-001B | | | | 4/15/2011 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 4/15/2011 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 4/15/2011 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 4/15/2011 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 4/15/2011 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 4/15/2011 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1104009-001C | | | | 4/15/2011 | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | 4/15/2011 | | NH3-W-PR | ☐ | df - nh3 | |
| 1104009-001D | | | | 4/15/2011 | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | 4/15/2011 | | 6010C-DIS | ☑ | df - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 4/15/2011 | | 6020-DIS | ☑ | df - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 4/15/2011 | | HARD-2340B | ☐ | df - dis met | |
| 1104009-001E | | | | 4/15/2011 | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | 4/15/2011 | | 6010C-W | ☑ | df - metals | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 4/15/2011 | | 6020-W | ☑ | df - metals | |
| | SEL Analytes: MN | | | | | | | | |
| 1104009-002A | CR-10-11 | 3/31/2011 11:00:00 AM | | 4/15/2011 | | TDS-W-2540C | ☐ | ww - tds | |
| 1104009-002B | | | | 4/15/2011 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 4/15/2011 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 4/15/2011 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 4/15/2011 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 4/15/2011 | | NO3-W-353.2 | ☐ | DF - wc | |

# WORK ORDER Summary

**Work Order:** 1104009



**Client:** Carbon Resources

**Client ID:** CAR300 **Contact:** Brad Lindsay 4/1/2011

**Project:** Scofield Baseline (Kinney 1 & 2) **QC Level:** LEVEL II+ **WO Type:** Project

**Comments:** No Hard Copies. QC 2+, EDD;

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1104009-002B | CR-10-11 | 3/31/2011 11:00:00 AM | 4/1/2011 9:45:00 AM | 4/15/2011 | Aqueous | PO4-O-365.1 | ☐ | DF - wc | 1 |
| 1104009-002C | | | | 4/15/2011 | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | 4/15/2011 | | NH3-W-PR | ☐ | df - nh3 | |
| 1104009-002D | | | | 4/15/2011 | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | 4/15/2011 | | 6010C-DIS | ☑ | df - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 4/15/2011 | | 6020-DIS | ☑ | df - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 4/15/2011 | | HARD-2340B | ☐ | df - dis met | |
| 1104009-002E | | | | 4/15/2011 | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | 4/15/2011 | | 6010C-W | ☑ | df - metals | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 4/15/2011 | | 6020-W | ☑ | df - metals | |
| | SEL Analytes: MN | | | | | | | | |

Client Carbon Resources c/o Rock Logic

Address Box 544

Cedaredge CO 81413
City State Zip

Phone 970-260-0448 Fax

Contact Greg Hunt or Brad Lindsay

E-mail

Project Name Scofield Baseline (Kinney #2)

Project Number/P.O.#

Sampler Name Greg Hunt

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# CHAIN OF CUSTODY

Lab Sample Set # 1104009

Page _____ of _____

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day Standard

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TESTS REQUIRED: Table 4 or ft | QC LEVEL | COMMENTS |
|---|---|---|---|---|---|---|
| CR-10-12 | 3/31/11 10:10 | GW | 5 | ✓ | 1 2 2+ 3 3+ 4 | |
| | 3/31/11 11:00 | GW | 5 | ✓ | | |
| CR-10-11 | | | | | | |

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
Notes: UPS 04/01/11

2 Ambient or Chilled
Notes:

3 Temperature 1.4°

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Checked at Bench
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME Greg Hunt | Time 12:30 | PRINT NAME UPS | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature Denise Bruun | Date 4/1 |
| PRINT NAME | Time | PRINT NAME Denise Bruun | Time 9:45 |

Special Instructions:

Please filter

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Requirements
Baseline, Operational and Post-mining

| | | | | |
|---|---|---|---|---|
| | | FIELD MEASUREMENTS | | REPORTED AS |
| | * - | Water level or Flow | | Depth, Flow |
| 1 L HDPE | * - | pH | | Standard units |
| 1 L HDPE | * - | Specific Conductivity | | umhos/cm @ 25° C |
| 250 mL HDPE | * - | Temperature | | °C |
| 1 500 mL HNO3 | | | | |
| 1 250 mL H2SO4 | | LABORATORY MEASUREMENTS | | |
| | * - | Total Dissolved Solids | | mg/l |
| | * - | Total Hardness ($CaCO_3$) | | mg/l |
| | * - | Total Alkalinity | | mg/l |
| | - | Acidity | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved) | | mg/l |
| | * - | Carbonate | | mg/l |
| | * - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| | * - | Calcium (Dissolved) | | mg/l |
| | * - | Chloride | | mg/l |
| | - | Copper (Dissolved) | | mg/l |
| | * - | Iron (Dissolved) | | mg/l |
| | * - | Iron (Total) | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| | * - | Magnesium (Dissolved) | | mg/l |
| | * - | Manganese (Dissolved) | | mg/l |
| | * - | Manganese (Total) | | mg/l |
| | - | Molybdenum (Dissolved) | | mg/l |
| | - | Ammonia | | mg/l |
| | - | Nitrates | | mg/l |
| | - | Nitrites | | mg/l |
| | * - | Potassium (Dissolved) | | mg/l |
| | - | Phosphate (Ortho) | | mg/l |
| | - | Selenium[1] (Dissolved) | | mg/l |
| | * - | Sodium (Dissolved) | | mg/l |
| | * - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| | * - | Cations | | meq/l |
| | * - | Anions | | meq/l |

[1] These parameters will be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters required for Baseline monitoring.
* Indicates parameters required for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 1104009

## Preservation Check Sheet

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
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Procedure:

1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Scofield Baseline / Kinney #2

Dear Brad Lindsay: Lab Set ID: 1104515

American West Analytical Laboratories received 2 sample(s) on 4/29/2011 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Kyle F. Gross
Digitally signed by Kyle F. Gross
DN: cn=Kyle F. Gross, o=AWAL, ou=AWAL, email=kyle@awal-labs.com, c=US
Date: 2011.05.13 09:00:33 -06'00'

Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Kinney #2
**Lab Sample ID:** 1104515-001
**Client Sample ID:** CR-10-11
**Collection Date:** 4/29/2011 1150h
**Received Date:** 4/29/2011 1619h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 5/2/2011 1746h | 5/10/2011 1126h | SW6010C | 0.100 | **18.1** | [2] |
| Manganese | mg/L | 5/2/2011 1746h | 5/4/2011 1524h | SW6020A | 0.00120 | **0.670** | |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Kinney #2
**Lab Sample ID:** 1104515-002
**Client Sample ID:** CR-10-12
**Collection Date:** 4/29/2011 1245h
**Received Date:** 4/29/2011 1619h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 5/2/2011 1746h | 5/10/2011 1137h | SW6010C | 1.00 | **58.5** | |
| Manganese | mg/L | 5/2/2011 1746h | 5/4/2011 1603h | SW6020A | 0.00120 | **1.27** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Kinney #2
**Lab Sample ID:** 1104515-001
**Client Sample ID:** CR-10-11
**Collection Date:** 4/29/2011 1150h
**Received Date:** 4/29/2011 1619h

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 5/2/2011 1743h | 5/11/2011 1146h | SW6010C | 0.100 | **0.105** | |
| Arsenic | mg/L | 5/2/2011 1743h | 5/3/2011 0036h | SW6020A | 0.000600 | **0.000638** | |
| Boron | mg/L | 5/2/2011 1743h | 5/10/2011 1058h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 5/2/2011 1743h | 5/3/2011 0036h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 5/2/2011 1743h | 5/10/2011 1026h | SW6010C | 10.0 | **79.4** | |
| Copper | mg/L | 5/2/2011 1743h | 5/3/2011 0036h | SW6020A | 0.000800 | **0.00136** | |
| Iron | mg/L | 5/2/2011 1743h | 5/10/2011 1058h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 5/2/2011 1743h | 5/3/2011 0036h | SW6020A | 0.000400 | **0.000488** | |
| Magnesium | mg/L | 5/2/2011 1743h | 5/10/2011 1058h | SW6010C | 1.00 | **11.4** | |
| Manganese | mg/L | 5/2/2011 1743h | 5/3/2011 0036h | SW6020A | 0.00120 | < 0.00120 | |
| Molybdenum | mg/L | 5/2/2011 1743h | 5/10/2011 1058h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 5/2/2011 1743h | 5/10/2011 1058h | SW6010C | 1.00 | **1.18** | |
| Selenium | mg/L | 5/2/2011 1743h | 5/3/2011 0036h | SW6020A | 0.000800 | **0.00129** | |
| Sodium | mg/L | 5/2/2011 1743h | 5/10/2011 1058h | SW6010C | 1.00 | **10.6** | |
| Zinc | mg/L | 5/2/2011 1743h | 5/3/2011 0036h | SW6020A | 0.00500 | **0.0102** | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Kinney #2
**Lab Sample ID:** 1104515-002
**Client Sample ID:** CR-10-12
**Collection Date:** 4/29/2011 1245h
**Received Date:** 4/29/2011 1619h

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 5/2/2011 1743h | 5/11/2011 1149h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 5/2/2011 1743h | 5/3/2011 0042h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 5/2/2011 1743h | 5/10/2011 1106h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 5/2/2011 1743h | 5/3/2011 0042h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 5/2/2011 1743h | 5/10/2011 1030h | SW6010C | 10.0 | **76.4** | [2] |
| Copper | mg/L | 5/2/2011 1743h | 5/3/2011 0042h | SW6020A | 0.000800 | **0.00101** | |
| Iron | mg/L | 5/2/2011 1743h | 5/10/2011 1106h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 5/2/2011 1743h | 5/3/2011 0042h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 5/2/2011 1743h | 5/10/2011 1106h | SW6010C | 1.00 | **6.58** | |
| Manganese | mg/L | 5/2/2011 1743h | 5/3/2011 0042h | SW6020A | 0.00120 | **0.0150** | |
| Molybdenum | mg/L | 5/2/2011 1743h | 5/10/2011 1106h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 5/2/2011 1743h | 5/10/2011 1106h | SW6010C | 1.00 | < 1.00 | |
| Selenium | mg/L | 5/2/2011 1743h | 5/3/2011 0042h | SW6020A | 0.000800 | **0.000958** | |
| Sodium | mg/L | 5/2/2011 1743h | 5/10/2011 1106h | SW6010C | 1.00 | **18.3** | |
| Zinc | mg/L | 5/2/2011 1743h | 5/3/2011 0042h | SW6020A | 0.00500 | < 0.00500 | |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*
*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Kinney #2
**Lab Sample ID:** 1104515-001
**Client Sample ID:** CR-10-11
**Collection Date:** 4/29/2011 1150h
**Received Date:** 4/29/2011 1619h

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 5/2/2011 0645h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 5/2/2011 1100h | SM2320B | 20.0 | **228** | |
| Ammonia (as N) | mg/L | 5/5/2011 1353h | 5/6/2011 1220h | E350.1 | 0.0500 | < 0.0500 | [1]@ |
| Bicarbonate (as CaCO3) | mg/L | | 5/2/2011 1100h | SM2320B | 20.0 | **228** | |
| Carbonate (as CaCO3) | mg/L | | 5/2/2011 1100h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 5/4/2011 2304h | E300.0 | 1.00 | **14.4** | |
| Hardness (as CaCO3) | mg/L | | 5/10/2011 | SM2340B | 10.0 | **245** | |
| Nitrate (as N) | mg/L | | 4/29/2011 1723h | E353.2 | 0.100 | **2.28** | |
| Nitrite (as N) | mg/L | | 4/29/2011 1719h | E353.2 | 0.0100 | **0.271** | |
| Phosphate, Total Ortho (as P) | mg/L | | 4/29/2011 1815h | E365.1 | 0.0500 | **0.250** | [1] |
| Sulfate | mg/L | | 5/4/2011 2304h | E300.0 | 7.50 | **24.6** | |
| Total Dissolved Solids | mg/L | | 5/3/2011 1445h | SM2540C | 20.0 | **316** | |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*
*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline / Kinney #2
**Lab Sample ID:** 1104515-002
**Client Sample ID:** CR-10-12
**Collection Date:** 4/29/2011 1245h
**Received Date:** 4/29/2011 1619h

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 5/2/2011 0645h | SM2310B | 15.0 | **26.0** | |
| Alkalinity (as CaCO3) | mg/L | | 5/2/2011 1100h | SM2320B | 20.0 | **182** | |
| Ammonia (as N) | mg/L | 5/5/2011 1353h | 5/6/2011 1228h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 5/2/2011 1100h | SM2320B | 20.0 | **182** | |
| Carbonate (as CaCO3) | mg/L | | 5/2/2011 1100h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 5/4/2011 2327h | E300.0 | 1.00 | **24.4** | |
| Hardness (as CaCO3) | mg/L | | 5/10/2011 | SM2340B | 10.0 | **218** | |
| Nitrate (as N) | mg/L | | 4/29/2011 1729h | E353.2 | 0.100 | **5.35** | |
| Nitrite (as N) | mg/L | | 4/29/2011 1727h | E353.2 | 0.0100 | **0.151** | |
| Phosphate, Total Ortho (as P) | mg/L | | 4/29/2011 1818h | E365.1 | 0.0500 | **0.179** | |
| Sulfate | mg/L | | 5/4/2011 2327h | E300.0 | 7.50 | **42.3** | |
| Total Dissolved Solids | mg/L | | 5/3/2011 1445h | SM2540C | 20.0 | **388** | @ |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*


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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104515
**Project:** Scofield Baseline / Kinney #2

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-11959 | Aluminum | mg/L | SW6010C | 1.00 | 1.000 | 0 | 100 | 80-120 | | | | 5/10/2011 1022h |
| LCS-11959 | Boron | mg/L | SW6010C | 1.00 | 1.000 | 0 | 100 | 80-120 | | | | 5/10/2011 1022h |
| LCS-11959 | Calcium | mg/L | SW6010C | 9.40 | 10.00 | 0.03314 | 93.7 | 80-120 | | | | 5/10/2011 1022h |
| LCS-11959 | Iron | mg/L | SW6010C | 1.03 | 1.000 | 0.05441 | 97.4 | 80-120 | | | | 5/10/2011 1022h |
| LCS-11959 | Magnesium | mg/L | SW6010C | 9.74 | 10.00 | 0 | 97.4 | 80-120 | | | | 5/10/2011 1022h |
| LCS-11959 | Molybdenum | mg/L | SW6010C | 0.192 | 0.2000 | 0 | 96.2 | 80-120 | | | | 5/10/2011 1022h |
| LCS-11959 | Potassium | mg/L | SW6010C | 10.1 | 10.00 | 0.03875 | 100 | 80-120 | | | | 5/10/2011 1022h |
| LCS-11959 | Sodium | mg/L | SW6010C | 9.87 | 10.00 | 0 | 98.7 | 80-120 | | | | 5/10/2011 1022h |
| LCS-11960 | Iron | mg/L | SW6010C | 1.01 | 1.000 | 0.04631 | 96.0 | 80-120 | | | | 5/10/2011 1233h |
| LCS-11959 | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.8 | 85-115 | | | | 5/2/2011 2340h |
| LCS-11959 | Cadmium | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.3 | 85-115 | | | | 5/2/2011 2340h |
| LCS-11959 | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0.0004970 | 100 | 85-115 | | | | 5/2/2011 2340h |
| LCS-11959 | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 5/2/2011 2340h |
| LCS-11959 | Manganese | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.6 | 85-115 | | | | 5/2/2011 2340h |
| LCS-11959 | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 5/2/2011 2340h |
| LCS-11959 | Zinc | mg/L | SW6020A | 1.00 | 1.000 | 0 | 100 | 85-115 | | | | 5/2/2011 2340h |
| LCS-11960 | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0.0004820 | 99.5 | 85-115 | | | | 5/4/2011 0050h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104515
**Project:** Scofield Baseline / Kinney #2

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-11959 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 5/10/2011 1018h |
| MB-11959 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 5/10/2011 1018h |
| MB-11959 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 5/10/2011 1018h |
| MB-11959 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 5/10/2011 1018h |
| MB-11959 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 5/10/2011 1018h |
| MB-11959 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 5/10/2011 1018h |
| MB-11959 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 5/10/2011 1018h |
| MB-11959 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 5/10/2011 1018h |
| MB-11960 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 5/10/2011 1229h |
| MB-11959 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 5/2/2011 2313h |
| MB-11959 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 5/2/2011 2313h |
| MB-11959 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 5/2/2011 2313h |
| MB-11959 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 5/2/2011 2313h |
| MB-11959 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 5/2/2011 2313h |
| MB-11959 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 5/2/2011 2313h |
| MB-11959 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 5/2/2011 2313h |
| MB-11960 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 5/4/2011 0045h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104515
**Project:** Scofield Baseline / Kinney #2

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1104515-002DMS | Aluminum | mg/L | SW6010C | 1.12 | 1.000 | 0 | 112 | 75-125 | | | | 5/11/2011 1153h |
| 1104515-002DMS | Boron | mg/L | SW6010C | 1.09 | 1.000 | 0 | 109 | 75-125 | | | | 5/10/2011 1113h |
| 1104515-002DMS | Calcium | mg/L | SW6010C | 83.4 | 10.00 | 76.41 | 69.4 | 75-125 | | | 2 | 5/10/2011 1034h |
| 1104515-002DMS | Iron | mg/L | SW6010C | 1.09 | 1.000 | 0.06577 | 102 | 75-125 | | | | 5/10/2011 1113h |
| 1104515-002DMS | Magnesium | mg/L | SW6010C | 16.3 | 10.00 | 6.582 | 97.0 | 75-125 | | | | 5/10/2011 1113h |
| 1104515-002DMS | Molybdenum | mg/L | SW6010C | 0.199 | 0.2000 | 0 | 99.5 | 75-125 | | | | 5/10/2011 1113h |
| 1104515-002DMS | Potassium | mg/L | SW6010C | 11.2 | 10.00 | 0.9687 | 102 | 75-125 | | | | 5/10/2011 1113h |
| 1104515-002DMS | Sodium | mg/L | SW6010C | 27.8 | 10.00 | 18.31 | 94.6 | 75-125 | | | | 5/10/2011 1113h |
| 1104515-001EMS | Iron | mg/L | SW6010C | 19.5 | 1.000 | 18.10 | 140 | 75-125 | | | 2 | 5/10/2011 1129h |
| 1104515-002DMS | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0.0005670 | 99.9 | 75-125 | | | | 5/3/2011 0109h |
| 1104515-002DMS | Cadmium | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.7 | 75-125 | | | | 5/3/2011 0109h |
| 1104515-002DMS | Copper | mg/L | SW6020A | 0.198 | 0.2000 | 0.001011 | 98.7 | 75-125 | | | | 5/3/2011 0109h |
| 1104515-002DMS | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0.0003450 | 101 | 75-125 | | | | 5/3/2011 0109h |
| 1104515-002DMS | Manganese | mg/L | SW6020A | 0.214 | 0.2000 | 0.01496 | 99.3 | 75-125 | | | | 5/3/2011 0109h |
| 1104515-002DMS | Selenium | mg/L | SW6020A | 0.203 | 0.2000 | 0.0009580 | 101 | 75-125 | | | | 5/3/2011 0109h |
| 1104515-002DMS | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0.003071 | 101 | 75-125 | | | | 5/3/2011 0109h |
| 1104515-001EMS | Manganese | mg/L | SW6020A | 0.842 | 0.2000 | 0.6704 | 85.7 | 75-125 | | | | 5/4/2011 1530h |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104515
**Project:** Scofield Baseline / Kinney #2

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1104515-002DMSD | Aluminum | mg/L | SW6010C | 1.12 | 1.000 | 0 | 112 | 75-125 | 0.0094 | 20 | | 5/11/2011 1157h |
| 1104515-002DMSD | Boron | mg/L | SW6010C | 1.10 | 1.000 | 0 | 110 | 75-125 | 0.491 | 20 | | 5/10/2011 1117h |
| 1104515-002DMSD | Calcium | mg/L | SW6010C | 83.0 | 10.00 | 76.41 | 65.5 | 75-125 | 0.464 | 20 | 2 | 5/10/2011 1038h |
| 1104515-002DMSD | Iron | mg/L | SW6010C | 1.09 | 1.000 | 0.06577 | 102 | 75-125 | 0.415 | 20 | | 5/10/2011 1117h |
| 1104515-002DMSD | Magnesium | mg/L | SW6010C | 16.4 | 10.00 | 6.582 | 98.1 | 75-125 | 0.642 | 20 | | 5/10/2011 1117h |
| 1104515-002DMSD | Molybdenum | mg/L | SW6010C | 0.200 | 0.2000 | 0 | 100 | 75-125 | 0.734 | 20 | | 5/10/2011 1117h |
| 1104515-002DMSD | Potassium | mg/L | SW6010C | 11.3 | 10.00 | 0.9687 | 103 | 75-125 | 1.1 | 20 | | 5/10/2011 1117h |
| 1104515-002DMSD | Sodium | mg/L | SW6010C | 28.2 | 10.00 | 18.31 | 98.4 | 75-125 | 1.35 | 20 | | 5/10/2011 1117h |
| 1104515-001EMSD | Iron | mg/L | SW6010C | 20.0 | 1.000 | 18.10 | 190 | 75-125 | 2.53 | 20 | 2 | 5/10/2011 1133h |
| 1104515-002DMSD | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0005670 | 100 | 75-125 | 0.0918 | 20 | | 5/3/2011 0114h |
| 1104515-002DMSD | Cadmium | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 75-125 | 1.13 | 20 | | 5/3/2011 0114h |
| 1104515-002DMSD | Copper | mg/L | SW6020A | 0.199 | 0.2000 | 0.001011 | 99.2 | 75-125 | 0.451 | 20 | | 5/3/2011 0114h |
| 1104515-002DMSD | Lead | mg/L | SW6020A | 0.202 | 0.2000 | 0.0003450 | 101 | 75-125 | 0.496 | 20 | | 5/3/2011 0114h |
| 1104515-002DMSD | Manganese | mg/L | SW6020A | 0.214 | 0.2000 | 0.01496 | 99.7 | 75-125 | 0.366 | 20 | | 5/3/2011 0114h |
| 1104515-002DMSD | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.0009580 | 100 | 75-125 | 0.45 | 20 | | 5/3/2011 0114h |
| 1104515-002DMSD | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0.003071 | 101 | 75-125 | 0.126 | 20 | | 5/3/2011 0114h |
| 1104515-001EMSD | Manganese | mg/L | SW6020A | 0.842 | 0.2000 | 0.6704 | 85.9 | 75-125 | 0.053 | 20 | | 5/4/2011 1536h |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104515
**Project:** Scofield Baseline / Kinney #2

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1104515-002ADUP | Total Dissolved Solids | mg/L | SM2540C | 408 | | 388.0 | | - | 5.03 | 5 | @ | 5/3/2011 1445h |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104515
**Project:** Scofield Baseline / Kinney #2

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R26463 | Chloride | mg/L | E300.0 | 4.88 | 5.000 | 0 | 97.7 | 90-110 | | | | 5/4/2011 1715h |
| LCS-R26463 | Sulfate | mg/L | E300.0 | 4.88 | 5.000 | 0 | 97.5 | 90-110 | | | | 5/4/2011 1715h |
| LCS-R26295 | Acidity | mg/L | SM2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | | | | 5/2/2011 0645h |
| LCS-R26307 | Alkalinity (as CaCO3) | mg/L | SM2320B | 52,500 | 50,000 | 0 | 105 | 90-110 | | | | 5/2/2011 1100h |
| LCS-12027 | Ammonia (as N) | mg/L | E350.1 | 0.978 | 1.000 | 0 | 97.8 | 90-110 | | | | 5/6/2011 1213h |
| LCS-R26272 | Nitrite (as N) | mg/L | E353.2 | 1.00 | 1.000 | 0 | 100 | 90-110 | | | | 4/29/2011 1645h |
| LCS-R26274 | Nitrate (as N) | mg/L | E353.2 | 1.02 | 1.000 | 0.005500 | 101 | 90-110 | | | | 4/29/2011 1646h |
| LCS-R26280 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 0.963 | 1.000 | 0 | 96.3 | 90-110 | | | | 4/29/2011 1814h |
| LCS-R26456 | Total Dissolved Solids | mg/L | SM2540C | 200 | 205.0 | 0 | 97.6 | 80-120 | | | | 5/3/2011 1445h |



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Jose Rocha
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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104515
**Project:** Scofield Baseline / Kinney #2

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R26463 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | | 5/4/2011 1651h |
| MB-R26463 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 5/4/2011 1651h |
| MB-R26295 | Acidity | mg/L | SM2310B | < 15.0 | | | | - | | | | 5/2/2011 0645h |
| MB-R26307 | Alkalinity (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 5/2/2011 1100h |
| MB-R26307 | Bicarbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 5/2/2011 1100h |
| MB-R26307 | Carbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 5/2/2011 1100h |
| MB-12027 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 5/6/2011 1211h |
| MB-R26272 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 4/29/2011 1644h |
| MB-R26274 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 4/29/2011 1644h |
| MB-R26280 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | < 0.0500 | | | | - | | | | 4/29/2011 1814h |
| MB-R26456 | Total Dissolved Solids | mg/L | SM2540C | < 10.0 | | | | - | | | | 5/3/2011 1445h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104515
**Project:** Scofield Baseline / Kinney #2

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1104515-002BMS | Chloride | mg/L | E300.0 | 72.0 | 50.00 | 24.39 | 95.1 | 90-110 | | | | 5/5/2011 0037h |
| 1104515-002BMS | Sulfate | mg/L | E300.0 | 89.4 | 50.00 | 42.34 | 94.2 | 90-110 | | | | 5/5/2011 0037h |
| 1104515-001BMS | Acidity | mg/L | SM2310B | 48.0 | 50.00 | 0 | 96.0 | 80-120 | | | | 5/2/2011 0645h |
| 1104515-001BMS | Alkalinity (as CaCO3) | mg/L | SM2320B | 329 | 100.0 | 227.5 | 102 | 80-120 | | | | 5/2/2011 1100h |
| 1104515-001CMS | Ammonia (as N) | mg/L | E350.1 | 0.0431 | 1.000 | 0 | 4.31 | 90-110 | | | 1 | 5/6/2011 1231h |
| 1104515-001BMS NO2 | Nitrite (as N) | mg/L | E353.2 | 1.27 | 1.000 | 0.2709 | 99.9 | 90-110 | | | | 4/29/2011 1720h |
| 1104515-001BMS NO3 | Nitrate (as N) | mg/L | E353.2 | 12.2 | 10.00 | 2.280 | 99.3 | 90-110 | | | | 4/29/2011 1725h |
| 1104515-001BMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.24 | 1.000 | 0.2502 | 98.6 | 90-110 | | | | 4/29/2011 1816h |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1104515
**Project:** Scofield Baseline / Kinney #2

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1104515-002BMSD | Chloride | mg/L | E300.0 | 73.0 | 50.00 | 24.39 | 97.1 | 90-110 | 1.38 | 20 | | 5/5/2011 0100h |
| 1104515-002BMSD | Sulfate | mg/L | E300.0 | 90.3 | 50.00 | 42.34 | 95.9 | 90-110 | 0.984 | 20 | | 5/5/2011 0100h |
| 1104515-001BMSD | Acidity | mg/L | SM2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | 4.08 | 0 | | 5/2/2011 0645h |
| 1104515-001BMSD | Alkalinity (as CaCO3) | mg/L | SM2320B | 326 | 100.0 | 227.5 | 98.0 | 80-120 | 1.07 | 10 | | 5/2/2011 1100h |
| 1104515-001CMSD | Ammonia (as N) | mg/L | E350.1 | 0.0351 | 1.000 | 0 | 3.51 | 90-110 | 20.5 | 10 | [1]@ | 5/6/2011 1233h |
| 1104515-001BMSD NO2 | Nitrite (as N) | mg/L | E353.2 | 1.26 | 1.000 | 0.2709 | 98.8 | 90-110 | 0.799 | 10 | | 4/29/2011 1722h |
| 1104515-001BMSD NO3 | Nitrate (as N) | mg/L | E353.2 | 11.8 | 10.00 | 2.280 | 95.5 | 90-110 | 3.14 | 10 | | 4/29/2011 1726h |
| 1104515-001BMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.36 | 1.000 | 0.2502 | 111 | 90-110 | 9.88 | 10 | [1] | 4/29/2011 1817h |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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# American West Analytical Laboratories

## WORK ORDER Summary

**Work Order:** **1104515**



**Client:** Carbon Resources

**Client ID:** CAR300 **Contact:** Brad Lindsay 5/3/2011

**Project:** Scofield Baseline / Kinney #2 **QC Level:** LEVEL II+ **WO Type:** Project

**Comments:** No Hard Copies. QC 2+, EDD. Filter and preserve dissolved metals.;

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1104515-001A | CR-10-11 | 4/29/2011 11:50:00 AM | 4/29/2011 4:19:00 PM | 5/13/2011 | Aqueous | TDS-W-2540C | ☐ | ww - tds | 1 |
| 1104515-001B | | | | 5/13/2011 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 5/13/2011 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 5/13/2011 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 5/13/2011 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 5/13/2011 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 5/13/2011 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1104515-001C | | | | 5/13/2011 | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | 5/13/2011 | | NH3-W-PR | ☐ | df - nh3 | |
| 1104515-001D | | | | 5/13/2011 | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | 5/13/2011 | | 6010C-DIS | ☑ | df - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 5/13/2011 | | 6020-DIS | ☑ | df - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 5/13/2011 | | HARD-2340B | ☐ | df - dis met | |
| 1104515-001E | | | | 5/13/2011 | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | 5/13/2011 | | 6010C-W | ☑ | df - metals | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 5/13/2011 | | 6020-W | ☑ | df - metals | |
| | SEL Analytes: MN | | | | | | | | |
| 1104515-002A | CR-10-12 | 4/29/2011 12:45:00 PM | | 5/13/2011 | | TDS-W-2540C | ☐ | ww - tds | |
| 1104515-002B | | | | 5/13/2011 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 5/13/2011 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 5/13/2011 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 5/13/2011 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 5/13/2011 | | NO3-W-353.2 | ☐ | DF - wc | |

# WORK ORDER Summary

**Work Order:** 1104515



**Client:** Carbon Resources

**Client ID:** CAR300 **Contact:** Brad Lindsay 5/3/2011

**Project:** Scofield Baseline / Kinney #2 **QC Level:** LEVEL II+ **WO Type:** Project

**Comments:** No Hard Copies. QC 2+, EDD. Filter and preserve dissolved metals.;

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1104515-002B | CR-10-12 | 4/29/2011 12:45:00 PM | 4/29/2011 4:19:00 PM | 5/13/2011 | Aqueous | PO4-O-365.1 | ☐ | DF - wc | 1 |
| 1104515-002C | | | | 5/13/2011 | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | 5/13/2011 | | NH3-W-PR | ☐ | df - nh3 | |
| 1104515-002D | | | | 5/13/2011 | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | 5/13/2011 | | 6010C-DIS | ☑ | df - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 5/13/2011 | | 6020-DIS | ☑ | df - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 5/13/2011 | | HARD-2340B | ☐ | df - dis met | |
| 1104515-002E | | | | 5/13/2011 | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | 5/13/2011 | | 6010C-W | ☑ | df - metals | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 5/13/2011 | | 6020-W | ☑ | df - metals | |
| | SEL Analytes: MN | | | | | | | | |

Client CARBON RESOURCES % ROCK LOCK

Address Box 944

CEDAR RIDGE CO 81413
City State Zip

Phone 970-260-0448 Fax

Contact GREG HUNT OR BRAD LINDAY

E-mail

Project Name SCOFIELD BASELINE (KINNEY 3)

Project Number/P.O.#

Sampler Name GREG HUNT


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# CHAIN OF CUSTODY

Lab Sample Set # 1104515

Page _____ of _____

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day Standard

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TESTS REQUIRED: TABLE 4 | QC LEVEL: 1 2 2+ 3 3+ 4 | COMMENTS |
|---|---|---|---|---|---|---|
| CR-10-11 | 4/28/11/11:50 | GW | 5 | ✓ | | |
| CR-10-12 | 4/28/11/12:45 | GW | 5 | ✓ | | |

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes:

3 Temperature 0.9°

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Checked at Bench
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME Sam R. Grimes | Time 16:19 / 3:00 DST | PRINT NAME Denise Bruun | Time 16:19 |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |

Special Instructions:

PLEASE FILTER

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Requirements
Baseline, Operational and Post-mining

| | | | | |
|---|---|---|---|---|
| | FIELD MEASUREMENTS | | | REPORTED AS |
| | * | - | Water level or Flow | Depth, Flow |
| 1 L HDPE | * | - | pH | Standard units |
| 1 L HDPE | * | - | Specific Conductivity | umhos/cm @ 25° C |
| 250 mL HDPE | * | - | Temperature | °C |
| 1 500 mL HNO3 | | | | |
| 1 250 mL H2SO4 | LABORATORY MEASUREMENTS | | | |
| | * | - | Total Dissolved Solids | mg/l |
| | * | - | Total Hardness ($CaCO_3$) | mg/l |
| | * | - | Total Alkalinity | mg/l |
| | | - | Acidity | mg/l |
| | | - | Aluminum (Dissolved) | mg/l |
| | | - | Arsenic (Dissolved) | mg/l |
| | | - | Boron (Dissolved)[1] | mg/l |
| | * | - | Carbonate | mg/l |
| | * | - | Bicarbonate | mg/l |
| | | - | Cadmium (Dissolved) | mg/l |
| | * | - | Calcium (Dissolved) | mg/l |
| | * | - | Chloride | mg/l |
| | | - | Copper (Dissolved) | mg/l |
| | * | - | Iron (Dissolved) | mg/l |
| | * | - | Iron (Total) | mg/l |
| | | - | Lead (Dissolved) | mg/l |
| | * | - | Magnesium (Dissolved) | mg/l |
| | * | - | Manganese (Dissolved) | mg/l |
| | * | - | Manganese (Total) | mg/l |
| | | - | Molybdenum (Dissolved) | mg/l |
| | | - | Ammonia | mg/l |
| | | - | Nitrates | mg/l |
| | | - | Nitrites | mg/l |
| | * | - | Potassium (Dissolved) | mg/l |
| | | - | Phosphate (Ortho) | mg/l |
| | | - | Selenium[1] (Dissolved) | mg/l |
| | * | - | Sodium (Dissolved) | mg/l |
| | * | - | Sulfate | mg/l |
| | | - | Zinc (Dissolved) | mg/l |
| | * | - | Cations | meq/l |
| | * | - | Anions | meq/l |

[1] These parameters will be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters required for Baseline monitoring.
* Indicates parameters required for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 1104515

## Preservation Check Sheet

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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ANALYTICAL LABORATORIES

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Kinny #2 Mine

Dear Brad Lindsay: Lab Set ID: 1106636

American West Analytical Laboratories received 5 sample(s) on 6/30/2011 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Kyle F. Gross
Digitally signed by Kyle F. Gross
DN: cn=Kyle F. Gross, o=AWAL, ou=AWAL, email=kyle@awal-labs.com, c=US
Date: 2011.07.14 07:56:26 -06'00'

Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-001
**Client Sample ID:** Aspen Spring
**Collection Date:** 6/29/2011 1431h
**Received Date:** 6/30/2011 1737h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 7/1/2011 1124h | 7/11/2011 1636h | SW6010C | 0.100 | < 0.100 | |
| Manganese | mg/L | 7/1/2011 1124h | 7/5/2011 0118h | SW6020A | 0.00120 | < 0.00120 | |

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-002
**Client Sample ID:** Mud Creek
**Collection Date:** 6/29/2011 1950h
**Received Date:** 6/30/2011 1737h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 7/1/2011 1124h | 7/11/2011 1700h | SW6010C | 0.100 | **1.58** | |
| Manganese | mg/L | 7/1/2011 1124h | 7/5/2011 0136h | SW6020A | 0.00120 | **0.0687** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-003
**Client Sample ID:** RES-1
**Collection Date:** 6/29/2011 2005h
**Received Date:** 6/30/2011 1737h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 7/1/2011 1124h | 7/11/2011 1703h | SW6010C | 0.100 | < 0.100 | |
| Manganese | mg/L | 7/1/2011 1124h | 7/5/2011 0203h | SW6020A | 0.00120 | **0.0198** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-004
**Client Sample ID:** Sulfur Spring
**Collection Date:** 6/30/2011 1410h
**Received Date:** 6/30/2011 1737h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 7/1/2011 1124h | 7/11/2011 1707h | SW6010C | 0.100 | < 0.100 | |
| Manganese | mg/L | 7/1/2011 1124h | 7/5/2011 0208h | SW6020A | 0.00120 | **0.0295** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-005
**Client Sample ID:** Miller Outlet
**Collection Date:** 6/30/2011 1440h
**Received Date:** 6/30/2011 1737h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 7/1/2011 1124h | 7/11/2011 1711h | SW6010C | 0.100 | **2.55** | |
| Manganese | mg/L | 7/1/2011 1124h | 7/5/2011 0214h | SW6020A | 0.00120 | **0.166** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-001
**Client Sample ID:** Aspen Spring
**Collection Date:** 6/29/2011 1431h
**Received Date:** 6/30/2011 1737h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 7/6/2011 1259h | 7/12/2011 1115h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 7/6/2011 1259h | 7/6/2011 2136h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 7/6/2011 1259h | 7/12/2011 1115h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 7/6/2011 1259h | 7/6/2011 2136h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 7/6/2011 1259h | 7/12/2011 1033h | SW6010C | 10.0 | **111** | [2] |
| Copper | mg/L | 7/6/2011 1259h | 7/6/2011 2136h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 7/6/2011 1259h | 7/12/2011 1021h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 7/6/2011 1259h | 7/6/2011 2136h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 7/6/2011 1259h | 7/12/2011 1033h | SW6010C | 10.0 | **13.8** | |
| Manganese | mg/L | 7/6/2011 1259h | 7/6/2011 2136h | SW6020A | 0.00120 | < 0.00120 | |
| Molybdenum | mg/L | 7/6/2011 1259h | 7/12/2011 1115h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 7/6/2011 1259h | 7/12/2011 1115h | SW6010C | 1.00 | **1.40** | |
| Selenium | mg/L | 7/6/2011 1259h | 7/6/2011 2136h | SW6020A | 0.000800 | **0.00178** | |
| Sodium | mg/L | 7/6/2011 1259h | 7/12/2011 1115h | SW6010C | 1.00 | **8.18** | |
| Zinc | mg/L | 7/6/2011 1259h | 7/6/2011 2136h | SW6020A | 0.00500 | < 0.00500 | |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*
*Analysis performed on a portion of the sample filtered at the laboratory on 7/1/2011 at 10:35 am.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-002
**Client Sample ID:** Mud Creek
**Collection Date:** 6/29/2011 1950h
**Received Date:** 6/30/2011 1737h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 7/6/2011 1259h | 7/12/2011 1127h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 7/6/2011 1259h | 7/6/2011 2226h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 7/6/2011 1259h | 7/12/2011 1127h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 7/6/2011 1259h | 7/6/2011 2226h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 7/6/2011 1259h | 7/12/2011 1046h | SW6010C | 10.0 | **55.6** | |
| Copper | mg/L | 7/6/2011 1259h | 7/6/2011 2226h | SW6020A | 0.000800 | **0.000949** | |
| Iron | mg/L | 7/6/2011 1259h | 7/12/2011 1037h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 7/6/2011 1259h | 7/6/2011 2226h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 7/6/2011 1259h | 7/12/2011 1046h | SW6010C | 10.0 | **16.7** | |
| Manganese | mg/L | 7/6/2011 1259h | 7/6/2011 2226h | SW6020A | 0.00120 | **0.0117** | |
| Molybdenum | mg/L | 7/6/2011 1259h | 7/12/2011 1127h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 7/6/2011 1259h | 7/12/2011 1127h | SW6010C | 1.00 | **2.47** | |
| Selenium | mg/L | 7/6/2011 1259h | 7/6/2011 2226h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 7/6/2011 1259h | 7/12/2011 1127h | SW6010C | 1.00 | **15.3** | |
| Zinc | mg/L | 7/6/2011 1259h | 7/6/2011 2226h | SW6020A | 0.00500 | **0.00862** | |

*Analysis performed on a portion of the sample filtered at the laboratory on 7/1/2011 at 10:35 am.*


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-003
**Client Sample ID:** RES-1
**Collection Date:** 6/29/2011 2005h
**Received Date:** 6/30/2011 1737h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 7/6/2011 1259h | 7/12/2011 1131h | SW6010C | 0.100 | **0.117** | |
| Arsenic | mg/L | 7/6/2011 1259h | 7/6/2011 2232h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 7/6/2011 1259h | 7/12/2011 1131h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 7/6/2011 1259h | 7/6/2011 2232h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 7/6/2011 1259h | 7/12/2011 1050h | SW6010C | 10.0 | **54.0** | |
| Copper | mg/L | 7/6/2011 1259h | 7/6/2011 2232h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 7/6/2011 1259h | 7/12/2011 1041h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 7/6/2011 1259h | 7/6/2011 2232h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 7/6/2011 1259h | 7/12/2011 1050h | SW6010C | 10.0 | **13.7** | |
| Manganese | mg/L | 7/6/2011 1259h | 7/6/2011 2232h | SW6020A | 0.00120 | **0.00132** | |
| Molybdenum | mg/L | 7/6/2011 1259h | 7/12/2011 1131h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 7/6/2011 1259h | 7/12/2011 1131h | SW6010C | 1.00 | **1.74** | |
| Selenium | mg/L | 7/6/2011 1259h | 7/6/2011 2232h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 7/6/2011 1259h | 7/12/2011 1131h | SW6010C | 1.00 | **7.25** | |
| Zinc | mg/L | 7/6/2011 1259h | 7/6/2011 2232h | SW6020A | 0.00500 | **0.00588** | |

*Analysis performed on a portion of the sample filtered at the laboratory on 7/1/2011 at 10:35 am.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-004
**Client Sample ID:** Sulfur Spring
**Collection Date:** 6/30/2011 1410h
**Received Date:** 6/30/2011 1737h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 7/6/2011 1259h | 7/12/2011 1135h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 7/6/2011 1259h | 7/6/2011 2238h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 7/6/2011 1259h | 7/12/2011 1135h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 7/6/2011 1259h | 7/6/2011 2238h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 7/6/2011 1259h | 7/12/2011 1055h | SW6010C | 10.0 | **89.9** | |
| Copper | mg/L | 7/6/2011 1259h | 7/6/2011 2238h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 7/6/2011 1259h | 7/12/2011 1045h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 7/6/2011 1259h | 7/6/2011 2238h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 7/6/2011 1259h | 7/12/2011 1055h | SW6010C | 10.0 | **37.7** | |
| Manganese | mg/L | 7/6/2011 1259h | 7/6/2011 2238h | SW6020A | 0.00120 | **0.0287** | |
| Molybdenum | mg/L | 7/6/2011 1259h | 7/12/2011 1135h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 7/6/2011 1259h | 7/12/2011 1135h | SW6010C | 1.00 | **5.15** | |
| Selenium | mg/L | 7/6/2011 1259h | 7/6/2011 2238h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 7/6/2011 1259h | 7/12/2011 1135h | SW6010C | 1.00 | **9.14** | |
| Zinc | mg/L | 7/6/2011 1259h | 7/6/2011 2238h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory on 7/1/2011 at 10:35 am.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-005
**Client Sample ID:** Miller Outlet
**Collection Date:** 6/30/2011 1440h
**Received Date:** 6/30/2011 1737h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 7/6/2011 1259h | 7/12/2011 1139h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 7/6/2011 1259h | 7/6/2011 2243h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 7/6/2011 1259h | 7/12/2011 1139h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 7/6/2011 1259h | 7/6/2011 2243h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 7/6/2011 1259h | 7/12/2011 1059h | SW6010C | 10.0 | **82.3** | |
| Copper | mg/L | 7/6/2011 1259h | 7/6/2011 2243h | SW6020A | 0.000800 | **0.000852** | |
| Iron | mg/L | 7/6/2011 1259h | 7/12/2011 1101h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 7/6/2011 1259h | 7/6/2011 2243h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 7/6/2011 1259h | 7/12/2011 1059h | SW6010C | 10.0 | **16.0** | |
| Manganese | mg/L | 7/6/2011 1259h | 7/6/2011 2243h | SW6020A | 0.00120 | **0.0129** | |
| Molybdenum | mg/L | 7/6/2011 1259h | 7/12/2011 1139h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 7/6/2011 1259h | 7/12/2011 1139h | SW6010C | 1.00 | **1.98** | |
| Selenium | mg/L | 7/6/2011 1259h | 7/6/2011 2243h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 7/6/2011 1259h | 7/12/2011 1139h | SW6010C | 1.00 | **6.28** | |
| Zinc | mg/L | 7/6/2011 1259h | 7/6/2011 2243h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory on 7/1/2011 at 10:35 am.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-001
**Client Sample ID:** Aspen Spring
**Collection Date:** 6/29/2011 1431h
**Received Date:** 6/30/2011 1737h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Hardness (as CaCO3) | mg/L | | 7/12/2011 | SM2340B | 10.0 | **334** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-002
**Client Sample ID:** Mud Creek
**Collection Date:** 6/29/2011 1950h
**Received Date:** 6/30/2011 1737h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Hardness (as CaCO3) | mg/L | | 7/12/2011 | SM2340B | 10.0 | **208** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-003
**Client Sample ID:** RES-1
**Collection Date:** 6/29/2011 2005h
**Received Date:** 6/30/2011 1737h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Hardness (as CaCO3) | mg/L | | 7/12/2011 | SM2340B | 10.0 | **191** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-004
**Client Sample ID:** Sulfur Spring
**Collection Date:** 6/30/2011 1410h
**Received Date:** 6/30/2011 1737h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Hardness (as CaCO3) | mg/L | | 7/12/2011 | SM2340B | 10.0 | **380** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-005
**Client Sample ID:** Miller Outlet
**Collection Date:** 6/30/2011 1440h
**Received Date:** 6/30/2011 1737h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Hardness (as CaCO3) | mg/L | | 7/12/2011 | SM2340B | 10.0 | **271** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-001
**Client Sample ID:** Aspen Spring
**Collection Date:** 6/29/2011 1431h
**Received Date:** 6/30/2011 1737h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 7/1/2011 1100h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 7/1/2011 1015h | SM2320B | 20.0 | **274** | |
| Ammonia (as N) | mg/L | 7/11/2011 1202h | 7/11/2011 2014h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 7/1/2011 1015h | SM2320B | 20.0 | **274** | |
| Carbonate (as CaCO3) | mg/L | | 7/1/2011 1015h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 7/8/2011 2151h | E300.0 | 1.00 | **21.7** | |
| Nitrate (as N) | mg/L | | 7/1/2011 1158h | E353.2 | 0.100 | **4.03** | [1] |
| Nitrite (as N) | mg/L | | 7/1/2011 1132h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 7/5/2011 1227h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total (as P) | mg/L | 7/1/2011 1115h | 7/1/2011 1933h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 7/8/2011 2151h | E300.0 | 7.50 | **15.2** | |
| Total Dissolved Solids | mg/L | | 7/1/2011 1415h | SM2540C | 20.0 | **348** | |
| Total Suspended Solids | mg/L | | 7/1/2011 1600h | SM2540D | 3.00 | < 3.00 | |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-002
**Client Sample ID:** Mud Creek
**Collection Date:** 6/29/2011 1950h
**Received Date:** 6/30/2011 1737h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 7/1/2011 1100h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 7/1/2011 1015h | SM2320B | 20.0 | **174** | |
| Ammonia (as N) | mg/L | 7/11/2011 1202h | 7/11/2011 2015h | E350.1 | 0.0500 | **0.288** | |
| Bicarbonate (as CaCO3) | mg/L | | 7/1/2011 1015h | SM2320B | 20.0 | **167** | |
| Carbonate (as CaCO3) | mg/L | | 7/1/2011 1015h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 7/8/2011 2307h | E300.0 | 1.00 | **9.63** | |
| Nitrate (as N) | mg/L | | 7/1/2011 1139h | E353.2 | 0.0100 | **0.913** | |
| Nitrite (as N) | mg/L | | 7/1/2011 1139h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 7/5/2011 1227h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total (as P) | mg/L | 7/1/2011 1115h | 7/1/2011 1936h | SM4500-P-F | 0.0500 | **0.159** | |
| Sulfate | mg/L | | 7/8/2011 2307h | E300.0 | 7.50 | **36.1** | |
| Total Dissolved Solids | mg/L | | 7/1/2011 1415h | SM2540C | 20.0 | **224** | |
| Total Suspended Solids | mg/L | | 7/1/2011 1600h | SM2540D | 3.00 | **157** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-003
**Client Sample ID:** RES-1
**Collection Date:** 6/29/2011 2005h
**Received Date:** 6/30/2011 1737h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 7/1/2011 1100h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 7/1/2011 1015h | SM2320B | 20.0 | **167** | |
| Ammonia (as N) | mg/L | 7/11/2011 1202h | 7/11/2011 2010h | E350.1 | 0.0500 | **0.224** | |
| Bicarbonate (as CaCO3) | mg/L | | 7/1/2011 1015h | SM2320B | 20.0 | **167** | |
| Carbonate (as CaCO3) | mg/L | | 7/1/2011 1015h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 7/8/2011 2332h | E300.0 | 1.00 | **6.38** | |
| Nitrate (as N) | mg/L | | 7/1/2011 1140h | E353.2 | 0.0100 | **0.0590** | |
| Nitrite (as N) | mg/L | | 7/1/2011 1140h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 7/5/2011 1227h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total (as P) | mg/L | 7/1/2011 1115h | 7/1/2011 1936h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 7/8/2011 2332h | E300.0 | 7.50 | **16.8** | |
| Total Dissolved Solids | mg/L | | 7/1/2011 1415h | SM2540C | 20.0 | **192** | |
| Total Suspended Solids | mg/L | | 7/1/2011 1600h | SM2540D | 3.00 | **12.0** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-004
**Client Sample ID:** Sulfur Spring
**Collection Date:** 6/30/2011 1410h
**Received Date:** 6/30/2011 1737h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 7/1/2011 1100h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 7/1/2011 1015h | SM2320B | 40.0 | **335** | |
| Ammonia (as N) | mg/L | 7/11/2011 1202h | 7/11/2011 2016h | E350.1 | 0.0500 | **0.144** | |
| Bicarbonate (as CaCO3) | mg/L | | 7/1/2011 1015h | SM2320B | 40.0 | **335** | |
| Carbonate (as CaCO3) | mg/L | | 7/1/2011 1015h | SM2320B | 40.0 | < 40.0 | |
| Chloride | mg/L | | 7/8/2011 2357h | E300.0 | 1.00 | **6.45** | |
| Nitrate (as N) | mg/L | | 7/1/2011 1148h | E353.2 | 0.0100 | < 0.0100 | |
| Nitrite (as N) | mg/L | | 7/1/2011 1148h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 7/5/2011 1227h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total (as P) | mg/L | 7/1/2011 1115h | 7/1/2011 1937h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 7/8/2011 2357h | E300.0 | 7.50 | **46.7** | |
| Total Dissolved Solids | mg/L | | 7/1/2011 1415h | SM2540C | 20.0 | **396** | |
| Total Suspended Solids | mg/L | | 7/1/2011 1600h | SM2540D | 3.00 | **3.00** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Kinny #2 Mine
**Lab Sample ID:** 1106636-005
**Client Sample ID:** Miller Outlet
**Collection Date:** 6/30/2011 1440h
**Received Date:** 6/30/2011 1737h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 7/1/2011 1100h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 7/1/2011 1015h | SM2320B | 20.0 | **233** | |
| Ammonia (as N) | mg/L | 7/11/2011 1202h | 7/11/2011 2017h | E350.1 | 0.0500 | **0.0965** | |
| Bicarbonate (as CaCO3) | mg/L | | 7/1/2011 1015h | SM2320B | 20.0 | **226** | |
| Carbonate (as CaCO3) | mg/L | | 7/1/2011 1015h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 7/9/2011 0023h | E300.0 | 1.00 | **9.02** | |
| Nitrate (as N) | mg/L | | 7/1/2011 1150h | E353.2 | 0.0100 | **0.929** | |
| Nitrite (as N) | mg/L | | 7/1/2011 1150h | E353.2 | 0.0100 | **0.0145** | |
| Oil & Grease | mg/L | | 7/5/2011 1227h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total (as P) | mg/L | 7/1/2011 1115h | 7/1/2011 1938h | SM4500-P-F | 0.0500 | **0.237** | |
| Sulfate | mg/L | | 7/9/2011 0023h | E300.0 | 7.50 | **21.1** | |
| Total Dissolved Solids | mg/L | | 7/1/2011 1415h | SM2540C | 20.0 | **288** | |
| Total Suspended Solids | mg/L | | 7/1/2011 1600h | SM2540D | 3.00 | **188** | @ |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1106636
**Project:** Kinny #2 Mine

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-13149 | Aluminum | mg/L | SW6010C | 1.01 | 1.000 | 0 | 101 | 80-120 | | | | 7/12/2011 1029h |
| LCS-13149 | Boron | mg/L | SW6010C | 1.04 | 1.000 | 0 | 104 | 80-120 | | | | 7/12/2011 1029h |
| LCS-13149 | Calcium | mg/L | SW6010C | 9.91 | 10.00 | 0 | 99.1 | 80-120 | | | | 7/12/2011 1029h |
| LCS-13149 | Iron | mg/L | SW6010C | 1.00 | 1.000 | 0 | 100 | 80-120 | | | | 7/12/2011 1013h |
| LCS-13149 | Magnesium | mg/L | SW6010C | 10.4 | 10.00 | 0 | 104 | 80-120 | | | | 7/12/2011 1029h |
| LCS-13149 | Molybdenum | mg/L | SW6010C | 0.205 | 0.2000 | 0 | 103 | 80-120 | | | | 7/12/2011 1029h |
| LCS-13149 | Potassium | mg/L | SW6010C | 10.4 | 10.00 | 0 | 104 | 80-120 | | | | 7/12/2011 1029h |
| LCS-13149 | Sodium | mg/L | SW6010C | 10.5 | 10.00 | 0 | 105 | 80-120 | | | | 7/12/2011 1029h |
| LCS-13080 | Iron | mg/L | SW6010C | 1.04 | 1.000 | 0 | 104 | 80-120 | | | | 7/11/2011 1605h |
| LCS-13149 | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 7/6/2011 2131h |
| LCS-13149 | Cadmium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 85-115 | | | | 7/6/2011 2131h |
| LCS-13149 | Copper | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.8 | 85-115 | | | | 7/6/2011 2131h |
| LCS-13149 | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 7/6/2011 2131h |
| LCS-13149 | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 85-115 | | | | 7/6/2011 2131h |
| LCS-13149 | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 7/6/2011 2131h |
| LCS-13149 | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 85-115 | | | | 7/6/2011 2131h |
| LCS-13080 | Manganese | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.5 | 85-115 | | | | 7/4/2011 2343h |



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Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1106636
**Project:** Kinny #2 Mine

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-13149 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 7/12/2011 1025h |
| MB-13149 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 7/12/2011 1025h |
| MB-13149 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 7/12/2011 1025h |
| MB-13149 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 7/12/2011 1010h |
| MB-13149 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 7/12/2011 1025h |
| MB-13149 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 7/12/2011 1025h |
| MB-13149 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 7/12/2011 1025h |
| MB-13149 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 7/12/2011 1025h |
| MB-13080 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 7/11/2011 1601h |
| MB-13149 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 7/6/2011 2125h |
| MB-13149 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 7/6/2011 2125h |
| MB-13149 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 7/6/2011 2125h |
| MB-13149 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 7/6/2011 2125h |
| MB-13149 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 7/6/2011 2125h |
| MB-13149 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 7/6/2011 2125h |
| MB-13149 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 7/6/2011 2125h |
| MB-13080 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 7/4/2011 2337h |



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1106636
**Project:** Kinny #2 Mine

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1106636-001EMS | Aluminum | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 75-125 | | | | 7/12/2011 1119h |
| 1106636-001EMS | Boron | mg/L | SW6010C | 1.11 | 1.000 | 0.02479 | 109 | 75-125 | | | | 7/12/2011 1119h |
| 1106636-001EMS | Calcium | mg/L | SW6010C | 117 | 10.00 | 111.3 | 58.7 | 75-125 | | | [2] | 7/12/2011 1037h |
| 1106636-001EMS | Iron | mg/L | SW6010C | 1.01 | 1.000 | 0 | 101 | 75-125 | | | | 7/12/2011 1029h |
| 1106636-001EMS | Magnesium | mg/L | SW6010C | 24.2 | 10.00 | 13.77 | 104 | 75-125 | | | | 7/12/2011 1037h |
| 1106636-001EMS | Molybdenum | mg/L | SW6010C | 0.205 | 0.2000 | 0 | 103 | 75-125 | | | | 7/12/2011 1119h |
| 1106636-001EMS | Potassium | mg/L | SW6010C | 11.9 | 10.00 | 1.400 | 105 | 75-125 | | | | 7/12/2011 1119h |
| 1106636-001EMS | Sodium | mg/L | SW6010C | 18.5 | 10.00 | 8.175 | 104 | 75-125 | | | | 7/12/2011 1119h |
| 1106636-001FMS | Iron | mg/L | SW6010C | 1.07 | 1.000 | 0 | 107 | 75-125 | | | | 7/11/2011 1652h |
| 1106636-001EMS | Arsenic | mg/L | SW6020A | 0.203 | 0.2000 | 0.0003960 | 101 | 75-125 | | | | 7/6/2011 2215h |
| 1106636-001EMS | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | | | | 7/6/2011 2215h |
| 1106636-001EMS | Copper | mg/L | SW6020A | 0.200 | 0.2000 | 0.0006720 | 99.6 | 75-125 | | | | 7/6/2011 2215h |
| 1106636-001EMS | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 75-125 | | | | 7/6/2011 2215h |
| 1106636-001EMS | Manganese | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 75-125 | | | | 7/6/2011 2215h |
| 1106636-001EMS | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.001778 | 100 | 75-125 | | | | 7/6/2011 2215h |
| 1106636-001EMS | Zinc | mg/L | SW6020A | 1.00 | 1.000 | 0 | 100 | 75-125 | | | | 7/6/2011 2215h |
| 1106636-001FMS | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.8 | 75-125 | | | | 7/5/2011 0124h |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1106636
**Project:** Kinny #2 Mine

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1106636-001EMSD | Aluminum | mg/L | SW6010C | 1.04 | 1.000 | 0 | 104 | 75-125 | 1.84 | 20 | | 7/12/2011 1123h |
| 1106636-001EMSD | Boron | mg/L | SW6010C | 1.12 | 1.000 | 0.02479 | 110 | 75-125 | 0.75 | 20 | | 7/12/2011 1123h |
| 1106636-001EMSD | Calcium | mg/L | SW6010C | 117 | 10.00 | 111.3 | 54.2 | 75-125 | 0.386 | 20 | [2] | 7/12/2011 1042h |
| 1106636-001EMSD | Iron | mg/L | SW6010C | 1.02 | 1.000 | 0 | 102 | 75-125 | 0.985 | 20 | | 7/12/2011 1033h |
| 1106636-001EMSD | Magnesium | mg/L | SW6010C | 23.5 | 10.00 | 13.77 | 96.8 | 75-125 | 3.11 | 20 | | 7/12/2011 1042h |
| 1106636-001EMSD | Molybdenum | mg/L | SW6010C | 0.204 | 0.2000 | 0 | 102 | 75-125 | 0.43 | 20 | | 7/12/2011 1123h |
| 1106636-001EMSD | Potassium | mg/L | SW6010C | 12.1 | 10.00 | 1.400 | 107 | 75-125 | 1.09 | 20 | | 7/12/2011 1123h |
| 1106636-001EMSD | Sodium | mg/L | SW6010C | 18.7 | 10.00 | 8.175 | 105 | 75-125 | 0.746 | 20 | | 7/12/2011 1123h |
| 1106636-001FMSD | Iron | mg/L | SW6010C | 1.03 | 1.000 | 0 | 103 | 75-125 | 3.81 | 20 | | 7/11/2011 1656h |
| 1106636-001EMSD | Arsenic | mg/L | SW6020A | 0.203 | 0.2000 | 0.0003960 | 101 | 75-125 | 0.164 | 20 | | 7/6/2011 2220h |
| 1106636-001EMSD | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | 0.0869 | 20 | | 7/6/2011 2220h |
| 1106636-001EMSD | Copper | mg/L | SW6020A | 0.199 | 0.2000 | 0.0006720 | 99.2 | 75-125 | 0.412 | 20 | | 7/6/2011 2220h |
| 1106636-001EMSD | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 75-125 | 0.087 | 20 | | 7/6/2011 2220h |
| 1106636-001EMSD | Manganese | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 75-125 | 0.0418 | 20 | | 7/6/2011 2220h |
| 1106636-001EMSD | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.001778 | 99.9 | 75-125 | 0.393 | 20 | | 7/6/2011 2220h |
| 1106636-001EMSD | Zinc | mg/L | SW6020A | 1.00 | 1.000 | 0 | 100 | 75-125 | 0.332 | 20 | | 7/6/2011 2220h |
| 1106636-001FMSD | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | 0.249 | 20 | | 7/5/2011 0130h |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1106636
**Project:** Kinny #2 Mine

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1106636-005ADUP | Total Dissolved Solids | mg/L | SM2540C | 300 | | 288.0 | | - | 4.08 | 5 | | 7/1/2011 1415h |
| 1106636-005ADUP | Total Suspended Solids | mg/L | SM2540D | 176 | | 188.0 | | - | 6.59 | 5 | @ | 7/1/2011 1600h |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1106636
**Project:** Kinny #2 Mine

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R29034 | Chloride | mg/L | E300.0 | 4.96 | 5.000 | 0 | 99.1 | 90-110 | | | | 7/8/2011 1558h |
| LCS-R29034 | Sulfate | mg/L | E300.0 | 4.81 | 5.000 | 0 | 96.1 | 90-110 | | | | 7/8/2011 1558h |
| LCS-R28806 | Acidity | mg/L | SM2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | | | | 7/1/2011 1100h |
| LCS-R28756 | Alkalinity (as CaCO3) | mg/L | SM2320B | 49,200 | 50,000 | 0 | 98.4 | 90-110 | | | | 7/1/2011 1015h |
| LCS-13253 | Ammonia (as N) | mg/L | E350.1 | 0.921 | 1.000 | 0 | 92.1 | 90-110 | | | | 7/11/2011 2009h |
| LCS-R28759 | Nitrite (as N) | mg/L | E353.2 | 0.940 | 1.000 | 0 | 94.0 | 90-110 | | | | 7/1/2011 1129h |
| LCS-R28760 | Nitrate (as N) | mg/L | E353.2 | 1.01 | 1.000 | 0 | 101 | 90-110 | | | | 7/1/2011 1131h |
| LCS-R28876 | Oil & Grease | mg/L | E1664A | 37.0 | 40.00 | 2.200 | 87.0 | 78-114 | | | | 7/5/2011 1227h |
| LCS-3077 | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.912 | 1.000 | 0 | 91.2 | 90-110 | | | | 7/1/2011 1933h |
| LCS-R28838 | Total Dissolved Solids | mg/L | SM2540C | 196 | 205.0 | 0 | 95.6 | 80-120 | | | | 7/1/2011 1415h |
| LCS-R28814 | Total Suspended Solids | mg/L | SM2540D | 99.0 | 100.0 | 0 | 99.0 | 80-120 | | | | 7/1/2011 1600h |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1106636
**Project:** Kinny #2 Mine

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R29034 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | | 7/8/2011 1532h |
| MB-R29034 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 7/8/2011 1532h |
| MB-R28806 | Acidity | mg/L | SM2310B | < 15.0 | | | | - | | | | 7/1/2011 1100h |
| MB-R28756 | Alkalinity (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 7/1/2011 1015h |
| MB-R28756 | Bicarbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 7/1/2011 1015h |
| MB-R28756 | Carbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 7/1/2011 1015h |
| MB-13253 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 7/11/2011 2008h |
| MB-R28759 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 7/1/2011 1128h |
| MB-R28760 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 7/1/2011 1128h |
| MB-R28876 | Oil & Grease | mg/L | E1664A | < 3.00 | | | | - | | | | 7/5/2011 1227h |
| MB-13077 | Phosphate, Total (as P) | mg/L | SM4500-P-F | < 0.0500 | | | | - | | | | 7/1/2011 1932h |
| MB-R28838 | Total Dissolved Solids | mg/L | SM2540C | < 10.0 | | | | - | | | | 7/1/2011 1415h |
| MB-R28814 | Total Suspended Solids | mg/L | SM2540D | < 3.00 | | | | - | | | | 7/1/2011 1600h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1106636
**Project:** Kinny #2 Mine

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1106636-001BMS | Chloride | mg/L | E300.0 | 72.1 | 50.00 | 21.69 | 101 | 90-110 | | | | 7/8/2011 2216h |
| 1106636-001BMS | Sulfate | mg/L | E300.0 | 63.6 | 50.00 | 15.19 | 96.9 | 90-110 | | | | 7/8/2011 2216h |
| 1106636-001BMS | Acidity | mg/L | SM2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | | | | 7/1/2011 1100h |
| 1106636-001BMS | Alkalinity (as CaCO3) | mg/L | SM2320B | 367 | 100.0 | 273.9 | 93.5 | 80-120 | | | | 7/1/2011 1015h |
| 1106636-003DMS | Ammonia (as N) | mg/L | E350.1 | 1.15 | 1.000 | 0.2235 | 92.8 | 90-110 | | | | 7/11/2011 2011h |
| 1106636-001BMS NO2 | Nitrite (as N) | mg/L | E353.2 | 1.03 | 1.000 | 0 | 103 | 90-110 | | | | 7/1/2011 1134h |
| 1106636-001BMS NO3 | Nitrate (as N) | mg/L | E353.2 | 15.6 | 10.00 | 4.032 | 116 | 90-110 | | | [1] | 7/1/2011 1159h |
| 1106636-001DMS | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.942 | 1.000 | 0 | 94.2 | 90-110 | | | | 7/1/2011 1934h |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1106636
**Project:** Kinny #2 Mine

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1106636-001BMSD | Chloride | mg/L | E300.0 | 72.0 | 50.00 | 21.69 | 101 | 90-110 | 0.232 | 20 | | 7/8/2011 2242h |
| 1106636-001BMSD | Sulfate | mg/L | E300.0 | 63.7 | 50.00 | 15.19 | 97.1 | 90-110 | 0.177 | 20 | | 7/8/2011 2242h |
| 1106636-001BMSD | Acidity | mg/L | SM2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | 0 | 0 | | 7/1/2011 1100h |
| 1106636-001BMSD | Alkalinity (as CaCO3) | mg/L | SM2320B | 369 | 100.0 | 273.9 | 95.1 | 80-120 | 0.435 | 10 | | 7/1/2011 1015h |
| 1106636-003DMSD | Ammonia (as N) | mg/L | E350.1 | 1.14 | 1.000 | 0.2235 | 91.5 | 90-110 | 1.2 | 10 | | 7/11/2011 2012h |
| 1106636-001BMSD NO2 | Nitrite (as N) | mg/L | E353.2 | 0.958 | 1.000 | 0 | 95.8 | 90-110 | 7.11 | 10 | | 7/1/2011 1135h |
| 1106636-001BMSD NO3 | Nitrate (as N) | mg/L | E353.2 | 16.1 | 10.00 | 4.032 | 120 | 90-110 | 2.89 | 10 | [1] | 7/1/2011 1201h |
| 1106636-001DMSD | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.997 | 1.000 | 0 | 99.7 | 90-110 | 5.73 | 10 | | 7/1/2011 1935h |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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## WORK ORDER Summary

**Work Order:** 1106636
Page 1 of 5 7/7/2011

**Client:** Carbon Resources
**Client ID:** CAR300 **Contact:** Brad Lindsay
**Project:** Kinny #2 Mine **QC Level:** LEVEL II+ **WO Type:** Project
**Comments:** No Hard Copies. QC 2+, EDD/ Not enough volume received to do Total Settleable Solids, client was notified and he cancelled that for this time. Also, limited volume for NH3 & Total Phos, share!;

ss/cl

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1106636-001A | Aspen Spring | 6/29/2011 1431h | 6/30/2011 1737h | 7/14/2011 | Aqueous | TDS-W-2540C | ☐ | ww - ss/tss | 1 |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1106636-001B | | | | | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| 1106636-001C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1106636-001D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1106636-001E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1106636-001F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | SEL Analytes: MN | | | | | | | | |
| 1106636-002A | Mud Creek | 6/29/2011 1950h | | | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |

# WORK ORDER Summary

**Work Order:** 1106636

**Client:** Carbon Resources

 7/7/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1106636-002B | Mud Creek | 6/29/2011 1950h | 6/30/2011 1737h | 7/14/2011 | Aqueous | 300.0-W | ☑ | DF - wc | 1 |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| 1106636-002C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1106636-002D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1106636-002E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1106636-002F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1106636-003A | RES-1 | 6/29/2011 2005h | | | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1106636-003B | | | | | | 300.0-W | ☑ | DF - wc | |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |

# WORK ORDER Summary

**Work Order:** 1106636

**Client:** Carbon Resources

 7/7/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1106636-003C | RES-1 | 6/29/2011 2005h | 6/30/2011 1737h | 7/14/2011 | Aqueous | OGB-W-1664A | ☐ | ogb | 1 |
| 1106636-003D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1106636-003E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1106636-003F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | SEL Analytes: MN | | | | | | | | |
| 1106636-004A | Sulfur Spring | 6/30/2011 1410h | | | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1106636-004B | | | | | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| 1106636-004C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1106636-004D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1106636-004E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |

# WORK ORDER Summary

**Work Order:** 1106636

**Client:** Carbon Resources

 7/7/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1106636-004E | Sulfur Spring | 6/30/2011 1410h | 6/30/2011 1737h | 7/14/2011 | Aqueous | 6020-DIS | ☑ | DF - dis met | 2 |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1106636-004F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1106636-005A | Miller Outlet | 6/30/2011 1440h | | | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1106636-005B | | | | | | 300.0-W | ☑ | DF - wc | |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| 1106636-005C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1106636-005D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1106636-005E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1106636-005F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |

# WORK ORDER Summary

**Client:** Carbon Resources

**Work Order:** **1106636**



7/7/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1106636-005F | Miller Outlet | 6/30/2011 1440h | 6/30/2011 1737h | 7/14/2011 | Aqueous | 6020-W | ☑ | DF - total met | 1 |
| | **SEL Analytes: MN** | | | | | | | | |

Client Rock Logic (Carbon Resources)

Address _____

City State Zip

Phone 970-854-3405 Fax _____

Contact Brad Lindsay

E-mail lindsay.brad@gmail.com

Project Name Kinney #2 Mine

Project Number/P.O.# _____

Sampler Name Greg Hunt 970-260-9448 (cell)


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# CHAIN OF CUSTODY

Lab Sample Set # 1106636

Page _____ of _____

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day Standard

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | Table 3 (mod 4 Table) | TESTS REQUIRED | QC LEVEL | COMMENTS |
|---|---|---|---|---|---|---|---|
| Aspen Spring | 6/29/11 - 14:31 | SW | 5 | | | 1 2 (2+) 3 3+ 4 | |
| Mud Creek | 6/29/11 - 19:50 | SW | 5 | | | | |
| Res-1 | 6/29/11 - 20:05 | SW | 5 | | | | |
| Sulfur Spring | 6/30/11 - 14:10 | SW | 5 | | | | |
| Miller Outlet | 6/30/11 14:40 | SW | 5 | | | | |

A Paramater Change on Table 3 and Table 4 - Now TOTAL Phosphate instead of ortho-phosphate.

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME Greg Hunt | Time 17:37 | PRINT NAME Denise Bruun | Time 17:37 |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |

Special Instructions:

PLEASE FILTER

*Client was notified that no bottle received for Total Settleable Solids, client Canceled

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or Hand delivered
Notes:

2 Ambient or Chilled
Notes:

3 Temperature 5.8°

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Checked at Bench
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Requirements
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |

| | | LABORATORY MEASUREMENTS | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | ~~Total Settleable Solids~~ | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates ~~(Ortho)~~ Total | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

1/2 gal
1 L HDPE
1 L HDPE
250 mL HDPE
1 500 mL HNO3
2 250 mL H2SO4
1 CGB

[1] Parameters will be analyzed for baseline at all sites and included as operational at waste rock sites.
[2] O&G to be collected above and below mine sites.
\- Parameters required for Baseline monitoring.
* Parameters required for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 1106636

## Preservation Check Sheet

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Scofield Baseline - (Kinney Mine)

Dear Brad Lindsay: Lab Set ID: 1110160

American West Analytical Laboratories received 9 sample(s) on 10/11/2011 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado, Idaho, and Missouri. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Kyle F. Gross — Digitally signed by Kyle F. Gross DN: cn=Kyle F. Gross, o=AWAL, ou=AWAL, email=kyle@awal-labs.com, c=US Date: 2011.10.19 13:50:47 -06'00'

Laboratory Director or designee



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-001
**Client Sample ID:** LC-12
**Collection Date:** 10/10/2011 1215h
**Received Date:** 10/11/2011 1400h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/12/2011 1210h | 10/14/2011 1151h | SW6010C | 0.100 | < 0.100 | |
| Manganese | mg/L | 10/12/2011 1210h | 10/12/2011 2230h | SW6020A | 0.00120 | **0.0154** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-002
**Client Sample ID:** LC-13
**Collection Date:** 10/10/2011 1300h
**Received Date:** 10/11/2011 1400h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/12/2011 1210h | 10/14/2011 1207h | SW6010C | 0.100 | < 0.100 | |
| Manganese | mg/L | 10/12/2011 1210h | 10/12/2011 2320h | SW6020A | 0.00120 | **0.00136** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-003
**Client Sample ID:** LC-8
**Collection Date:** 10/10/2011 1130h
**Received Date:** 10/11/2011 1400h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/12/2011 1210h | 10/14/2011 1210h | SW6010C | 0.100 | **0.311** | |
| Manganese | mg/L | 10/12/2011 1210h | 10/12/2011 2326h | SW6020A | 0.00120 | **0.0182** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-004
**Client Sample ID:** LC-16
**Collection Date:** 10/10/2011 1400h
**Received Date:** 10/11/2011 1400h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/12/2011 1210h | 10/14/2011 1214h | SW6010C | 0.100 | **0.875** | |
| Manganese | mg/L | 10/12/2011 1210h | 10/12/2011 2332h | SW6020A | 0.00120 | **0.0668** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-005
**Client Sample ID:** LC-22
**Collection Date:** 10/10/2011 1530h
**Received Date:** 10/11/2011 1400h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/12/2011 1210h | 10/14/2011 1230h | SW6010C | 0.100 | < 0.100 | |
| Manganese | mg/L | 10/12/2011 1210h | 10/12/2011 2337h | SW6020A | 0.00120 | < 0.00120 | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-006
**Client Sample ID:** LC-23
**Collection Date:** 10/10/2011 1610h
**Received Date:** 10/11/2011 1400h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/12/2011 1210h | 10/14/2011 1234h | SW6010C | 0.100 | **0.298** | |
| Manganese | mg/L | 10/12/2011 1210h | 10/12/2011 2343h | SW6020A | 0.00120 | **0.0195** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-007
**Client Sample ID:** LC-24
**Collection Date:** 10/10/2011 1645h
**Received Date:** 10/11/2011 1400h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/12/2011 1210h | 10/14/2011 1238h | SW6010C | 0.100 | **0.115** | |
| Manganese | mg/L | 10/12/2011 1210h | 10/12/2011 2349h | SW6020A | 0.00120 | **0.0180** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-008
**Client Sample ID:** LC-25
**Collection Date:** 10/10/2011 1700h
**Received Date:** 10/11/2011 1400h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/12/2011 1210h | 10/14/2011 1242h | SW6010C | 0.100 | **0.113** | |
| Manganese | mg/L | 10/12/2011 1210h | 10/12/2011 2355h | SW6020A | 0.00120 | **0.00499** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-009
**Client Sample ID:** LC-26
**Collection Date:** 10/10/2011 1700h
**Received Date:** 10/11/2011 1400h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/12/2011 1210h | 10/14/2011 1246h | SW6010C | 0.100 | **0.439** | |
| Manganese | mg/L | 10/12/2011 1210h | 10/13/2011 0000h | SW6020A | 0.00120 | **0.00454** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-001
**Client Sample ID:** LC-12
**Collection Date:** 10/10/2011 1215h
**Received Date:** 10/11/2011 1400h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/12/2011 1206h | 10/17/2011 1735h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/12/2011 1206h | 10/12/2011 2041h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/12/2011 1206h | 10/17/2011 1735h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/12/2011 1206h | 10/12/2011 2041h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/12/2011 1206h | 10/17/2011 1556h | SW6010C | 10.0 | **91.3** | [2] |
| Copper | mg/L | 10/12/2011 1206h | 10/12/2011 2041h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/12/2011 1206h | 10/17/2011 1735h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/12/2011 1206h | 10/12/2011 2041h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/12/2011 1206h | 10/17/2011 1735h | SW6010C | 1.00 | **14.2** | |
| Manganese | mg/L | 10/12/2011 1206h | 10/12/2011 2041h | SW6020A | 0.00120 | **0.0131** | |
| Molybdenum | mg/L | 10/12/2011 1206h | 10/17/2011 1735h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/12/2011 1206h | 10/17/2011 1735h | SW6010C | 1.00 | **1.63** | |
| Selenium | mg/L | 10/12/2011 1206h | 10/12/2011 2041h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/12/2011 1206h | 10/17/2011 1735h | SW6010C | 1.00 | **4.94** | |
| Zinc | mg/L | 10/12/2011 1206h | 10/12/2011 2041h | SW6020A | 0.00500 | < 0.00500 | |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*
*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-002
**Client Sample ID:** LC-13
**Collection Date:** 10/10/2011 1300h
**Received Date:** 10/11/2011 1400h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/12/2011 1206h | 10/17/2011 1746h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/12/2011 1206h | 10/12/2011 2112h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/12/2011 1206h | 10/17/2011 1746h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/12/2011 1206h | 10/12/2011 2112h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/12/2011 1206h | 10/17/2011 1613h | SW6010C | 10.0 | **97.8** | |
| Copper | mg/L | 10/12/2011 1206h | 10/12/2011 2112h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/12/2011 1206h | 10/17/2011 1746h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/12/2011 1206h | 10/12/2011 2112h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/12/2011 1206h | 10/17/2011 1746h | SW6010C | 1.00 | **13.0** | |
| Manganese | mg/L | 10/12/2011 1206h | 10/12/2011 2112h | SW6020A | 0.00120 | < 0.00120 | |
| Molybdenum | mg/L | 10/12/2011 1206h | 10/17/2011 1746h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/12/2011 1206h | 10/17/2011 1746h | SW6010C | 1.00 | **1.71** | |
| Selenium | mg/L | 10/12/2011 1206h | 10/12/2011 2112h | SW6020A | 0.000800 | **0.00108** | |
| Sodium | mg/L | 10/12/2011 1206h | 10/17/2011 1746h | SW6010C | 1.00 | **4.38** | |
| Zinc | mg/L | 10/12/2011 1206h | 10/12/2011 2112h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-003
**Client Sample ID:** LC-8
**Collection Date:** 10/10/2011 1130h
**Received Date:** 10/11/2011 1400h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/12/2011 1206h | 10/17/2011 1750h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/12/2011 1206h | 10/12/2011 2117h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/12/2011 1206h | 10/17/2011 1750h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/12/2011 1206h | 10/12/2011 2117h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/12/2011 1206h | 10/17/2011 1618h | SW6010C | 10.0 | **80.0** | |
| Copper | mg/L | 10/12/2011 1206h | 10/12/2011 2117h | SW6020A | 0.000800 | **0.000825** | |
| Iron | mg/L | 10/12/2011 1206h | 10/17/2011 1750h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/12/2011 1206h | 10/12/2011 2117h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/12/2011 1206h | 10/17/2011 1750h | SW6010C | 1.00 | **6.30** | |
| Manganese | mg/L | 10/12/2011 1206h | 10/12/2011 2117h | SW6020A | 0.00120 | **0.0127** | |
| Molybdenum | mg/L | 10/12/2011 1206h | 10/17/2011 1750h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/12/2011 1206h | 10/17/2011 1750h | SW6010C | 1.00 | **1.64** | |
| Selenium | mg/L | 10/12/2011 1206h | 10/12/2011 2117h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/12/2011 1206h | 10/17/2011 1750h | SW6010C | 1.00 | **4.44** | |
| Zinc | mg/L | 10/12/2011 1206h | 10/12/2011 2117h | SW6020A | 0.00500 | < 0.00500 | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-004
**Client Sample ID:** LC-16
**Collection Date:** 10/10/2011 1400h
**Received Date:** 10/11/2011 1400h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/12/2011 1206h | 10/17/2011 1754h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/12/2011 1206h | 10/12/2011 2123h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/12/2011 1206h | 10/17/2011 1754h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/12/2011 1206h | 10/12/2011 2123h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/12/2011 1206h | 10/17/2011 1622h | SW6010C | 10.0 | **82.8** | |
| Copper | mg/L | 10/12/2011 1206h | 10/12/2011 2123h | SW6020A | 0.000800 | **0.00126** | |
| Iron | mg/L | 10/12/2011 1206h | 10/17/2011 1754h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/12/2011 1206h | 10/12/2011 2123h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/12/2011 1206h | 10/17/2011 1754h | SW6010C | 1.00 | **14.1** | |
| Manganese | mg/L | 10/12/2011 1206h | 10/12/2011 2123h | SW6020A | 0.00120 | **0.0340** | |
| Molybdenum | mg/L | 10/12/2011 1206h | 10/17/2011 1754h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/12/2011 1206h | 10/17/2011 1754h | SW6010C | 1.00 | **2.85** | |
| Selenium | mg/L | 10/12/2011 1206h | 10/12/2011 2123h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/12/2011 1206h | 10/17/2011 1754h | SW6010C | 1.00 | **5.50** | |
| Zinc | mg/L | 10/12/2011 1206h | 10/12/2011 2123h | SW6020A | 0.00500 | < 0.00500 | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-005
**Client Sample ID:** LC-22
**Collection Date:** 10/10/2011 1530h
**Received Date:** 10/11/2011 1400h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/12/2011 1206h | 10/17/2011 1758h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/12/2011 1206h | 10/12/2011 2150h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/12/2011 1206h | 10/17/2011 1758h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/12/2011 1206h | 10/12/2011 2150h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/12/2011 1206h | 10/17/2011 1639h | SW6010C | 10.0 | **83.7** | |
| Copper | mg/L | 10/12/2011 1206h | 10/12/2011 2150h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/12/2011 1206h | 10/17/2011 1758h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/12/2011 1206h | 10/12/2011 2150h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/12/2011 1206h | 10/17/2011 1758h | SW6010C | 1.00 | **13.1** | |
| Manganese | mg/L | 10/12/2011 1206h | 10/12/2011 2150h | SW6020A | 0.00120 | < 0.00120 | |
| Molybdenum | mg/L | 10/12/2011 1206h | 10/17/2011 1758h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/12/2011 1206h | 10/17/2011 1758h | SW6010C | 1.00 | **2.33** | |
| Selenium | mg/L | 10/12/2011 1206h | 10/12/2011 2150h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/12/2011 1206h | 10/17/2011 1758h | SW6010C | 1.00 | **5.47** | |
| Zinc | mg/L | 10/12/2011 1206h | 10/12/2011 2150h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-006
**Client Sample ID:** LC-23
**Collection Date:** 10/10/2011 1610h
**Received Date:** 10/11/2011 1400h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/12/2011 1206h | 10/17/2011 1802h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/12/2011 1206h | 10/12/2011 2156h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/12/2011 1206h | 10/17/2011 1802h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/12/2011 1206h | 10/12/2011 2156h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/12/2011 1206h | 10/17/2011 1644h | SW6010C | 10.0 | **84.9** | |
| Copper | mg/L | 10/12/2011 1206h | 10/12/2011 2156h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/12/2011 1206h | 10/17/2011 1802h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/12/2011 1206h | 10/12/2011 2156h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/12/2011 1206h | 10/17/2011 1802h | SW6010C | 1.00 | **13.4** | |
| Manganese | mg/L | 10/12/2011 1206h | 10/12/2011 2156h | SW6020A | 0.00120 | **0.0111** | |
| Molybdenum | mg/L | 10/12/2011 1206h | 10/17/2011 1802h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/12/2011 1206h | 10/17/2011 1802h | SW6010C | 1.00 | **2.47** | |
| Selenium | mg/L | 10/12/2011 1206h | 10/12/2011 2156h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/12/2011 1206h | 10/17/2011 1802h | SW6010C | 1.00 | **5.56** | |
| Zinc | mg/L | 10/12/2011 1206h | 10/12/2011 2156h | SW6020A | 0.00500 | < 0.00500 | |

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Jose Rocha
QA Officer

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-007
**Client Sample ID:** LC-24
**Collection Date:** 10/10/2011 1645h
**Received Date:** 10/11/2011 1400h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/12/2011 1206h | 10/17/2011 1806h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/12/2011 1206h | 10/12/2011 2202h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/12/2011 1206h | 10/17/2011 1806h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/12/2011 1206h | 10/12/2011 2202h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/12/2011 1206h | 10/17/2011 1648h | SW6010C | 10.0 | **93.4** | |
| Copper | mg/L | 10/12/2011 1206h | 10/12/2011 2202h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/12/2011 1206h | 10/17/2011 1806h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/12/2011 1206h | 10/12/2011 2202h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/12/2011 1206h | 10/17/2011 1806h | SW6010C | 1.00 | **13.8** | |
| Manganese | mg/L | 10/12/2011 1206h | 10/12/2011 2202h | SW6020A | 0.00120 | **0.0141** | |
| Molybdenum | mg/L | 10/12/2011 1206h | 10/17/2011 1806h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/12/2011 1206h | 10/17/2011 1806h | SW6010C | 1.00 | **2.13** | |
| Selenium | mg/L | 10/12/2011 1206h | 10/12/2011 2202h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/12/2011 1206h | 10/17/2011 1806h | SW6010C | 1.00 | **6.44** | |
| Zinc | mg/L | 10/12/2011 1206h | 10/12/2011 2202h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-008
**Client Sample ID:** LC-25
**Collection Date:** 10/10/2011 1700h
**Received Date:** 10/11/2011 1400h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/12/2011 1206h | 10/17/2011 1810h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/12/2011 1206h | 10/12/2011 2207h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/12/2011 1206h | 10/17/2011 1810h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/12/2011 1206h | 10/12/2011 2207h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/12/2011 1206h | 10/17/2011 1652h | SW6010C | 10.0 | **101** | |
| Copper | mg/L | 10/12/2011 1206h | 10/12/2011 2207h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/12/2011 1206h | 10/17/2011 1810h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/12/2011 1206h | 10/12/2011 2207h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/12/2011 1206h | 10/17/2011 1810h | SW6010C | 1.00 | **14.9** | |
| Manganese | mg/L | 10/12/2011 1206h | 10/12/2011 2207h | SW6020A | 0.00120 | < 0.00120 | |
| Molybdenum | mg/L | 10/12/2011 1206h | 10/17/2011 1810h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/12/2011 1206h | 10/17/2011 1810h | SW6010C | 1.00 | **1.35** | |
| Selenium | mg/L | 10/12/2011 1206h | 10/12/2011 2207h | SW6020A | 0.000800 | **0.00115** | |
| Sodium | mg/L | 10/12/2011 1206h | 10/17/2011 1810h | SW6010C | 1.00 | **6.69** | |
| Zinc | mg/L | 10/12/2011 1206h | 10/12/2011 2207h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-009
**Client Sample ID:** LC-26
**Collection Date:** 10/10/2011 1700h
**Received Date:** 10/11/2011 1400h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/12/2011 1206h | 10/17/2011 1827h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/12/2011 1206h | 10/12/2011 2213h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/12/2011 1206h | 10/17/2011 1827h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/12/2011 1206h | 10/12/2011 2213h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/12/2011 1206h | 10/17/2011 1657h | SW6010C | 10.0 | **91.6** | |
| Copper | mg/L | 10/12/2011 1206h | 10/12/2011 2213h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/12/2011 1206h | 10/17/2011 1827h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/12/2011 1206h | 10/12/2011 2213h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/12/2011 1206h | 10/17/2011 1827h | SW6010C | 1.00 | **14.5** | |
| Manganese | mg/L | 10/12/2011 1206h | 10/12/2011 2213h | SW6020A | 0.00120 | < 0.00120 | |
| Molybdenum | mg/L | 10/12/2011 1206h | 10/17/2011 1827h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/12/2011 1206h | 10/17/2011 1827h | SW6010C | 1.00 | **1.55** | |
| Selenium | mg/L | 10/12/2011 1206h | 10/12/2011 2213h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/12/2011 1206h | 10/17/2011 1827h | SW6010C | 1.00 | **5.75** | |
| Zinc | mg/L | 10/12/2011 1206h | 10/12/2011 2213h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-001
**Client Sample ID:** LC-12
**Collection Date:** 10/10/2011 1215h
**Received Date:** 10/11/2011 1400h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/12/2011 1140h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **253** | |
| Ammonia (as N) | mg/L | 10/13/2011 1031h | 10/14/2011 1542h | E350.1 | 0.0500 | **0.0588** | |
| Bicarbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **253** | |
| Carbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/12/2011 1848h | SM4500-Cl-E | 5.00 | < 5.00 | |
| Hardness (as CaCO3) | mg/L | | 10/18/2011 | SM2340B | 10.0 | **287** | |
| Nitrate (as N) | mg/L | | 10/12/2011 0856h | E353.2 | 0.100 | **2.51** | 1 |
| Nitrite (as N) | mg/L | | 10/12/2011 0832h | E353.2 | 0.0100 | < 0.0100 | 1 |
| Oil & Grease | mg/L | | 10/12/2011 1302h | E1664A | 3.00 | **3.02** | |
| Phosphate, Total (as P) | mg/L | 10/12/2011 1125h | 10/12/2011 2154h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 10/12/2011 0950h | SM2540F | 0.100 | < 0.100 | |
| Sulfate | mg/L | | 10/13/2011 0700h | SM4500-SO4-E | 5.00 | **7.09** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **284** | |
| Total Suspended Solids | mg/L | | 10/11/2011 1730h | SM2540D | 3.00 | < 3.00 | |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-002
**Client Sample ID:** LC-13
**Collection Date:** 10/10/2011 1300h
**Received Date:** 10/11/2011 1400h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/12/2011 1140h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **269** | |
| Ammonia (as N) | mg/L | 10/13/2011 1031h | 10/14/2011 1544h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **269** | |
| Carbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/12/2011 1852h | SM4500-Cl-E | 5.00 | **5.23** | |
| Hardness (as CaCO3) | mg/L | | 10/18/2011 | SM2340B | 10.0 | **298** | |
| Nitrate (as N) | mg/L | | 10/12/2011 0839h | E353.2 | 0.0100 | **1.91** | |
| Nitrite (as N) | mg/L | | 10/12/2011 0839h | E353.2 | 0.0100 | < 0.0100 | |
| Phosphate, Total (as P) | mg/L | 10/12/2011 1125h | 10/12/2011 2156h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/13/2011 0700h | SM4500-SO4-E | 5.00 | < 5.00 | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **308** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-003
**Client Sample ID:** LC-8
**Collection Date:** 10/10/2011 1130h
**Received Date:** 10/11/2011 1400h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/12/2011 1140h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **195** | |
| Ammonia (as N) | mg/L | 10/13/2011 1031h | 10/14/2011 1547h | E350.1 | 0.0500 | **0.0946** | |
| Bicarbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **195** | |
| Carbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/12/2011 1853h | SM4500-Cl-E | 5.00 | < 5.00 | |
| Hardness (as CaCO3) | mg/L | | 10/18/2011 | SM2340B | 10.0 | **226** | |
| Nitrate (as N) | mg/L | | 10/12/2011 0858h | E353.2 | 0.100 | **6.27** | |
| Nitrite (as N) | mg/L | | 10/12/2011 0840h | E353.2 | 0.0100 | **0.0160** | |
| Oil & Grease | mg/L | | 10/12/2011 1302h | E1664A | 3.00 | **3.01** | |
| Phosphate, Total (as P) | mg/L | 10/12/2011 1125h | 10/12/2011 2157h | SM4500-P-F | 0.0500 | **0.0589** | |
| Settleable Solids | mL/L | | 10/12/2011 0950h | SM2540F | 0.100 | **0.100** | |
| Sulfate | mg/L | | 10/13/2011 0700h | SM4500-SO4-E | 5.00 | < 5.00 | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **244** | |
| Total Suspended Solids | mg/L | | 10/11/2011 1730h | SM2540D | 3.00 | **34.0** | @ |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-004
**Client Sample ID:** LC-16
**Collection Date:** 10/10/2011 1400h
**Received Date:** 10/11/2011 1400h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/12/2011 1140h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **233** | |
| Ammonia (as N) | mg/L | 10/13/2011 1031h | 10/14/2011 1548h | E350.1 | 0.0500 | **0.0502** | |
| Bicarbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **233** | |
| Carbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/12/2011 1854h | SM4500-Cl-E | 5.00 | **5.61** | |
| Hardness (as CaCO3) | mg/L | | 10/18/2011 | SM2340B | 10.0 | **265** | |
| Nitrate (as N) | mg/L | | 10/12/2011 0848h | E353.2 | 0.0100 | **1.08** | |
| Nitrite (as N) | mg/L | | 10/12/2011 0848h | E353.2 | 0.0100 | < 0.0100 | |
| Phosphate, Total (as P) | mg/L | 10/12/2011 1125h | 10/12/2011 2157h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/13/2011 0700h | SM4500-SO4-E | 5.00 | < 5.00 | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **276** | |
| Total Suspended Solids | mg/L | | 10/11/2011 1730h | SM2540D | 3.00 | **24.0** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-005
**Client Sample ID:** LC-22
**Collection Date:** 10/10/2011 1530h
**Received Date:** 10/11/2011 1400h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/12/2011 1140h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **234** | |
| Ammonia (as N) | mg/L | 10/13/2011 1031h | 10/14/2011 1549h | E350.1 | 0.0500 | **0.0646** | |
| Bicarbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **234** | |
| Carbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/12/2011 1855h | SM4500-Cl-E | 5.00 | **5.62** | |
| Hardness (as CaCO3) | mg/L | | 10/18/2011 | SM2340B | 10.0 | **263** | |
| Nitrate (as N) | mg/L | | 10/12/2011 0850h | E353.2 | 0.0100 | **0.928** | |
| Nitrite (as N) | mg/L | | 10/12/2011 0850h | E353.2 | 0.0100 | < 0.0100 | |
| Phosphate, Total (as P) | mg/L | 10/12/2011 1125h | 10/12/2011 2158h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/13/2011 0700h | SM4500-SO4-E | 5.00 | < 5.00 | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **268** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-006
**Client Sample ID:** LC-23
**Collection Date:** 10/10/2011 1610h
**Received Date:** 10/11/2011 1400h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/12/2011 1140h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **231** | |
| Ammonia (as N) | mg/L | 10/13/2011 1031h | 10/14/2011 1551h | E350.1 | 0.0500 | **0.0610** | |
| Bicarbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **231** | |
| Carbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/12/2011 1856h | SM4500-Cl-E | 5.00 | **5.54** | |
| Hardness (as CaCO3) | mg/L | | 10/18/2011 | SM2340B | 10.0 | **267** | |
| Nitrate (as N) | mg/L | | 10/12/2011 0851h | E353.2 | 0.0100 | **0.717** | |
| Nitrite (as N) | mg/L | | 10/12/2011 0851h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 10/12/2011 1302h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total (as P) | mg/L | 10/12/2011 1125h | 10/12/2011 2159h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 10/12/2011 0950h | SM2540F | 0.100 | **0.100** | |
| Sulfate | mg/L | | 10/13/2011 0700h | SM4500-SO4-E | 5.00 | < 5.00 | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **268** | |
| Total Suspended Solids | mg/L | | 10/11/2011 1730h | SM2540D | 3.00 | **20.0** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-007
**Client Sample ID:** LC-24
**Collection Date:** 10/10/2011 1645h
**Received Date:** 10/11/2011 1400h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/12/2011 1140h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **246** | |
| Ammonia (as N) | mg/L | 10/13/2011 1031h | 10/14/2011 1556h | E350.1 | 0.0500 | **0.0705** | |
| Bicarbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **246** | |
| Carbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/12/2011 1919h | SM4500-Cl-E | 5.00 | **10.1** | |
| Hardness (as CaCO3) | mg/L | | 10/18/2011 | SM2340B | 10.0 | **290** | |
| Nitrate (as N) | mg/L | | 10/12/2011 0852h | E353.2 | 0.0100 | **1.71** | |
| Nitrite (as N) | mg/L | | 10/12/2011 0852h | E353.2 | 0.0100 | **0.0130** | |
| Oil & Grease | mg/L | | 10/12/2011 1302h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total (as P) | mg/L | 10/12/2011 1125h | 10/12/2011 2201h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/13/2011 0700h | SM4500-SO4-E | 5.00 | **17.0** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **312** | |
| Total Suspended Solids | mg/L | | 10/11/2011 1730h | SM2540D | 3.00 | **6.00** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-008
**Client Sample ID:** LC-25
**Collection Date:** 10/10/2011 1700h
**Received Date:** 10/11/2011 1400h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/12/2011 1140h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **244** | |
| Ammonia (as N) | mg/L | 10/13/2011 1031h | 10/14/2011 1558h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **244** | |
| Carbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/12/2011 1920h | SM4500-Cl-E | 5.00 | **12.4** | |
| Hardness (as CaCO3) | mg/L | | 10/18/2011 | SM2340B | 10.0 | **314** | |
| Nitrate (as N) | mg/L | | 10/12/2011 0909h | E353.2 | 0.100 | **3.52** | |
| Nitrite (as N) | mg/L | | 10/12/2011 0854h | E353.2 | 0.0100 | < 0.0100 | |
| Phosphate, Total (as P) | mg/L | 10/12/2011 1125h | 10/12/2011 2201h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/13/2011 0700h | SM4500-SO4-E | 5.00 | **20.9** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **332** | |
| Total Suspended Solids | mg/L | | 10/11/2011 1730h | SM2540D | 3.00 | **8.00** | |

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QA Officer



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline - (Kinney Mine)
**Lab Sample ID:** 1110160-009
**Client Sample ID:** LC-26
**Collection Date:** 10/10/2011 1700h
**Received Date:** 10/11/2011 1400h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/12/2011 1140h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **248** | |
| Ammonia (as N) | mg/L | 10/13/2011 1031h | 10/14/2011 1559h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | **248** | |
| Carbonate (as CaCO3) | mg/L | | 10/12/2011 0800h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/12/2011 1922h | SM4500-Cl-E | 5.00 | **7.27** | |
| Hardness (as CaCO3) | mg/L | | 10/18/2011 | SM2340B | 10.0 | **288** | |
| Nitrate (as N) | mg/L | | 10/12/2011 0855h | E353.2 | 0.0100 | **1.77** | |
| Nitrite (as N) | mg/L | | 10/12/2011 0855h | E353.2 | 0.0100 | < 0.0100 | |
| Phosphate, Total (as P) | mg/L | 10/12/2011 1125h | 10/12/2011 2202h | SM4500-P-F | 0.0500 | **0.340** | |
| Sulfate | mg/L | | 10/13/2011 0700h | SM4500-SO4-E | 5.00 | **10.1** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **292** | |

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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110160
**Project:** Scofield Baseline - (Kinney Mine)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-14938 | Aluminum | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 80-120 | | | | 10/17/2011 1548h |
| LCS-14938 | Boron | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 80-120 | | | | 10/17/2011 1548h |
| LCS-14938 | Calcium | mg/L | SW6010C | 10.5 | 10.00 | 0 | 105 | 80-120 | | | | 10/17/2011 1548h |
| LCS-14938 | Iron | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 80-120 | | | | 10/17/2011 1548h |
| LCS-14938 | Magnesium | mg/L | SW6010C | 10.6 | 10.00 | 0 | 106 | 80-120 | | | | 10/17/2011 1548h |
| LCS-14938 | Molybdenum | mg/L | SW6010C | 0.213 | 0.2000 | 0 | 106 | 80-120 | | | | 10/17/2011 1548h |
| LCS-14938 | Potassium | mg/L | SW6010C | 10.4 | 10.00 | 0 | 104 | 80-120 | | | | 10/17/2011 1548h |
| LCS-14938 | Sodium | mg/L | SW6010C | 10.3 | 10.00 | 0 | 103 | 80-120 | | | | 10/17/2011 1548h |
| LCS-14939 | Iron | mg/L | SW6010C | 0.998 | 1.000 | 0 | 99.8 | 80-120 | | | | 10/14/2011 1143h |
| LCS-14938 | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 85-115 | | | | 10/12/2011 2033h |
| LCS-14938 | Cadmium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 10/12/2011 2033h |
| LCS-14938 | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 10/12/2011 2033h |
| LCS-14938 | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 10/12/2011 2033h |
| LCS-14938 | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 10/12/2011 2033h |
| LCS-14938 | Selenium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 10/12/2011 2033h |
| LCS-14938 | Zinc | mg/L | SW6020A | 1.00 | 1.000 | 0 | 100 | 85-115 | | | | 10/12/2011 2033h |
| LCS-14939 | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 85-115 | | | | 10/12/2011 2225h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110160
**Project:** Scofield Baseline - (Kinney Mine)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-14938 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 10/17/2011 1544h |
| MB-14938 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 10/17/2011 1544h |
| MB-14938 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/17/2011 1544h |
| MB-14938 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 10/17/2011 1544h |
| MB-14938 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/17/2011 1544h |
| MB-14938 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 10/17/2011 1544h |
| MB-14938 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/17/2011 1544h |
| MB-14938 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/17/2011 1544h |
| MB-14939 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 10/14/2011 1139h |
| MB-14938 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 10/12/2011 2028h |
| MB-14938 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 10/12/2011 2028h |
| MB-14938 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 10/12/2011 2028h |
| MB-14938 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 10/12/2011 2028h |
| MB-14938 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 10/12/2011 2028h |
| MB-14938 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 10/12/2011 2028h |
| MB-14938 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 10/12/2011 2028h |
| MB-14939 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 10/12/2011 2219h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110160
**Project:** Scofield Baseline - (Kinney Mine)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110160-001EMS | Aluminum | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 75-125 | | | | 10/17/2011 1739h |
| 1110160-001EMS | Boron | mg/L | SW6010C | 1.15 | 1.000 | 0 | 115 | 75-125 | | | | 10/17/2011 1739h |
| 1110160-001EMS | Calcium | mg/L | SW6010C | 97.3 | 10.00 | 91.30 | 60.0 | 75-125 | | | [2] | 10/17/2011 1605h |
| 1110160-001EMS | Iron | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 75-125 | | | | 10/17/2011 1739h |
| 1110160-001EMS | Magnesium | mg/L | SW6010C | 24.1 | 10.00 | 14.20 | 99.0 | 75-125 | | | | 10/17/2011 1739h |
| 1110160-001EMS | Molybdenum | mg/L | SW6010C | 0.214 | 0.2000 | 0 | 107 | 75-125 | | | | 10/17/2011 1739h |
| 1110160-001EMS | Potassium | mg/L | SW6010C | 11.9 | 10.00 | 1.630 | 103 | 75-125 | | | | 10/17/2011 1739h |
| 1110160-001EMS | Sodium | mg/L | SW6010C | 15.1 | 10.00 | 4.940 | 102 | 75-125 | | | | 10/17/2011 1739h |
| 1110160-001FMS | Iron | mg/L | SW6010C | 1.04 | 1.000 | 0.06260 | 97.7 | 75-125 | | | | 10/14/2011 1159h |
| 1110160-001EMS | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0.0002960 | 100 | 75-125 | | | | 10/12/2011 2058h |
| 1110160-001EMS | Cadmium | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 75-125 | | | | 10/12/2011 2058h |
| 1110160-001EMS | Copper | mg/L | SW6020A | 0.200 | 0.2000 | 0.0005230 | 99.5 | 75-125 | | | | 10/12/2011 2058h |
| 1110160-001EMS | Lead | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.5 | 75-125 | | | | 10/12/2011 2058h |
| 1110160-001EMS | Manganese | mg/L | SW6020A | 0.214 | 0.2000 | 0.01309 | 100 | 75-125 | | | | 10/12/2011 2058h |
| 1110160-001EMS | Selenium | mg/L | SW6020A | 0.198 | 0.2000 | 0 | 99.2 | 75-125 | | | | 10/12/2011 2058h |
| 1110160-001EMS | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 75-125 | | | | 10/12/2011 2058h |
| 1110160-001FMS | Manganese | mg/L | SW6020A | 0.217 | 0.2000 | 0.01541 | 101 | 75-125 | | | | 10/12/2011 2309h |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110160
**Project:** Scofield Baseline - (Kinney Mine)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110160-001EMSD | Aluminum | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 75-125 | 0.948 | 20 | | 10/17/2011 1743h |
| 1110160-001EMSD | Boron | mg/L | SW6010C | 1.15 | 1.000 | 0 | 115 | 75-125 | 0 | 20 | | 10/17/2011 1743h |
| 1110160-001EMSD | Calcium | mg/L | SW6010C | 99.2 | 10.00 | 91.30 | 79.0 | 75-125 | 1.93 | 20 | | 10/17/2011 1609h |
| 1110160-001EMSD | Iron | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 75-125 | 0 | 20 | | 10/17/2011 1743h |
| 1110160-001EMSD | Magnesium | mg/L | SW6010C | 24.0 | 10.00 | 14.20 | 98.0 | 75-125 | 0.416 | 20 | | 10/17/2011 1743h |
| 1110160-001EMSD | Molybdenum | mg/L | SW6010C | 0.219 | 0.2000 | 0 | 110 | 75-125 | 2.31 | 20 | | 10/17/2011 1743h |
| 1110160-001EMSD | Potassium | mg/L | SW6010C | 12.0 | 10.00 | 1.630 | 104 | 75-125 | 0.837 | 20 | | 10/17/2011 1743h |
| 1110160-001EMSD | Sodium | mg/L | SW6010C | 15.1 | 10.00 | 4.940 | 102 | 75-125 | 0 | 20 | | 10/17/2011 1743h |
| 1110160-001FMSD | Iron | mg/L | SW6010C | 1.06 | 1.000 | 0.06260 | 99.7 | 75-125 | 1.9 | 20 | | 10/14/2011 1203h |
| 1110160-001EMSD | Arsenic | mg/L | SW6020A | 0.202 | 0.2000 | 0.0002960 | 101 | 75-125 | 0.555 | 20 | | 10/12/2011 2104h |
| 1110160-001EMSD | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 75-125 | 0.963 | 20 | | 10/12/2011 2104h |
| 1110160-001EMSD | Copper | mg/L | SW6020A | 0.199 | 0.2000 | 0.0005230 | 99.3 | 75-125 | 0.158 | 20 | | 10/12/2011 2104h |
| 1110160-001EMSD | Lead | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.3 | 75-125 | 0.185 | 20 | | 10/12/2011 2104h |
| 1110160-001EMSD | Manganese | mg/L | SW6020A | 0.212 | 0.2000 | 0.01309 | 99.6 | 75-125 | 0.758 | 20 | | 10/12/2011 2104h |
| 1110160-001EMSD | Selenium | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.5 | 75-125 | 0.306 | 20 | | 10/12/2011 2104h |
| 1110160-001EMSD | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 75-125 | 0.0802 | 20 | | 10/12/2011 2104h |
| 1110160-001FMSD | Manganese | mg/L | SW6020A | 0.218 | 0.2000 | 0.01541 | 101 | 75-125 | 0.293 | 20 | | 10/12/2011 2314h |



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Kyle F. Gross
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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110160
**Project:** Scofield Baseline - (Kinney Mine)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110160-007ADUP | Total Dissolved Solids | mg/L | SM2540C | 328 | | 312.0 | | - | 5 | 5 | | 10/14/2011 1330h |
| 1110268-014ADUP | Total Dissolved Solids | mg/L | SM2540C | 360 | | 364.0 | | - | 1.1 | 5 | | 10/14/2011 1330h |
| 1110160-003ADUP | Total Suspended Solids | mg/L | SM2540D | 42.0 | | 34.00 | | - | 21.1 | 5 | @ | 10/12/2011 1500h |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110160
**Project:** Scofield Baseline - (Kinney Mine)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R32426 | Acidity | mg/L | SM2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | | | | 10/12/2011 1140h |
| LCS-R32418 | Alkalinity (as CaCO3) | mg/L | SM2320B | 48,400 | 50,000 | 0 | 96.8 | 90-110 | | | | 10/12/2011 0800h |
| LCS-R32439 | Chloride | mg/L | SM4500-Cl-E | 25.5 | 25.00 | 0 | 102 | 90-110 | | | | 10/12/2011 1847h |
| LCS-R32439 | Chloride | mg/L | SM4500-Cl-E | 25.3 | 25.00 | 0 | 101 | 90-110 | | | | 10/12/2011 1924h |
| LCS-14958 | Ammonia (as N) | mg/L | E350.1 | 1.05 | 1.000 | 0 | 105 | 90-110 | | | | 10/14/2011 1541h |
| LCS-R32409 | Nitrite (as N) | mg/L | E353.2 | 1.02 | 1.000 | 0 | 102 | 90-110 | | | | 10/12/2011 0829h |
| LCS-R32410 | Nitrate (as N) | mg/L | E353.2 | 1.04 | 1.000 | 0 | 104 | 90-110 | | | | 10/12/2011 0830h |
| LCS-R32471 | Oil & Grease | mg/L | E1664A | 36.8 | 40.00 | 0 | 92.0 | 78-114 | | | | 10/12/2011 1302h |
| LCS-14933 | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.970 | 1.000 | 0 | 97.0 | 90-110 | | | | 10/12/2011 2152h |
| LCS-R32460 | Sulfate | mg/L | SM4500-SO4-E | 968 | 1,000 | 0 | 96.8 | 90-110 | | | | 10/13/2011 0700h |
| LCS-R32637 | Total Dissolved Solids | mg/L | SM2540C | 202 | 205.0 | 0 | 98.5 | 80-120 | | | | 10/14/2011 1330h |
| LCS-R32638 | Total Dissolved Solids | mg/L | SM2540C | 198 | 205.0 | 0 | 96.6 | 80-120 | | | | 10/14/2011 1330h |
| LCS-R32416 | Total Suspended Solids | mg/L | SM2540D | 99.0 | 100.0 | 0 | 99.0 | 80-120 | | | | 10/11/2011 1730h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110160
**Project:** Scofield Baseline - (Kinney Mine)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R32426 | Acidity | mg/L | SM2310B | < 15.0 | | | | - | | | | 10/12/2011 1140h |
| MB-R32418 | Alkalinity (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 10/12/2011 0800h |
| MB-R32418 | Bicarbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 10/12/2011 0800h |
| MB-R32418 | Carbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 10/12/2011 0800h |
| MB-R32439 | Chloride | mg/L | SM4500-Cl-E | < 5.00 | | | | - | | | | 10/12/2011 1846h |
| MB-14958 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 10/14/2011 1540h |
| MB-R32409 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 10/12/2011 0828h |
| MB-R32410 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 10/12/2011 0828h |
| MB-R32471 | Oil & Grease | mg/L | E1664A | < 3.00 | | | | - | | | | 10/12/2011 1302h |
| MB-14933 | Phosphate, Total (as P) | mg/L | SM4500-P-F | < 0.0500 | | | | - | | | | 10/12/2011 2151h |
| MB-R32460 | Sulfate | mg/L | SM4500-SO4-E | < 5.00 | | | | - | | | | 10/13/2011 0700h |
| MB-R32637 | Total Dissolved Solids | mg/L | SM2540C | < 10.0 | | | | - | | | | 10/14/2011 1330h |
| MB-R32638 | Total Dissolved Solids | mg/L | SM2540C | < 10.0 | | | | - | | | | 10/14/2011 1330h |
| MB-R32416 | Total Suspended Solids | mg/L | SM2540D | < 3.00 | | | | - | | | | 10/11/2011 1730h |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110160
**Project:** Scofield Baseline - (Kinney Mine)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110160-009BMS | Acidity | mg/L | SM2310B | 48.0 | 50.00 | 0 | 96.0 | 80-120 | | | | 10/12/2011 1140h |
| 1110160-001BMS | Alkalinity (as CaCO3) | mg/L | SM2320B | 344 | 100.0 | 252.6 | 91.8 | 80-120 | | | | 10/12/2011 0800h |
| 1110160-001BMS | Chloride | mg/L | SM4500-Cl-E | 14.6 | 10.00 | 3.778 | 108 | 90-110 | | | | 10/12/2011 1849h |
| 1110160-002CMS | Ammonia (as N) | mg/L | E350.1 | 1.00 | 1.000 | 0 | 100 | 90-110 | | | | 10/14/2011 1545h |
| 1110160-001BMS | Nitrite (as N) | mg/L | E353.2 | 1.08 | 1.000 | 0 | 108 | 90-110 | | | | 10/12/2011 0833h |
| 1110160-001BMS | Nitrate (as N) | mg/L | E353.2 | 16.0 | 10.00 | 2.506 | 135 | 90-110 | | | [1] | 10/12/2011 0836h |
| 1110160-001DMS | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.937 | 1.000 | 0 | 93.7 | 90-110 | | | | 10/12/2011 2155h |
| 1110160-001BMS | Sulfate | mg/L | SM4500-SO4-E | 25.9 | 20.00 | 7.090 | 93.9 | 80-120 | | | | 10/13/2011 0700h |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110160
**Project:** Scofield Baseline - (Kinney Mine)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110160-009BMSD | Acidity | mg/L | SM2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | 8 | 0 | | 10/12/2011 1140h |
| 1110160-001BMSD | Alkalinity (as CaCO3) | mg/L | SM2320B | 349 | 100.0 | 252.6 | 96.7 | 80-120 | 1.41 | 10 | | 10/12/2011 0800h |
| 1110160-001BMSD | Chloride | mg/L | SM4500-Cl-E | 14.0 | 10.00 | 3.778 | 102 | 90-110 | 4.21 | 10 | | 10/12/2011 1850h |
| 1110160-002CMSD | Ammonia (as N) | mg/L | E350.1 | 1.03 | 1.000 | 0 | 103 | 90-110 | 2.72 | 10 | | 10/14/2011 1546h |
| 1110160-001BMSD | Nitrite (as N) | mg/L | E353.2 | 1.12 | 1.000 | 0 | 112 | 90-110 | 3.61 | 10 | [1] | 10/12/2011 0834h |
| 1110160-001BMSD | Nitrate (as N) | mg/L | E353.2 | 14.8 | 10.00 | 2.506 | 123 | 90-110 | 8.04 | 10 | [1] | 10/12/2011 0837h |
| 1110160-001DMSD | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.922 | 1.000 | 0 | 92.2 | 90-110 | 1.6 | 10 | | 10/12/2011 2155h |
| 1110160-001BMSD | Sulfate | mg/L | SM4500-SO4-E | 26.9 | 20.00 | 7.090 | 98.8 | 80-120 | 3.75 | 10 | | 10/13/2011 0700h |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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# American West Analytical Laboratories

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1 Resources

## WORK ORDER Summary

**Work Order:** **1110160**

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**Client:** Carbon Resources

**Client ID:** CAR300 **Contact:** Brad Lindsay

**Project:** Scofield Baseline - (Kinney Mine) **QC Level:** LEVEL II+ **WO Type:** Project

**Comments:** No Hard Copies. QC 2+, EDD;

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110160-001A | LC-12 | 10/10/2011 1215h | 10/11/2011 1400h | 10/25/2011 | Aqueous | SS-W-2540F | ☐ | ww - ss/tss/tds | 1 |
| | | | | | | TDS-W-2540C | ☐ | ww - ss/tss/tds | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss/tds | |
| 1110160-001B | | | | | | 300.0-W | ☑ | DF - wc | |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| 1110160-001C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110160-001D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110160-001E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110160-001F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |

# WORK ORDER Summary

**Work Order:** 1110160

**Client:** Carbon Resources

 10/11/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110160-002A | LC-13 | 10/10/2011 1300h | 10/11/2011 1400h | 10/25/2011 | Aqueous | TDS-W-2540C | ☐ | ww - tds | 1 |
| 1110160-002B | | | | | | 300.0-W | ☑ | DF - wc | |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| 1110160-002C | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110160-002D | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110160-002E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110160-003A | LC-8 | 10/10/2011 1130h | | | | SS-W-2540F | ☐ | ww - ss/tss/tds | 1 |
| | | | | | | TDS-W-2540C | ☐ | ww - ss/tss/tds | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss/tds | |
| 1110160-003B | | | | | | 300.0-W | ☑ | DF - wc | |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |

# WORK ORDER Summary

**Client:** Carbon Resources

**Work Order:** 1110160



10/11/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110160-003B | LC-8 | 10/10/2011 1130h | 10/11/2011 1400h | 10/25/2011 | Aqueous | NO2-W-353.2 | ☐ | DF - wc | 1 |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| 1110160-003C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110160-003D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110160-003E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110160-003F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110160-004A | LC-16 | 10/10/2011 1400h | | | | TDS-W-2540C | ☐ | ww - ss/tss/tds | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss/tds | |
| 1110160-004B | | | | | | 300.0-W | ☑ | DF - wc | |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| 1110160-004C | | | | | | | ☐ | no sample | |
| 1110160-004D | | | | 10/25/2011 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |

# WORK ORDER Summary

**Work Order:** 1110160

**Client:** Carbon Resources

 10/11/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110160-004D | LC-16 | 10/10/2011 1400h | 10/11/2011 1400h | 10/25/2011 | Aqueous | PO4-W-PR | ☐ | DF - nh3 | 1 |
| 1110160-004E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110160-004F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110160-005A | LC-22 | 10/10/2011 1530h | | | | TDS-W-2540C | ☐ | ww - tds | |
| 1110160-005B | | | | | | 300.0-W | ☑ | DF - wc | |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| 1110160-005C | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110160-005D | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110160-005E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |

# WORK ORDER Summary

**Work Order:** 1110160

**Client:** Carbon Resources

 10/11/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110160-005E | LC-22 | 10/10/2011 1530h | 10/11/2011 1400h | 10/25/2011 | Aqueous | 6020-DIS | ☑ | DF - dis met | 2 |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110160-006A | LC-23 | 10/10/2011 1610h | | | | SS-W-2540F | ☐ | ww - ss/tss/tds | 1 |
| | | | | | | TDS-W-2540C | ☐ | ww - ss/tss/tds | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss/tds | |
| 1110160-006B | | | | | | 300.0-W | ☑ | DF - wc | |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| 1110160-006C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110160-006D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110160-006E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110160-006F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110160-007A | LC-24 | 10/10/2011 1645h | | | | TDS-W-2540C | ☐ | ww -tss/tds | |

# WORK ORDER Summary

**Client:** Carbon Resources

**Work Order:** 1110160



10/11/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110160-007A | LC-24 | 10/10/2011 1645h | 10/11/2011 1400h | 10/25/2011 | Aqueous | TSS-W-2540D | ☐ | ww -tss/tds | 1 |
| 1110160-007B | | | | | | 300.0-W | ☑ | DF - wc | |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| 1110160-007C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110160-007D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110160-007E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110160-007F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110160-008A | LC-25 | 10/10/2011 1700h | | | | TDS-W-2540C | ☐ | ww - /tss/tds | |
| | | | | | | TSS-W-2540D | ☐ | ww - /tss/tds | |
| 1110160-008B | | | | | | 300.0-W | ☑ | DF - wc | |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |

# WORK ORDER Summary

**Client:** Carbon Resources

**Work Order:** 1110160



10/11/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110160-008B | LC-25 | 10/10/2011 1700h | 10/11/2011 1400h | 10/25/2011 | Aqueous | NO3-W-353.2 | ☐ | DF - wc | 1 |
| 1110160-008C | | | | | | | ☐ | no sample | |
| 1110160-008D | | | | 10/25/2011 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110160-008E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110160-008F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110160-009A | LC-26 | | | | | TDS-W-2540C | ☐ | ww - tds | |
| 1110160-009B | | | | | | 300.0-W | ☑ | DF - wc | |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| 1110160-009C | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110160-009D | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |

# WORK ORDER Summary

**Work Order:** **1110160**

**Client:** Carbon Resources

 10/11/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110160-009D | LC-26 | 10/10/2011 1700h | 10/11/2011 1400h | 10/25/2011 | Aqueous | 6020-W | ☑ | DF - total met | 1 |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110160-009E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |

Client: Carbon Resources c/o Rock Logic
Address: Box 514
Cedaredge CO 81413
City State Zip
Phone: 970-260-0446 Fax:
Contact: Greg Hunt or Brad Lindsay
E-mail:
Project Name: Scofield Baseline (Kinney Mine)
Project Number/P.O.#:
Sampler Name: Greg Hunt/Ben Grimes

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# CHAIN OF CUSTODY

Lab Sample Set # 1110160
Page ____ of ____

**Turn Around Time (Circle One)**
1 day 2 day 3 day 4 day 5 day Standard

| | Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TESTS REQUIRED: Table 4 | TESTS REQUIRED: Table 3 | COMMENTS |
|---|---|---|---|---|---|---|---|
| 1 | LC-12 | 10/10/11 12:15pm | surf. grd. | 6 | | ✓ | |
| 2 | LC-13 | 10/10/11 1:00pm | surf. grd. | 5 | ✓ | ✓ | |
| 3 | LC-8 | 10/10/11 11:30 am | surf. grd. | 6 | | ✓ | |
| 4 | LC-16 | 10/10/11 2:00 pm | surf. grd. | 5 | | ✓ | *missing ½ gal OCs |
| 5 | LC-22 | 10/10/11 3:30pm | surf. grd. | 3 | ✓ | | |
| 6 | LC-23 | 10/10/11 4:10 pm | surf. grd. | 6 | | ✓ | |
| 7 | LC-24 | 10/10/11 4:45pm | surf. grd. | 4 | | ✓ | *missing ½ gal |
| 8 | LC-25 | 10/10/11 5:00pm | surf. grd. | 4 | | ✓ | *missing ½ gal OCs |
| 9 | LC-26 | 10/10/11 5:00pm | grd. surf. | 5 | ✓ | | |

QC LEVEL: 1 2 (2+) 3 3+ 4

**LABORATORY USE ONLY**

SAMPLES WERE:
1 Shipped or hand delivered
Notes:
2 Ambient or Chilled
Notes:
3 Temperature 2.0
4 Received Broken/Leaking (Improperly Sealed) Y (N)
Notes:
5 Properly Preserved Y N
Checked at Bench N
Notes:
6 Received Within Holding Times Y N
Notes:

COC Tape Was:
1 Present on Outer Package Y N NA
2 Unbroken on Outer Package Y N NA
3 Present on Sample Y N NA
4 Unbroken on Sample Y N NA

Discrepancies Between Sample Labels and COC Record? Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME: Tyler Michael Berry | Time: 2:00pm | PRINT NAME: Elena Hayslett | Time: 1400 |
| | | | |
| | | | |
| | | | |

Special Instructions:
* spoke with Greg Hunt concerning missing sampling containers. Cancel Settleable solids for #4, 7, 8
Cancel OGs for #4 & #8.
eh

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Requirements
Baseline, Operational and Post-mining

| | | | | | REPORTED AS |
|---|---|---|---|---|---|
| | | | FIELD MEASUREMENTS | | |
| | * | - | Water level or Flow | | Depth, Flow |
| 1 L HDPE | * | - | pH | | Standard units |
| 1 L HDPE | * | - | Specific Conductivity | | umhos/cm @ 25° C |
| 250 mL HDPE | * | - | Temperature | | °C |
| 1 500 mL HNO3 | | | | | |
| 1 250 mL H2SO4 | | | | | |
| | | | LABORATORY MEASUREMENTS | | |
| | * | - | Total Dissolved Solids | | mg/l |
| | * | - | Total Hardness ($CaCO_3$) | | mg/l |
| | * | - | Total Alkalinity | | mg/l |
| | | - | Acidity | | mg/l |
| | | - | Aluminum (Dissolved) | | mg/l |
| | | - | Arsenic (Dissolved) | | mg/l |
| | | - | Boron (Dissolved)[1] | | mg/l |
| | * | - | Carbonate | | mg/l |
| | * | - | Bicarbonate | | mg/l |
| | | - | Cadmium (Dissolved) | | mg/l |
| | * | - | Calcium (Dissolved) | | mg/l |
| | * | - | Chloride | | mg/l |
| | | - | Copper (Dissolved) | | mg/l |
| | * | - | Iron (Dissolved) | | mg/l |
| | * | - | Iron (Total) | | mg/l |
| | | - | Lead (Dissolved) | mg/l | |
| | * | - | Magnesium (Dissolved) | | mg/l |
| | * | - | Manganese (Dissolved) | | mg/l |
| | * | - | Manganese (Total) | | mg/l |
| | | - | Molybdenum (Dissolved) | | mg/l |
| | | - | Ammonia | | mg/l |
| | | - | Nitrates | | mg/l |
| | | - | Nitrites | | mg/l |
| | * | - | Potassium (Dissolved) | | mg/l |
| | | - | ~~Phosphate (Ortho)~~ | | mg/l Changed to Total Phosphate per Greg Hunt 6/30/11 RW |
| | | - | Selenium[1] (Dissolved) | | mg/l |
| | * | - | Sodium (Dissolved) | | mg/l |
| | * | - | Sulfate | | mg/l |
| | | - | Zinc (Dissolved) | mg/l | |
| | * | - | Cations | | meq/l |
| | * | - | Anions | | meq/l |

[1] These parameters will be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters required for Baseline monitoring.
* Indicates parameters required for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Requirements
Baseline, Operational and Post-mining

| | | | | |
|---|---|---|---|---|
| | | FIELD MEASUREMENTS | | REPORTED AS |
| * | - | Water level or Flow | | Depth, Flow |
| * | - | pH | | Standard units |
| * | - | Specific Conductivity | | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | | mg/l |
| * | - | Temperature | | °C |
| | | LABORATORY MEASUREMENTS | | |
| * | - | Total Dissolved Solids | | mg/l |
| * | - | Total Settleable Solids | | (UPDES) |
| * | - | Total Suspended Solids | | mg/l |
| * | - | Total Hardness ($CaCO_3$) | | mg/l |
| * | - | Total Alkalinity ~ | | mg/l |
| | - | Acidity ~ | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved)[1] | | mg/l |
| * | - | Carbonate | | mg/l |
| * | - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| * | - | Calcium (Dissolved) | | mg/l |
| * | - | Chloride | | mg/l |
| | - | Copper (Dissolved) | | mg/l |
| * | - | Iron (Dissolved) | | mg/l |
| * | - | Iron (Total) ~ | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| * | - | Magnesium (Dissolved) | | mg/l |
| * | - | Manganese (Dissolved) | | mg/l |
| * | - | Manganese (Total) ~ | | mg/l |
| | - | Molybdenum (Dissolved) | | mg/l |
| | - | Ammonia ~ | | mg/l |
| | - | Nitrates ~ | | mg/l |
| | - | Nitrites ~ | | mg/l |
| * | - | Potassium (Dissolved) | | mg/l |
| | - | ~~Phosphates(Ortho)~~ | | mg/l Changed to Total Phosphate per Greg Hunt 6/30/11 -RW |
| | - | Selenium[1] (Dissolved) | | mg/l |
| * | - | Sodium (Dissolved) | | mg/l |
| * | - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| * | - | Oil & Grease[2] ~ | | mg/l |
| * | - | Cations | | meq/l |
| * | - | Anions | | meq/l |

1/2 gal HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 Amber L HCL

1 Parameters will be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters required for Baseline monitoring.
* Parameters required for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 1110160

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

American West
ANALYTICAL LABORATORIES

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Kinney Mine

Dear Brad Lindsay: Lab Set ID: 1110268

American West Analytical Laboratories received 14 sample(s) on 10/13/2011 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado, Idaho, and Missouri. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Kyle F. Gross
Digitally signed by Kyle F. Gross
DN: cn=Kyle F. Gross, o=AWAL, ou=AWAL, email=kyle@awal-labs.com, c=US
Date: 2011.10.26 15:12:28 -06'00'

Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-001
**Client Sample ID:** LC-30
**Collection Date:** 10/12/2011 0940h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/20/2011 2135h | 10/24/2011 1118h | SW6010C | 0.100 | **1.64** | [1] |
| Manganese | mg/L | 10/20/2011 2135h | 10/21/2011 1908h | SW6020A | 0.00120 | **0.0266** | |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-002
**Client Sample ID:** LC-32
**Collection Date:** 10/12/2011 1040h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/20/2011 2135h | 10/24/2011 1130h | SW6010C | 0.100 | **0.220** | |
| Manganese | mg/L | 10/20/2011 2135h | 10/21/2011 1925h | SW6020A | 0.00120 | **0.00988** | |


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-003
**Client Sample ID:** LC-35
**Collection Date:** 10/12/2011 1130h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/20/2011 2135h | 10/24/2011 1134h | SW6010C | 0.100 | **0.151** | |
| Manganese | mg/L | 10/20/2011 2135h | 10/21/2011 1930h | SW6020A | 0.00120 | **0.00216** | |

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-004
**Client Sample ID:** LC-42
**Collection Date:** 10/12/2011 1410h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/20/2011 2135h | 10/24/2011 1138h | SW6010C | 0.100 | **0.934** | |
| Manganese | mg/L | 10/20/2011 2135h | 10/21/2011 1936h | SW6020A | 0.00120 | **0.0630** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-005
**Client Sample ID:** LC-45
**Collection Date:** 10/12/2011 1630h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/20/2011 2135h | 10/24/2011 1142h | SW6010C | 0.100 | **0.190** | |
| Manganese | mg/L | 10/20/2011 2135h | 10/21/2011 1942h | SW6020A | 0.00120 | **0.00503** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-006
**Client Sample ID:** LC-39
**Collection Date:** 10/12/2011 1245h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/20/2011 2135h | 10/24/2011 1145h | SW6010C | 0.100 | **1.32** | |
| Manganese | mg/L | 10/20/2011 2135h | 10/21/2011 1948h | SW6020A | 0.00120 | **0.0541** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-007
**Client Sample ID:** LC-38
**Collection Date:** 10/12/2011 1222h
**Received Date:** 10/13/2011 1630h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/20/2011 2135h | 10/24/2011 1201h | SW6010C | 0.100 | **0.994** | |
| Manganese | mg/L | 10/20/2011 2135h | 10/21/2011 2015h | SW6020A | 0.00120 | **0.0571** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-008
**Client Sample ID:** LC-40
**Collection Date:** 10/12/2011 1330h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/20/2011 2135h | 10/24/2011 1205h | SW6010C | 0.100 | **2.96** | |
| Manganese | mg/L | 10/20/2011 2135h | 10/21/2011 2020h | SW6020A | 0.00120 | **0.187** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-009
**Client Sample ID:** Mud Creek
**Collection Date:** 10/13/2011
**Received Date:** 10/13/2011 1630h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/20/2011 2135h | 10/24/2011 1209h | SW6010C | 0.100 | **0.219** | |
| Manganese | mg/L | 10/20/2011 2135h | 10/21/2011 2026h | SW6020A | 0.00120 | **0.0227** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-010
**Client Sample ID:** Sulfur Spring
**Collection Date:** 10/13/2011 1200h
**Received Date:** 10/13/2011 1630h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/20/2011 2135h | 10/24/2011 1213h | SW6010C | 0.100 | < 0.100 | |
| Manganese | mg/L | 10/20/2011 2135h | 10/21/2011 2032h | SW6020A | 0.00120 | **0.0288** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-011
**Client Sample ID:** Miller Creek
**Collection Date:** 10/13/2011 1400h
**Received Date:** 10/13/2011 1630h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/20/2011 2135h | 10/24/2011 1217h | SW6010C | 0.100 | **2.16** | |
| Manganese | mg/L | 10/20/2011 2135h | 10/21/2011 2037h | SW6020A | 0.00120 | **0.105** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-012
**Client Sample ID:** Scofield Reservoir
**Collection Date:** 10/13/2011 1330h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/20/2011 2135h | 10/24/2011 1221h | SW6010C | 0.100 | **2.83** | |
| Manganese | mg/L | 10/20/2011 2135h | 10/21/2011 2043h | SW6020A | 0.00120 | **0.313** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-013
**Client Sample ID:** CR-10-12
**Collection Date:** 10/13/2011 1025h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/20/2011 2135h | 10/24/2011 1225h | SW6010C | 0.100 | **44.2** | |
| Manganese | mg/L | 10/20/2011 2135h | 10/21/2011 2049h | SW6020A | 0.00120 | **0.805** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-014
**Client Sample ID:** CR-10-11
**Collection Date:** 10/13/2011
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/20/2011 2135h | 10/24/2011 1229h | SW6010C | 0.100 | **7.25** | |
| Manganese | mg/L | 10/20/2011 2135h | 10/21/2011 2055h | SW6020A | 0.00120 | **0.169** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-001
**Client Sample ID:** LC-30
**Collection Date:** 10/12/2011 0940h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** — DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/17/2011 1612h | 10/24/2011 1351h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/17/2011 1612h | 10/18/2011 0700h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/17/2011 1612h | 10/24/2011 1351h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/17/2011 1612h | 10/18/2011 0700h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/17/2011 1612h | 10/24/2011 0854h | SW6010C | 10.0 | **107** | [2] |
| Copper | mg/L | 10/17/2011 1612h | 10/18/2011 0700h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/17/2011 1612h | 10/24/2011 1351h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/17/2011 1612h | 10/18/2011 0700h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/17/2011 1612h | 10/24/2011 1351h | SW6010C | 1.00 | **21.1** | |
| Manganese | mg/L | 10/17/2011 1612h | 10/18/2011 0700h | SW6020A | 0.00120 | **0.00263** | |
| Molybdenum | mg/L | 10/17/2011 1612h | 10/24/2011 1351h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/17/2011 1612h | 10/24/2011 1351h | SW6010C | 1.00 | **1.51** | |
| Selenium | mg/L | 10/17/2011 1612h | 10/18/2011 0700h | SW6020A | 0.000800 | **0.00169** | |
| Sodium | mg/L | 10/17/2011 1612h | 10/24/2011 1351h | SW6010C | 1.00 | **9.60** | |
| Zinc | mg/L | 10/17/2011 1612h | 10/18/2011 0700h | SW6020A | 0.00500 | < 0.00500 | |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-002
**Client Sample ID:** LC-32
**Collection Date:** 10/12/2011 1040h
**Received Date:** 10/13/2011 1630h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/17/2011 1612h | 10/24/2011 1402h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/17/2011 1612h | 10/18/2011 0756h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/17/2011 1612h | 10/24/2011 1402h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/17/2011 1612h | 10/18/2011 0756h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/17/2011 1612h | 10/24/2011 0911h | SW6010C | 10.0 | **105** | |
| Copper | mg/L | 10/17/2011 1612h | 10/18/2011 0756h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/17/2011 1612h | 10/24/2011 1402h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/17/2011 1612h | 10/18/2011 0756h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/17/2011 1612h | 10/24/2011 1402h | SW6010C | 1.00 | **15.8** | |
| Manganese | mg/L | 10/17/2011 1612h | 10/18/2011 0756h | SW6020A | 0.00120 | **0.00910** | |
| Molybdenum | mg/L | 10/17/2011 1612h | 10/24/2011 1402h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/17/2011 1612h | 10/24/2011 1402h | SW6010C | 1.00 | **1.62** | |
| Selenium | mg/L | 10/17/2011 1612h | 10/18/2011 0756h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/17/2011 1612h | 10/24/2011 1402h | SW6010C | 1.00 | **7.45** | |
| Zinc | mg/L | 10/17/2011 1612h | 10/18/2011 0756h | SW6020A | 0.00500 | < 0.00500 | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-003
**Client Sample ID:** LC-35
**Collection Date:** 10/12/2011 1130h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/17/2011 1612h | 10/24/2011 1406h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/17/2011 1612h | 10/18/2011 0802h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/17/2011 1612h | 10/24/2011 1406h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/17/2011 1612h | 10/18/2011 0802h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/17/2011 1612h | 10/24/2011 0915h | SW6010C | 10.0 | **109** | |
| Copper | mg/L | 10/17/2011 1612h | 10/18/2011 0802h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/17/2011 1612h | 10/24/2011 1406h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/17/2011 1612h | 10/18/2011 0802h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/17/2011 1612h | 10/24/2011 1406h | SW6010C | 1.00 | **18.1** | |
| Manganese | mg/L | 10/17/2011 1612h | 10/18/2011 0802h | SW6020A | 0.00120 | < 0.00120 | |
| Molybdenum | mg/L | 10/17/2011 1612h | 10/24/2011 1406h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/17/2011 1612h | 10/24/2011 1406h | SW6010C | 1.00 | **1.49** | |
| Selenium | mg/L | 10/17/2011 1612h | 10/18/2011 0802h | SW6020A | 0.000800 | **0.00186** | |
| Sodium | mg/L | 10/17/2011 1612h | 10/24/2011 1406h | SW6010C | 1.00 | **8.56** | |
| Zinc | mg/L | 10/17/2011 1612h | 10/18/2011 0802h | SW6020A | 0.00500 | < 0.00500 | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-004
**Client Sample ID:** LC-42
**Collection Date:** 10/12/2011 1410h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/17/2011 1612h | 10/24/2011 1410h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/17/2011 1612h | 10/18/2011 0807h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/17/2011 1612h | 10/24/2011 1410h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/17/2011 1612h | 10/18/2011 0807h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/17/2011 1612h | 10/24/2011 0920h | SW6010C | 10.0 | **95.2** | |
| Copper | mg/L | 10/17/2011 1612h | 10/18/2011 0807h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/17/2011 1612h | 10/24/2011 1410h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/17/2011 1612h | 10/18/2011 0807h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/17/2011 1612h | 10/24/2011 1410h | SW6010C | 1.00 | **14.6** | |
| Manganese | mg/L | 10/17/2011 1612h | 10/18/2011 0807h | SW6020A | 0.00120 | **0.0194** | |
| Molybdenum | mg/L | 10/17/2011 1612h | 10/24/2011 1410h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/17/2011 1612h | 10/24/2011 1410h | SW6010C | 1.00 | **2.24** | |
| Selenium | mg/L | 10/17/2011 1612h | 10/18/2011 0807h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/17/2011 1612h | 10/24/2011 1410h | SW6010C | 1.00 | **5.91** | |
| Zinc | mg/L | 10/17/2011 1612h | 10/18/2011 0807h | SW6020A | 0.00500 | < 0.00500 | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-005
**Client Sample ID:** LC-45
**Collection Date:** 10/12/2011 1630h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/17/2011 1612h | 10/24/2011 1427h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/17/2011 1612h | 10/18/2011 0813h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/17/2011 1612h | 10/24/2011 1427h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/17/2011 1612h | 10/18/2011 0813h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/17/2011 1612h | 10/24/2011 0937h | SW6010C | 10.0 | **103** | |
| Copper | mg/L | 10/17/2011 1612h | 10/18/2011 0813h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/17/2011 1612h | 10/24/2011 1427h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/17/2011 1612h | 10/18/2011 0813h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/17/2011 1612h | 10/24/2011 1427h | SW6010C | 1.00 | **13.8** | |
| Manganese | mg/L | 10/17/2011 1612h | 10/18/2011 0813h | SW6020A | 0.00120 | **0.00692** | |
| Molybdenum | mg/L | 10/17/2011 1612h | 10/24/2011 1427h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/17/2011 1612h | 10/24/2011 1427h | SW6010C | 1.00 | **1.24** | |
| Selenium | mg/L | 10/17/2011 1612h | 10/18/2011 0813h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/17/2011 1612h | 10/24/2011 1427h | SW6010C | 1.00 | **5.99** | |
| Zinc | mg/L | 10/17/2011 1612h | 10/18/2011 0813h | SW6020A | 0.00500 | < 0.00500 | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-006
**Client Sample ID:** LC-39
**Collection Date:** 10/12/2011 1245h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/17/2011 1612h | 10/24/2011 1431h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/17/2011 1612h | 10/18/2011 0819h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/17/2011 1612h | 10/24/2011 1431h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/17/2011 1612h | 10/18/2011 0819h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/17/2011 1612h | 10/24/2011 0941h | SW6010C | 10.0 | **98.1** | |
| Copper | mg/L | 10/17/2011 1612h | 10/18/2011 0819h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/17/2011 1612h | 10/24/2011 1431h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/17/2011 1612h | 10/18/2011 0819h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/17/2011 1612h | 10/24/2011 1431h | SW6010C | 1.00 | **13.1** | |
| Manganese | mg/L | 10/17/2011 1612h | 10/18/2011 0819h | SW6020A | 0.00120 | **0.00372** | |
| Molybdenum | mg/L | 10/17/2011 1612h | 10/24/2011 1431h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/17/2011 1612h | 10/24/2011 1431h | SW6010C | 1.00 | **2.00** | |
| Selenium | mg/L | 10/17/2011 1612h | 10/18/2011 0819h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/17/2011 1612h | 10/24/2011 1431h | SW6010C | 1.00 | **4.03** | |
| Zinc | mg/L | 10/17/2011 1612h | 10/18/2011 0819h | SW6020A | 0.00500 | < 0.00500 | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-007
**Client Sample ID:** LC-38
**Collection Date:** 10/12/2011 1222h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** — DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/17/2011 1612h | 10/24/2011 1435h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/17/2011 1612h | 10/18/2011 0825h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/17/2011 1612h | 10/24/2011 1435h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/17/2011 1612h | 10/18/2011 0825h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/17/2011 1612h | 10/24/2011 0945h | SW6010C | 10.0 | **99.6** | |
| Copper | mg/L | 10/17/2011 1612h | 10/18/2011 0825h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/17/2011 1612h | 10/24/2011 1435h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/17/2011 1612h | 10/18/2011 0825h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/17/2011 1612h | 10/24/2011 1435h | SW6010C | 1.00 | **14.6** | |
| Manganese | mg/L | 10/17/2011 1612h | 10/18/2011 0825h | SW6020A | 0.00120 | **0.00745** | |
| Molybdenum | mg/L | 10/17/2011 1612h | 10/24/2011 1435h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/17/2011 1612h | 10/24/2011 1435h | SW6010C | 1.00 | **2.12** | |
| Selenium | mg/L | 10/17/2011 1612h | 10/18/2011 0825h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/17/2011 1612h | 10/24/2011 1435h | SW6010C | 1.00 | **6.62** | |
| Zinc | mg/L | 10/17/2011 1612h | 10/18/2011 0825h | SW6020A | 0.00500 | < 0.00500 | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-008
**Client Sample ID:** LC-40
**Collection Date:** 10/12/2011 1330h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/17/2011 1612h | 10/24/2011 1439h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/17/2011 1612h | 10/18/2011 0830h | SW6020A | 0.000600 | **0.000738** | |
| Boron | mg/L | 10/17/2011 1612h | 10/24/2011 1439h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/17/2011 1612h | 10/18/2011 0830h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/17/2011 1612h | 10/24/2011 0950h | SW6010C | 10.0 | **104** | |
| Copper | mg/L | 10/17/2011 1612h | 10/18/2011 0830h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/17/2011 1612h | 10/24/2011 1439h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/17/2011 1612h | 10/18/2011 0830h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/17/2011 1612h | 10/24/2011 1439h | SW6010C | 1.00 | **24.3** | |
| Manganese | mg/L | 10/17/2011 1612h | 10/18/2011 0830h | SW6020A | 0.00120 | **0.0775** | |
| Molybdenum | mg/L | 10/17/2011 1612h | 10/24/2011 1439h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/17/2011 1612h | 10/24/2011 1439h | SW6010C | 1.00 | **3.32** | |
| Selenium | mg/L | 10/17/2011 1612h | 10/18/2011 0830h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/17/2011 1612h | 10/24/2011 1439h | SW6010C | 1.00 | **7.50** | |
| Zinc | mg/L | 10/17/2011 1612h | 10/18/2011 0830h | SW6020A | 0.00500 | < 0.00500 | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-009
**Client Sample ID:** Mud Creek
**Collection Date:** 10/13/2011
**Received Date:** 10/13/2011 1630h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/17/2011 1612h | 10/24/2011 1443h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/17/2011 1612h | 10/18/2011 0836h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/17/2011 1612h | 10/24/2011 1443h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/17/2011 1612h | 10/18/2011 0836h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/17/2011 1612h | 10/24/2011 0954h | SW6010C | 10.0 | **77.3** | |
| Copper | mg/L | 10/17/2011 1612h | 10/18/2011 0836h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/17/2011 1612h | 10/24/2011 1443h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/17/2011 1612h | 10/18/2011 0836h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/17/2011 1612h | 10/24/2011 1443h | SW6010C | 1.00 | **33.1** | |
| Manganese | mg/L | 10/17/2011 1612h | 10/18/2011 0836h | SW6020A | 0.00120 | **0.0171** | |
| Molybdenum | mg/L | 10/17/2011 1612h | 10/24/2011 1443h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/17/2011 1612h | 10/24/2011 1443h | SW6010C | 1.00 | **5.96** | |
| Selenium | mg/L | 10/17/2011 1612h | 10/18/2011 0836h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/17/2011 1612h | 10/24/2011 0954h | SW6010C | 10.0 | **40.0** | |
| Zinc | mg/L | 10/17/2011 1612h | 10/18/2011 0836h | SW6020A | 0.00500 | < 0.00500 | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-010
**Client Sample ID:** Sulfur Spring
**Collection Date:** 10/13/2011 1200h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** — DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/17/2011 1612h | 10/24/2011 1446h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/17/2011 1612h | 10/18/2011 0842h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/17/2011 1612h | 10/24/2011 1446h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/17/2011 1612h | 10/18/2011 0842h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/17/2011 1612h | 10/24/2011 0958h | SW6010C | 10.0 | **104** | |
| Copper | mg/L | 10/17/2011 1612h | 10/18/2011 0842h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/17/2011 1612h | 10/24/2011 1446h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/17/2011 1612h | 10/18/2011 0842h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/17/2011 1612h | 10/24/2011 1446h | SW6010C | 1.00 | **36.0** | |
| Manganese | mg/L | 10/17/2011 1612h | 10/18/2011 0842h | SW6020A | 0.00120 | **0.0284** | |
| Molybdenum | mg/L | 10/17/2011 1612h | 10/24/2011 1446h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/17/2011 1612h | 10/24/2011 1446h | SW6010C | 1.00 | **5.04** | |
| Selenium | mg/L | 10/17/2011 1612h | 10/18/2011 0842h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/17/2011 1612h | 10/24/2011 1446h | SW6010C | 1.00 | **8.94** | |
| Zinc | mg/L | 10/17/2011 1612h | 10/18/2011 0842h | SW6020A | 0.00500 | < 0.00500 | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-011
**Client Sample ID:** Miller Creek
**Collection Date:** 10/13/2011 1400h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** — DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/17/2011 1612h | 10/24/2011 1450h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/17/2011 1612h | 10/18/2011 0909h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/17/2011 1612h | 10/24/2011 1450h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/17/2011 1612h | 10/18/2011 0909h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/17/2011 1612h | 10/24/2011 1002h | SW6010C | 10.0 | **92.3** | |
| Copper | mg/L | 10/17/2011 1612h | 10/18/2011 0909h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/17/2011 1612h | 10/24/2011 1450h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/17/2011 1612h | 10/18/2011 0909h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/17/2011 1612h | 10/24/2011 1450h | SW6010C | 1.00 | **16.0** | |
| Manganese | mg/L | 10/17/2011 1612h | 10/18/2011 0909h | SW6020A | 0.00120 | **0.0173** | |
| Molybdenum | mg/L | 10/17/2011 1612h | 10/24/2011 1450h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/17/2011 1612h | 10/24/2011 1450h | SW6010C | 1.00 | **2.43** | |
| Selenium | mg/L | 10/17/2011 1612h | 10/18/2011 0909h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/17/2011 1612h | 10/24/2011 1450h | SW6010C | 1.00 | **6.53** | |
| Zinc | mg/L | 10/17/2011 1612h | 10/18/2011 0909h | SW6020A | 0.00500 | < 0.00500 | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-012
**Client Sample ID:** Scofield Reservoir
**Collection Date:** 10/13/2011 1330h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/17/2011 1612h | 10/24/2011 1454h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/17/2011 1612h | 10/18/2011 0914h | SW6020A | 0.000600 | **0.000964** | |
| Boron | mg/L | 10/17/2011 1612h | 10/24/2011 1454h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/17/2011 1612h | 10/18/2011 0914h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/17/2011 1612h | 10/24/2011 1007h | SW6010C | 10.0 | **58.4** | |
| Copper | mg/L | 10/17/2011 1612h | 10/18/2011 0914h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/17/2011 1612h | 10/24/2011 1454h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/17/2011 1612h | 10/18/2011 0914h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/17/2011 1612h | 10/24/2011 1454h | SW6010C | 1.00 | **15.5** | |
| Manganese | mg/L | 10/17/2011 1612h | 10/18/2011 0914h | SW6020A | 0.00120 | **0.0160** | |
| Molybdenum | mg/L | 10/17/2011 1612h | 10/24/2011 1454h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/17/2011 1612h | 10/24/2011 1454h | SW6010C | 1.00 | **2.31** | |
| Selenium | mg/L | 10/17/2011 1612h | 10/18/2011 0914h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/17/2011 1612h | 10/24/2011 1454h | SW6010C | 1.00 | **9.06** | |
| Zinc | mg/L | 10/17/2011 1612h | 10/18/2011 0914h | SW6020A | 0.00500 | < 0.00500 | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-013
**Client Sample ID:** CR-10-12
**Collection Date:** 10/13/2011 1025h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/17/2011 1612h | 10/24/2011 1458h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/17/2011 1612h | 10/18/2011 0920h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/17/2011 1612h | 10/24/2011 1458h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/17/2011 1612h | 10/18/2011 0920h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/17/2011 1612h | 10/24/2011 1011h | SW6010C | 10.0 | **95.4** | |
| Copper | mg/L | 10/17/2011 1612h | 10/18/2011 0920h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/17/2011 1612h | 10/24/2011 1458h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/17/2011 1612h | 10/18/2011 0920h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/17/2011 1612h | 10/24/2011 1458h | SW6010C | 1.00 | **7.33** | |
| Manganese | mg/L | 10/17/2011 1612h | 10/18/2011 0920h | SW6020A | 0.00120 | **0.00135** | |
| Molybdenum | mg/L | 10/17/2011 1612h | 10/24/2011 1458h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/17/2011 1612h | 10/24/2011 1458h | SW6010C | 1.00 | **1.03** | |
| Selenium | mg/L | 10/17/2011 1612h | 10/18/2011 0920h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 10/17/2011 1612h | 10/24/2011 1458h | SW6010C | 1.00 | **16.3** | |
| Zinc | mg/L | 10/17/2011 1612h | 10/18/2011 0920h | SW6020A | 0.00500 | **0.00648** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-014
**Client Sample ID:** CR-10-11
**Collection Date:** 10/13/2011
**Received Date:** 10/13/2011 1630h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/17/2011 1612h | 10/24/2011 1502h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/17/2011 1612h | 10/18/2011 0926h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/17/2011 1612h | 10/24/2011 1502h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/17/2011 1612h | 10/18/2011 0926h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/17/2011 1612h | 10/24/2011 1016h | SW6010C | 10.0 | **92.5** | 2 |
| Copper | mg/L | 10/17/2011 1612h | 10/18/2011 0926h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/17/2011 1612h | 10/24/2011 1502h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/17/2011 1612h | 10/18/2011 0926h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/17/2011 1612h | 10/24/2011 1502h | SW6010C | 1.00 | **12.2** | |
| Manganese | mg/L | 10/17/2011 1612h | 10/18/2011 0926h | SW6020A | 0.00120 | < 0.00120 | |
| Molybdenum | mg/L | 10/17/2011 1612h | 10/24/2011 1502h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/17/2011 1612h | 10/24/2011 1502h | SW6010C | 1.00 | **1.36** | |
| Selenium | mg/L | 10/17/2011 1612h | 10/18/2011 0926h | SW6020A | 0.000800 | **0.000976** | |
| Sodium | mg/L | 10/17/2011 1612h | 10/24/2011 1016h | SW6010C | 10.0 | **12.3** | 1 |
| Zinc | mg/L | 10/17/2011 1612h | 10/18/2011 0926h | SW6020A | 0.00500 | **0.0125** | |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*
*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-001
**Client Sample ID:** LC-30
**Collection Date:** 10/12/2011 0940h
**Received Date:** 10/13/2011 1630h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/14/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 20.0 | **277** | |
| Ammonia (as N) | mg/L | 10/18/2011 1202h | 10/20/2011 1921h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 20.0 | **277** | |
| Carbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/14/2011 1250h | SM4500-Cl-E | 5.00 | **16.3** | [1] |
| Hardness (as CaCO3) | mg/L | | 10/24/2011 | SM2340B | 10.0 | **354** | |
| Nitrate (as N) | mg/L | | 10/13/2011 2035h | E353.2 | 0.0100 | **1.20** | |
| Nitrite (as N) | mg/L | | 10/13/2011 2035h | E353.2 | 0.0100 | < 0.0100 | |
| Phosphate, Total (as P) | mg/L | 10/14/2011 0820h | 10/14/2011 1901h | SM4500-P-F | 0.0500 | **0.210** | [1] |
| Sulfate | mg/L | | 10/14/2011 0720h | SM4500-SO4-E | 12.5 | **28.6** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **368** | |

[1] - *Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-002
**Client Sample ID:** LC-32
**Collection Date:** 10/12/2011 1040h
**Received Date:** 10/13/2011 1630h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/14/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 20.0 | **259** | |
| Ammonia (as N) | mg/L | 10/18/2011 1202h | 10/20/2011 1918h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 20.0 | **259** | |
| Carbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/14/2011 1253h | SM4500-Cl-E | 5.00 | **10.6** | |
| Hardness (as CaCO3) | mg/L | | 10/24/2011 | SM2340B | 10.0 | **327** | |
| Nitrate (as N) | mg/L | | 10/13/2011 2055h | E353.2 | 0.0100 | **1.35** | |
| Nitrite (as N) | mg/L | | 10/13/2011 2055h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 10/17/2011 1400h | E1664A | 3.00 | **3.21** | |
| Phosphate, Total (as P) | mg/L | 10/14/2011 0820h | 10/14/2011 1903h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 10/14/2011 1000h | SM2540F | 0.100 | **0.300** | |
| Sulfate | mg/L | | 10/14/2011 0720h | SM4500-SO4-E | 5.00 | **17.4** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **316** | |
| Total Suspended Solids | mg/L | | 10/14/2011 1630h | SM2540D | 3.00 | **93.0** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-003
**Client Sample ID:** LC-35
**Collection Date:** 10/12/2011 1130h
**Received Date:** 10/13/2011 1630h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/14/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **272** | |
| Ammonia (as N) | mg/L | 10/18/2011 1202h | 10/20/2011 1923h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **272** | |
| Carbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | < 40.0 | |
| Chloride | mg/L | | 10/14/2011 1254h | SM4500-Cl-E | 5.00 | **13.8** | |
| Hardness (as CaCO3) | mg/L | | 10/24/2011 | SM2340B | 10.0 | **347** | |
| Nitrate (as N) | mg/L | | 10/13/2011 2056h | E353.2 | 0.0100 | **1.08** | |
| Nitrite (as N) | mg/L | | 10/13/2011 2056h | E353.2 | 0.0100 | < 0.0100 | |
| Phosphate, Total (as P) | mg/L | 10/14/2011 0820h | 10/14/2011 1904h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/14/2011 0720h | SM4500-SO4-E | 5.00 | **22.4** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **352** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-004
**Client Sample ID:** LC-42
**Collection Date:** 10/12/2011 1410h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/14/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **233** | |
| Ammonia (as N) | mg/L | 10/18/2011 1202h | 10/20/2011 1928h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **233** | |
| Carbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | < 40.0 | |
| Chloride | mg/L | | 10/14/2011 1255h | SM4500-Cl-E | 5.00 | **7.86** | |
| Hardness (as CaCO3) | mg/L | | 10/24/2011 | SM2340B | 10.0 | **298** | |
| Nitrate (as N) | mg/L | | 10/13/2011 2057h | E353.2 | 0.0100 | **0.975** | |
| Nitrite (as N) | mg/L | | 10/13/2011 2057h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 10/17/2011 1400h | E1664A | 3.00 | **3.00** | |
| Phosphate, Total (as P) | mg/L | 10/14/2011 0820h | 10/14/2011 1905h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 10/14/2011 1000h | SM2540F | 0.100 | **0.100** | |
| Sulfate | mg/L | | 10/14/2011 0720h | SM4500-SO4-E | 5.00 | **16.4** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **288** | |
| Total Suspended Solids | mg/L | | 10/14/2011 1630h | SM2540D | 3.00 | **44.0** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-005
**Client Sample ID:** LC-45
**Collection Date:** 10/12/2011 1630h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/14/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **253** | |
| Ammonia (as N) | mg/L | 10/18/2011 1202h | 10/20/2011 1930h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **253** | |
| Carbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | < 40.0 | |
| Chloride | mg/L | | 10/14/2011 1257h | SM4500-Cl-E | 5.00 | **8.50** | |
| Hardness (as CaCO3) | mg/L | | 10/24/2011 | SM2340B | 10.0 | **314** | |
| Nitrate (as N) | mg/L | | 10/13/2011 2133h | E353.2 | 0.0200 | **2.47** | |
| Nitrite (as N) | mg/L | | 10/13/2011 2059h | E353.2 | 0.0100 | < 0.0100 | |
| Phosphate, Total (as P) | mg/L | 10/14/2011 0820h | 10/14/2011 1905h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/14/2011 0720h | SM4500-SO4-E | 5.00 | **14.4** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **300** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-006
**Client Sample ID:** LC-39
**Collection Date:** 10/12/2011 1245h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/14/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **243** | |
| Ammonia (as N) | mg/L | 10/18/2011 1202h | 10/20/2011 1931h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **243** | |
| Carbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | < 40.0 | |
| Chloride | mg/L | | 10/14/2011 1258h | SM4500-Cl-E | 5.00 | **5.69** | |
| Hardness (as CaCO3) | mg/L | | 10/24/2011 | SM2340B | 10.0 | **299** | |
| Nitrate (as N) | mg/L | | 10/13/2011 2100h | E353.2 | 0.0100 | **1.46** | |
| Nitrite (as N) | mg/L | | 10/13/2011 2100h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 10/17/2011 1400h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total (as P) | mg/L | 10/14/2011 0820h | 10/14/2011 1906h | SM4500-P-F | 0.0500 | **0.102** | |
| Settleable Solids | mL/L | | 10/14/2011 1000h | SM2540F | 0.100 | **0.600** | |
| Sulfate | mg/L | | 10/14/2011 0720h | SM4500-SO4-E | 5.00 | **16.4** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **288** | |
| Total Suspended Solids | mg/L | | 10/14/2011 1630h | SM2540D | 3.00 | **135** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-007
**Client Sample ID:** LC-38
**Collection Date:** 10/12/2011 1222h
**Received Date:** 10/13/2011 1630h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/14/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **246** | |
| Ammonia (as N) | mg/L | 10/18/2011 1202h | 10/20/2011 1932h | E350.1 | 0.0500 | **0.0731** | |
| Bicarbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **246** | |
| Carbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | < 40.0 | |
| Chloride | mg/L | | 10/14/2011 1303h | SM4500-Cl-E | 5.00 | **8.77** | |
| Hardness (as CaCO3) | mg/L | | 10/24/2011 | SM2340B | 10.0 | **309** | |
| Nitrate (as N) | mg/L | | 10/13/2011 2102h | E353.2 | 0.0100 | **1.20** | |
| Nitrite (as N) | mg/L | | 10/13/2011 2102h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 10/17/2011 1400h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total (as P) | mg/L | 10/14/2011 0820h | 10/14/2011 1910h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 10/14/2011 1000h | SM2540F | 0.100 | **0.100** | |
| Sulfate | mg/L | | 10/14/2011 0720h | SM4500-SO4-E | 5.00 | **16.4** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **292** | |
| Total Suspended Solids | mg/L | | 10/14/2011 1630h | SM2540D | 3.00 | **64.0** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-008
**Client Sample ID:** LC-40
**Collection Date:** 10/12/2011 1330h
**Received Date:** 10/13/2011 1630h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/14/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **259** | |
| Ammonia (as N) | mg/L | 10/18/2011 1202h | 10/20/2011 1933h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **259** | |
| Carbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | < 40.0 | |
| Chloride | mg/L | | 10/14/2011 1304h | SM4500-Cl-E | 5.00 | **13.5** | |
| Hardness (as CaCO3) | mg/L | | 10/24/2011 | SM2340B | 10.0 | **360** | |
| Nitrate (as N) | mg/L | | 10/13/2011 2103h | E353.2 | 0.0100 | < 0.0100 | |
| Nitrite (as N) | mg/L | | 10/13/2011 2103h | E353.2 | 0.0100 | **0.0182** | |
| Phosphate, Total (as P) | mg/L | 10/14/2011 0820h | 10/14/2011 1911h | SM4500-P-F | 0.0500 | **0.189** | @ |
| Sulfate | mg/L | | 10/14/2011 0720h | SM4500-SO4-E | 12.5 | **46.0** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **404** | |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-009
**Client Sample ID:** Mud Creek
**Collection Date:** 10/13/2011
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/14/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **246** | |
| Ammonia (as N) | mg/L | 10/18/2011 1202h | 10/20/2011 1934h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **246** | |
| Carbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | < 40.0 | |
| Chloride | mg/L | | 10/14/2011 1305h | SM4500-Cl-E | 5.00 | **12.4** | |
| Hardness (as CaCO3) | mg/L | | 10/24/2011 | SM2340B | 10.0 | **329** | |
| Nitrate (as N) | mg/L | | 10/13/2011 2111h | E353.2 | 0.0100 | **0.213** | |
| Nitrite (as N) | mg/L | | 10/13/2011 2111h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 10/17/2011 1400h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total (as P) | mg/L | 10/14/2011 0820h | 10/14/2011 1913h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 10/14/2011 1000h | SM2540F | 0.100 | < 0.100 | |
| Sulfate | mg/L | | 10/14/2011 0720h | SM4500-SO4-E | 25.0 | **112** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **388** | |
| Total Suspended Solids | mg/L | | 10/14/2011 1630h | SM2540D | 3.00 | **14.0** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-010
**Client Sample ID:** Sulfur Spring
**Collection Date:** 10/13/2011 1200h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/14/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **335** | |
| Ammonia (as N) | mg/L | 10/24/2011 1203h | 10/25/2011 1619h | E350.1 | 0.0500 | **0.0610** | |
| Bicarbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **335** | |
| Carbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | < 40.0 | |
| Chloride | mg/L | | 10/14/2011 1306h | SM4500-Cl-E | 5.00 | **6.35** | |
| Hardness (as CaCO3) | mg/L | | 10/24/2011 | SM2340B | 10.0 | **408** | |
| Nitrate (as N) | mg/L | | 10/13/2011 2112h | E353.2 | 0.0100 | < 0.0100 | |
| Nitrite (as N) | mg/L | | 10/13/2011 2112h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 10/17/2011 1400h | E1664A | 3.00 | **3.01** | |
| Phosphate, Total (as P) | mg/L | 10/14/2011 0820h | 10/14/2011 1914h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 10/14/2011 1000h | SM2540F | 0.100 | < 0.100 | |
| Sulfate | mg/L | | 10/14/2011 0815h | SM4500-SO4-E | 12.5 | **42.3** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **404** | |
| Total Suspended Solids | mg/L | | 10/14/2011 1630h | SM2540D | 3.00 | < 3.00 | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-011
**Client Sample ID:** Miller Creek
**Collection Date:** 10/13/2011 1400h
**Received Date:** 10/13/2011 1630h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/14/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **236** | |
| Ammonia (as N) | mg/L | 10/24/2011 1203h | 10/25/2011 1627h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | **236** | |
| Carbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 40.0 | < 40.0 | |
| Chloride | mg/L | | 10/14/2011 1308h | SM4500-Cl-E | 5.00 | **9.16** | 1 |
| Hardness (as CaCO3) | mg/L | | 10/24/2011 | SM2340B | 10.0 | **296** | |
| Nitrate (as N) | mg/L | | 10/13/2011 2114h | E353.2 | 0.0100 | **0.619** | |
| Nitrite (as N) | mg/L | | 10/13/2011 2114h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 10/17/2011 1400h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total (as P) | mg/L | 10/14/2011 0820h | 10/14/2011 1915h | SM4500-P-F | 0.0500 | **0.0988** | |
| Sulfate | mg/L | | 10/14/2011 0815h | SM4500-SO4-E | 5.00 | **20.8** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **292** | |
| Total Suspended Solids | mg/L | | 10/14/2011 1630h | SM2540D | 3.00 | **108** | |

[1] - *Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-012
**Client Sample ID:** Scofield Reservoir
**Collection Date:** 10/13/2011 1330h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/14/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 20.0 | **162** | |
| Ammonia (as N) | mg/L | 10/24/2011 1203h | 10/25/2011 1628h | E350.1 | 0.0500 | **0.110** | |
| Bicarbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 20.0 | **162** | |
| Carbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/14/2011 1312h | SM4500-Cl-E | 5.00 | **6.60** | |
| Hardness (as CaCO3) | mg/L | | 10/24/2011 | SM2340B | 10.0 | **210** | |
| Nitrate (as N) | mg/L | | 10/13/2011 2115h | E353.2 | 0.0100 | **0.0154** | |
| Nitrite (as N) | mg/L | | 10/13/2011 2115h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 10/17/2011 1400h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total (as P) | mg/L | 10/14/2011 0820h | 10/14/2011 1915h | SM4500-P-F | 0.0500 | **0.955** | |
| Sulfate | mg/L | | 10/14/2011 0815h | SM4500-SO4-E | 5.00 | **18.9** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **192** | |
| Total Suspended Solids | mg/L | | 10/14/2011 1630h | SM2540D | 3.00 | **644** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-013
**Client Sample ID:** CR-10-12
**Collection Date:** 10/13/2011 1025h
**Received Date:** 10/13/2011 1630h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/14/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 20.0 | **161** | |
| Ammonia (as N) | mg/L | 10/24/2011 1203h | 10/25/2011 1629h | E350.1 | 0.0500 | **0.0893** | |
| Bicarbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 20.0 | **161** | |
| Carbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/14/2011 1313h | SM4500-Cl-E | 5.00 | **23.1** | |
| Hardness (as CaCO3) | mg/L | | 10/24/2011 | SM2340B | 10.0 | **268** | |
| Nitrate (as N) | mg/L | | 10/13/2011 2134h | E353.2 | 0.0500 | **5.68** | |
| Nitrite (as N) | mg/L | | 10/13/2011 2116h | E353.2 | 0.0100 | **0.0247** | |
| Phosphate, Total (as P) | mg/L | 10/14/2011 0820h | 10/14/2011 1916h | SM4500-P-F | 0.0500 | **3.56** | |
| Sulfate | mg/L | | 10/14/2011 0815h | SM4500-SO4-E | 12.5 | **47.2** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **396** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Mine
**Lab Sample ID:** 1110268-014
**Client Sample ID:** CR-10-11
**Collection Date:** 10/13/2011
**Received Date:** 10/13/2011 1630h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/14/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 20.0 | **203** | |
| Ammonia (as N) | mg/L | 10/24/2011 1203h | 10/25/2011 1630h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 20.0 | **203** | |
| Carbonate (as CaCO3) | mg/L | | 10/14/2011 1020h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/14/2011 1318h | SM4500-Cl-E | 5.00 | **16.2** | |
| Hardness (as CaCO3) | mg/L | | 10/24/2011 | SM2340B | 10.0 | **281** | |
| Nitrate (as N) | mg/L | | 10/13/2011 2135h | E353.2 | 0.0500 | **2.71** | [1] |
| Nitrite (as N) | mg/L | | 10/13/2011 2118h | E353.2 | 0.0100 | **0.0338** | |
| Phosphate, Total (as P) | mg/L | 10/14/2011 0820h | 10/14/2011 1917h | SM4500-P-F | 0.0500 | **0.699** | |
| Sulfate | mg/L | | 10/14/2011 0815h | SM4500-SO4-E | 5.00 | **23.7** | |
| Total Dissolved Solids | mg/L | | 10/14/2011 1330h | SM2540C | 20.0 | **364** | |

[1] - *Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*


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Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110268
**Project:** Kinney Mine

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-15018 | Aluminum | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 80-120 | | | | 10/24/2011 1347h |
| LCS-15018 | Boron | mg/L | SW6010C | 1.14 | 1.000 | 0 | 114 | 80-120 | | | | 10/24/2011 1347h |
| LCS-15018 | Calcium | mg/L | SW6010C | 11.1 | 10.00 | 0 | 111 | 80-120 | | | | 10/24/2011 0846h |
| LCS-15018 | Iron | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 80-120 | | | | 10/24/2011 1347h |
| LCS-15018 | Magnesium | mg/L | SW6010C | 10.5 | 10.00 | 0 | 105 | 80-120 | | | | 10/24/2011 1347h |
| LCS-15018 | Molybdenum | mg/L | SW6010C | 0.219 | 0.2000 | 0 | 109 | 80-120 | | | | 10/24/2011 1347h |
| LCS-15018 | Potassium | mg/L | SW6010C | 10.8 | 10.00 | 0 | 108 | 80-120 | | | | 10/24/2011 1347h |
| LCS-15018 | Sodium | mg/L | SW6010C | 11.7 | 10.00 | 0 | 117 | 80-120 | | | | 10/24/2011 0846h |
| LCS-15118 | Iron | mg/L | SW6010C | 1.08 | 1.000 | 0 | 108 | 80-120 | | | | 10/24/2011 1114h |
| LCS-15018 | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 10/18/2011 0650h |
| LCS-15018 | Cadmium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 85-115 | | | | 10/18/2011 0650h |
| LCS-15018 | Copper | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 10/18/2011 0650h |
| LCS-15018 | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 10/18/2011 0650h |
| LCS-15018 | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 85-115 | | | | 10/18/2011 0650h |
| LCS-15018 | Selenium | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.7 | 85-115 | | | | 10/18/2011 0650h |
| LCS-15018 | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 85-115 | | | | 10/18/2011 0650h |
| LCS-15118 | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 85-115 | | | | 10/21/2011 1729h |



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110268
**Project:** Kinney Mine

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-15018 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 10/24/2011 1342h |
| MB-15018 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 10/24/2011 1342h |
| MB-15018 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/24/2011 0841h |
| MB-15018 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 10/24/2011 1342h |
| MB-15018 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/24/2011 1342h |
| MB-15018 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 10/24/2011 1342h |
| MB-15018 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/24/2011 1342h |
| MB-15018 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/24/2011 0841h |
| MB-15118 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 10/24/2011 1111h |
| MB-15018 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 10/18/2011 0644h |
| MB-15018 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 10/18/2011 0644h |
| MB-15018 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 10/18/2011 0644h |
| MB-15018 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 10/18/2011 0644h |
| MB-15018 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 10/18/2011 0644h |
| MB-15018 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 10/18/2011 0644h |
| MB-15018 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 10/18/2011 0644h |
| MB-15118 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 10/21/2011 1723h |



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Jose Rocha
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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110268
**Project:** Kinney Mine

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110268-001DMS | Aluminum | mg/L | SW6010C | 1.07 | 1.000 | 0.09357 | 97.9 | 75-125 | | | | 10/24/2011 1355h |
| 1110268-001DMS | Boron | mg/L | SW6010C | 1.22 | 1.000 | 0.04103 | 118 | 75-125 | | | | 10/24/2011 1355h |
| 1110268-001DMS | Calcium | mg/L | SW6010C | 120 | 10.00 | 106.9 | 134 | 75-125 | | | 2 | 10/24/2011 0902h |
| 1110268-001DMS | Iron | mg/L | SW6010C | 1.07 | 1.000 | 0 | 107 | 75-125 | | | | 10/24/2011 1355h |
| 1110268-001DMS | Magnesium | mg/L | SW6010C | 31.0 | 10.00 | 21.11 | 98.4 | 75-125 | | | | 10/24/2011 1355h |
| 1110268-001DMS | Molybdenum | mg/L | SW6010C | 0.220 | 0.2000 | 0 | 110 | 75-125 | | | | 10/24/2011 1355h |
| 1110268-001DMS | Potassium | mg/L | SW6010C | 12.3 | 10.00 | 1.507 | 108 | 75-125 | | | | 10/24/2011 1355h |
| 1110268-001DMS | Sodium | mg/L | SW6010C | 20.2 | 10.00 | 9.600 | 106 | 75-125 | | | | 10/24/2011 1355h |
| 1110268-014DMS | Aluminum | mg/L | SW6010C | 1.13 | 1.000 | 0 | 113 | 75-125 | | | | 10/24/2011 1519h |
| 1110268-014DMS | Boron | mg/L | SW6010C | 1.21 | 1.000 | 0.02304 | 119 | 75-125 | | | | 10/24/2011 1519h |
| 1110268-014DMS | Calcium | mg/L | SW6010C | 102 | 10.00 | 92.51 | 92.1 | 75-125 | | | | 10/24/2011 1033h |
| 1110268-014DMS | Iron | mg/L | SW6010C | 1.08 | 1.000 | 0 | 108 | 75-125 | | | | 10/24/2011 1519h |
| 1110268-014DMS | Magnesium | mg/L | SW6010C | 22.9 | 10.00 | 12.19 | 107 | 75-125 | | | | 10/24/2011 1519h |
| 1110268-014DMS | Molybdenum | mg/L | SW6010C | 0.219 | 0.2000 | 0 | 109 | 75-125 | | | | 10/24/2011 1519h |
| 1110268-014DMS | Potassium | mg/L | SW6010C | 12.2 | 10.00 | 1.357 | 109 | 75-125 | | | | 10/24/2011 1519h |
| 1110268-014DMS | Sodium | mg/L | SW6010C | 24.3 | 10.00 | 12.29 | 120 | 75-125 | | | | 10/24/2011 1033h |
| 1110268-001EMS | Iron | mg/L | SW6010C | 2.92 | 1.000 | 1.640 | 128 | 75-125 | | | 1 | 10/24/2011 1122h |
| 1110268-001DMS | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0.0004480 | 100 | 75-125 | | | | 10/18/2011 0717h |
| 1110268-001DMS | Cadmium | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 75-125 | | | | 10/18/2011 0717h |
| 1110268-001DMS | Copper | mg/L | SW6020A | 0.202 | 0.2000 | 0.0004810 | 101 | 75-125 | | | | 10/18/2011 0717h |
| 1110268-001DMS | Lead | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 75-125 | | | | 10/18/2011 0717h |
| 1110268-001DMS | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0.002630 | 99.6 | 75-125 | | | | 10/18/2011 0717h |
| 1110268-001DMS | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.001691 | 100 | 75-125 | | | | 10/18/2011 0717h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110268
**Project:** Kinney Mine

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110268-001DMS | Zinc | mg/L | SW6020A | 1.02 | 1.000 | 0 | 102 | 75-125 | | | | 10/18/2011 0717h |
| 1110268-014DMS | Arsenic | mg/L | SW6020A | 0.202 | 0.2000 | 0.0004100 | 101 | 75-125 | | | | 10/18/2011 0932h |
| 1110268-014DMS | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | | | | 10/18/2011 0932h |
| 1110268-014DMS | Copper | mg/L | SW6020A | 0.202 | 0.2000 | 0.0005630 | 101 | 75-125 | | | | 10/18/2011 0932h |
| 1110268-014DMS | Lead | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 75-125 | | | | 10/18/2011 0932h |
| 1110268-014DMS | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0.0005310 | 101 | 75-125 | | | | 10/18/2011 0932h |
| 1110268-014DMS | Selenium | mg/L | SW6020A | 0.201 | 0.2000 | 0.0009760 | 99.8 | 75-125 | | | | 10/18/2011 0932h |
| 1110268-014DMS | Zinc | mg/L | SW6020A | 1.03 | 1.000 | 0.01253 | 102 | 75-125 | | | | 10/18/2011 0932h |
| 1110268-001EMS | Manganese | mg/L | SW6020A | 0.229 | 0.2000 | 0.02664 | 101 | 75-125 | | | | 10/21/2011 1913h |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110268
**Project:** Kinney Mine

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110268-001DMSD | Aluminum | mg/L | SW6010C | 1.09 | 1.000 | 0.09357 | 99.6 | 75-125 | 1.6 | 20 | | 10/24/2011 1358h |
| 1110268-001DMSD | Boron | mg/L | SW6010C | 1.23 | 1.000 | 0.04103 | 119 | 75-125 | 1.06 | 20 | | 10/24/2011 1358h |
| 1110268-001DMSD | Calcium | mg/L | SW6010C | 121 | 10.00 | 106.9 | 136 | 75-125 | 0.184 | 20 | 2 | 10/24/2011 0906h |
| 1110268-001DMSD | Iron | mg/L | SW6010C | 1.07 | 1.000 | 0 | 107 | 75-125 | 0.262 | 20 | | 10/24/2011 1358h |
| 1110268-001DMSD | Magnesium | mg/L | SW6010C | 30.9 | 10.00 | 21.11 | 98.1 | 75-125 | 0.116 | 20 | | 10/24/2011 1358h |
| 1110268-001DMSD | Molybdenum | mg/L | SW6010C | 0.224 | 0.2000 | 0 | 112 | 75-125 | 1.54 | 20 | | 10/24/2011 1358h |
| 1110268-001DMSD | Potassium | mg/L | SW6010C | 12.4 | 10.00 | 1.507 | 109 | 75-125 | 0.748 | 20 | | 10/24/2011 1358h |
| 1110268-001DMSD | Sodium | mg/L | SW6010C | 20.2 | 10.00 | 9.600 | 106 | 75-125 | 0.259 | 20 | | 10/24/2011 1358h |
| 1110268-014DMSD | Aluminum | mg/L | SW6010C | 1.21 | 1.000 | 0 | 121 | 75-125 | 6.41 | 20 | | 10/24/2011 1523h |
| 1110268-014DMSD | Boron | mg/L | SW6010C | 1.27 | 1.000 | 0.02304 | 124 | 75-125 | 4.32 | 20 | | 10/24/2011 1523h |
| 1110268-014DMSD | Calcium | mg/L | SW6010C | 109 | 10.00 | 92.51 | 163 | 75-125 | 6.74 | 20 | 2 | 10/24/2011 1037h |
| 1110268-014DMSD | Iron | mg/L | SW6010C | 1.13 | 1.000 | 0 | 113 | 75-125 | 4.84 | 20 | | 10/24/2011 1523h |
| 1110268-014DMSD | Magnesium | mg/L | SW6010C | 24.2 | 10.00 | 12.19 | 120 | 75-125 | 5.72 | 20 | | 10/24/2011 1523h |
| 1110268-014DMSD | Molybdenum | mg/L | SW6010C | 0.226 | 0.2000 | 0 | 113 | 75-125 | 3.42 | 20 | | 10/24/2011 1523h |
| 1110268-014DMSD | Potassium | mg/L | SW6010C | 13.0 | 10.00 | 1.357 | 117 | 75-125 | 6.32 | 20 | | 10/24/2011 1523h |
| 1110268-014DMSD | Sodium | mg/L | SW6010C | 25.7 | 10.00 | 12.29 | 134 | 75-125 | 5.76 | 20 | 1 | 10/24/2011 1037h |
| 1110268-001EMSD | Iron | mg/L | SW6010C | 2.84 | 1.000 | 1.640 | 120 | 75-125 | 2.78 | 20 | | 10/24/2011 1126h |
| 1110268-001DMSD | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0004480 | 100 | 75-125 | 0.345 | 20 | | 10/18/2011 0746h |
| 1110268-001DMSD | Cadmium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 75-125 | 0.465 | 20 | | 10/18/2011 0746h |
| 1110268-001DMSD | Copper | mg/L | SW6020A | 0.202 | 0.2000 | 0.0004810 | 101 | 75-125 | 0.131 | 20 | | 10/18/2011 0746h |
| 1110268-001DMSD | Lead | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 75-125 | 0.0411 | 20 | | 10/18/2011 0746h |
| 1110268-001DMSD | Manganese | mg/L | SW6020A | 0.203 | 0.2000 | 0.002630 | 100 | 75-125 | 0.51 | 20 | | 10/18/2011 0746h |
| 1110268-001DMSD | Selenium | mg/L | SW6020A | 0.201 | 0.2000 | 0.001691 | 99.8 | 75-125 | 0.403 | 20 | | 10/18/2011 0746h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110268
**Project:** Kinney Mine

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110268-001DMSD | Zinc | mg/L | SW6020A | 1.03 | 1.000 | 0 | 103 | 75-125 | 0.0409 | 20 | | 10/18/2011 0746h |
| 1110268-014DMSD | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0004100 | 100 | 75-125 | 0.455 | 20 | | 10/18/2011 0937h |
| 1110268-014DMSD | Cadmium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 75-125 | 0.319 | 20 | | 10/18/2011 0937h |
| 1110268-014DMSD | Copper | mg/L | SW6020A | 0.202 | 0.2000 | 0.0005630 | 101 | 75-125 | 0.039 | 20 | | 10/18/2011 0937h |
| 1110268-014DMSD | Lead | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 102 | 75-125 | 0.408 | 20 | | 10/18/2011 0937h |
| 1110268-014DMSD | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0.0005310 | 101 | 75-125 | 0.195 | 20 | | 10/18/2011 0937h |
| 1110268-014DMSD | Selenium | mg/L | SW6020A | 0.203 | 0.2000 | 0.0009760 | 101 | 75-125 | 1.01 | 20 | | 10/18/2011 0937h |
| 1110268-014DMSD | Zinc | mg/L | SW6020A | 1.04 | 1.000 | 0.01253 | 102 | 75-125 | 0.506 | 20 | | 10/18/2011 0937h |
| 1110268-001EMSD | Manganese | mg/L | SW6020A | 0.226 | 0.2000 | 0.02664 | 99.8 | 75-125 | 1.06 | 20 | | 10/21/2011 1919h |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110268
**Project:** Kinney Mine

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110268-014ADUP | Total Dissolved Solids | mg/L | SM2540C | 360 | | 364.0 | | - | 1.1 | 5 | | 10/14/2011 1330h |
| 1110268-004ADUP | Total Suspended Solids | mg/L | SM2540D | 43.0 | | 44.00 | | - | 2.3 | 5 | | 10/14/2011 1630h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110268
**Project:** Kinney Mine

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R32522 | Acidity | mg/L | SM2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | | | | 10/14/2011 1110h |
| LCS-R32521 | Alkalinity (as CaCO3) | mg/L | SM2320B | 48,400 | 50,000 | 0 | 96.8 | 90-110 | | | | 10/14/2011 1020h |
| LCS-R32526 | Chloride | mg/L | SM4500-Cl-E | 25.2 | 25.00 | 0 | 101 | 90-110 | | | | 10/14/2011 1248h |
| LCS-R32526 | Chloride | mg/L | SM4500-Cl-E | 22.6 | 25.00 | 0 | 90.4 | 90-110 | | | | 10/14/2011 1307h |
| LCS-15035 | Ammonia (as N) | mg/L | E350.1 | 0.995 | 1.000 | 0 | 99.5 | 90-110 | | | | 10/20/2011 1857h |
| LCS-15159 | Ammonia (as N) | mg/L | E350.1 | 1.10 | 1.000 | 0 | 110 | 90-110 | | | § | 10/25/2011 1618h |
| LCS-R32508 | Nitrite (as N) | mg/L | E353.2 | 1.05 | 1.000 | 0 | 105 | 90-110 | | | | 10/13/2011 2032h |
| LCS-R32509 | Nitrate (as N) | mg/L | E353.2 | 1.02 | 1.000 | 0 | 102 | 90-110 | | | | 10/13/2011 2051h |
| LCS-R32629 | Oil & Grease | mg/L | E1664A | 39.1 | 40.00 | 0 | 97.8 | 78-114 | | | | 10/17/2011 1400h |
| LCS-14979 | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.901 | 1.000 | 0 | 90.1 | 90-110 | | | | 10/14/2011 1900h |
| LCS-R32505 | Sulfate | mg/L | SM4500-SO4-E | 1,030 | 1,000 | 0 | 103 | 90-110 | | | | 10/14/2011 0720h |
| LCS-R32511 | Sulfate | mg/L | SM4500-SO4-E | 954 | 1,000 | 0 | 95.4 | 90-110 | | | | 10/14/2011 0815h |
| LCS-R32638 | Total Dissolved Solids | mg/L | SM2540C | 198 | 205.0 | 0 | 96.6 | 80-120 | | | | 10/14/2011 1330h |
| LCS-R32569 | Total Suspended Solids | mg/L | SM2540D | 97.0 | 100.0 | 0 | 97.0 | 80-120 | | | | 10/14/2011 1630h |

*§ - QC limits are set with an accuracy of two significant figures, therefore the recovery rounds to an acceptable value within the control limits.*



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110268
**Project:** Kinney Mine

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R32522 | Acidity | mg/L | SM2310B | < 15.0 | | | | - | | | | 10/14/2011 1110h |
| MB-R32521 | Alkalinity (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 10/14/2011 1020h |
| MB-R32521 | Bicarbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 10/14/2011 1020h |
| MB-R32521 | Carbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 10/14/2011 1020h |
| MB-R32526 | Chloride | mg/L | SM4500-Cl-E | < 5.00 | | | | - | | | | 10/14/2011 1247h |
| MB-15035 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 10/20/2011 1855h |
| MB-15159 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 10/25/2011 1616h |
| MB-R32508 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 10/13/2011 2030h |
| MB-R32509 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 10/13/2011 2030h |
| MB-R32629 | Oil & Grease | mg/L | E1664A | < 3.00 | | | | - | | | | 10/17/2011 1400h |
| MB-14979 | Phosphate, Total (as P) | mg/L | SM4500-P-F | < 0.0500 | | | | - | | | | 10/14/2011 1900h |
| MB-R32505 | Sulfate | mg/L | SM4500-SO4-E | < 5.00 | | | | - | | | | 10/14/2011 0720h |
| MB-R32511 | Sulfate | mg/L | SM4500-SO4-E | < 5.00 | | | | - | | | | 10/14/2011 0815h |
| MB-R32638 | Total Dissolved Solids | mg/L | SM2540C | < 10.0 | | | | - | | | | 10/14/2011 1330h |
| MB-R32569 | Total Suspended Solids | mg/L | SM2540D | < 3.00 | | | | - | | | | 10/14/2011 1630h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110268
**Project:** Kinney Mine

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110268-001BMS | Acidity | mg/L | SM2310B | 48.0 | 50.00 | 0 | 96.0 | 80-120 | | | | 10/14/2011 1110h |
| 1110268-009BMS | Acidity | mg/L | SM2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | | | | 10/14/2011 1110h |
| 1110268-001BMS | Alkalinity (as CaCO3) | mg/L | SM2320B | 372 | 100.0 | 277.2 | 95.1 | 80-120 | | | | 10/14/2011 1020h |
| 1110268-008BMS | Alkalinity (as CaCO3) | mg/L | SM2320B | 446 | 200.0 | 259.1 | 93.5 | 80-120 | | | | 10/14/2011 1020h |
| 1110268-001BMS | Chloride | mg/L | SM4500-Cl-E | 27.2 | 10.00 | 16.26 | 109 | 90-110 | | | | 10/14/2011 1251h |
| 1110268-011BMS | Chloride | mg/L | SM4500-Cl-E | 19.6 | 10.00 | 9.164 | 104 | 90-110 | | | | 10/14/2011 1310h |
| 1110268-002DMS | Ammonia (as N) | mg/L | E350.1 | 0.984 | 1.000 | 0 | 98.4 | 90-110 | | | | 10/20/2011 1919h |
| 1110268-010DMS | Ammonia (as N) | mg/L | E350.1 | 0.987 | 1.000 | 0.06100 | 92.6 | 90-110 | | | | 10/25/2011 1620h |
| 1110268-001BMS | Nitrite (as N) | mg/L | E353.2 | 0.996 | 1.000 | 0.004500 | 99.2 | 90-110 | | | | 10/13/2011 2036h |
| 1110268-014BMS | Nitrite (as N) | mg/L | E353.2 | 1.01 | 1.000 | 0.03380 | 97.5 | 90-110 | | | | 10/13/2011 2119h |
| 1110268-001BMS | Nitrate (as N) | mg/L | E353.2 | 6.68 | 5.000 | 1.198 | 110 | 90-110 | | | | 10/13/2011 2052h |
| 1110268-014BMS | Nitrate (as N) | mg/L | E353.2 | 8.33 | 5.000 | 2.706 | 112 | 90-110 | | | [1] | 10/13/2011 2139h |
| 1110268-001CMS | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.931 | 1.000 | 0.2105 | 72.1 | 90-110 | | | [1] | 10/14/2011 1902h |
| 1110268-008CMS | Phosphate, Total (as P) | mg/L | SM4500-P-F | 1.10 | 1.000 | 0.1888 | 90.8 | 90-110 | | | | 10/14/2011 1912h |
| 1110268-001BMS | Sulfate | mg/L | SM4500-SO4-E | 75.8 | 50.00 | 28.56 | 94.4 | 80-120 | | | | 10/14/2011 0720h |
| 1110268-010BMS | Sulfate | mg/L | SM4500-SO4-E | 88.2 | 50.00 | 42.33 | 91.7 | 80-120 | | | | 10/14/2011 0815h |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110268
**Project:** Kinney Mine

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110268-001BMSD | Acidity | mg/L | SM2310B | 54.0 | 50.00 | 0 | 108 | 80-120 | 11.8 | 0 | | 10/14/2011 1110h |
| 1110268-009BMSD | Acidity | mg/L | SM2310B | 54.0 | 50.00 | 0 | 108 | 80-120 | 3.77 | 0 | | 10/14/2011 1110h |
| 1110268-001BMSD | Alkalinity (as CaCO3) | mg/L | SM2320B | 374 | 100.0 | 277.2 | 96.7 | 80-120 | 0.429 | 10 | | 10/14/2011 1020h |
| 1110268-008BMSD | Alkalinity (as CaCO3) | mg/L | SM2320B | 449 | 200.0 | 259.1 | 95.2 | 80-120 | 0.737 | 10 | | 10/14/2011 1020h |
| 1110268-001BMSD | Chloride | mg/L | SM4500-Cl-E | 27.7 | 10.00 | 16.26 | 114 | 90-110 | 1.72 | 10 | ! | 10/14/2011 1252h |
| 1110268-011BMSD | Chloride | mg/L | SM4500-Cl-E | 20.3 | 10.00 | 9.164 | 111 | 90-110 | 3.45 | 10 | ! | 10/14/2011 1311h |
| 1110268-002DMSD | Ammonia (as N) | mg/L | E350.1 | 0.991 | 1.000 | 0 | 99.1 | 90-110 | 0.688 | 10 | | 10/20/2011 1920h |
| 1110268-010DMSD | Ammonia (as N) | mg/L | E350.1 | 1.00 | 1.000 | 0.06100 | 94.0 | 90-110 | 1.37 | 10 | | 10/25/2011 1625h |
| 1110268-001BMSD | Nitrite (as N) | mg/L | E353.2 | 1.00 | 1.000 | 0.004500 | 99.9 | 90-110 | 0.68 | 10 | | 10/13/2011 2037h |
| 1110268-014BMSD | Nitrite (as N) | mg/L | E353.2 | 1.04 | 1.000 | 0.03380 | 100 | 90-110 | 2.6 | 10 | | 10/13/2011 2120h |
| 1110268-001BMSD | Nitrate (as N) | mg/L | E353.2 | 6.60 | 5.000 | 1.198 | 108 | 90-110 | 1.29 | 10 | | 10/13/2011 2053h |
| 1110268-014BMSD | Nitrate (as N) | mg/L | E353.2 | 7.76 | 5.000 | 2.706 | 101 | 90-110 | 7.01 | 10 | | 10/13/2011 2141h |
| 1110268-001CMSD | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.941 | 1.000 | 0.2105 | 73.0 | 90-110 | 0.994 | 10 | ! | 10/14/2011 1903h |
| 1110268-008CMSD | Phosphate, Total (as P) | mg/L | SM4500-P-F | 1.22 | 1.000 | 0.1888 | 104 | 90-110 | 11 | 10 | @ | 10/14/2011 1912h |
| 1110268-001BMSD | Sulfate | mg/L | SM4500-SO4-E | 78.2 | 50.00 | 28.56 | 99.4 | 80-120 | 3.23 | 10 | | 10/14/2011 0720h |
| 1110268-010BMSD | Sulfate | mg/L | SM4500-SO4-E | 93.0 | 50.00 | 42.33 | 101 | 80-120 | 5.33 | 10 | | 10/14/2011 0815h |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*

*! - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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# American West Analytical Laboratories

D
ı Resources

## WORK ORDER Summary

**Work Order:** 1110268
Page 1 of 11 10/26/2011

**Client:** Carbon Resources
**Client ID:** CAR300 **Contact:** Brad Lindsay
**Project:** Kinney Mine **QC Level:** LEVEL II+ **WO Type:** Project
**Comments:** No Hard Copies. QC 2+, EDD; Active and Surface;

SK

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110268-001A | LC-30 | 10/12/2011 0940h | 10/13/2011 1617h | 10/27/2011 | Aqueous | TDS-W-2540C | ☐ | ww - tds | 1 |
| 1110268-001B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110268-001C | | | | | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | | | NH3-W-PR | ☐ | df - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | df - nh3 | |
| | | | | | | PO4-W-PR | ☐ | df - nh3 | |
| 1110268-001D | | | | | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | df - dis met | |
| | | | | | | HARD-2340B | ☐ | df - dis met | |
| 1110268-001E | | | | | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110268-002A | LC-32 | 10/12/2011 1040h | | | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1110268-002B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |

# WORK ORDER Summary

**Work Order:** **1110268**

**Client:** Carbon Resources

 10/26/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110268-002B | LC-32 | 10/12/2011 1040h | 10/13/2011 1617h | 10/27/2011 | Aqueous | CL-W-4500CLE | ☐ | DF - wc | 1 |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110268-002C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110268-002D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110268-002E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110268-002F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110268-003A | LC-35 | 10/12/2011 1130h | | | | TDS-W-2540C | ☐ | ww - tds | |
| 1110268-003B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110268-003C | | | | | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | | | NH3-W-PR | ☐ | df - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | df - nh3 | |
| | | | | | | PO4-W-PR | ☐ | df - nh3 | |

# WORK ORDER Summary

**Work Order:** **1110268**

**Client:** Carbon Resources

 10/26/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110268-003D | LC-35 | 10/12/2011 1130h | 10/13/2011 1617h | 10/27/2011 | Aqueous | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | df - dis met | |
| | | | | | | HARD-2340B | ☐ | df - dis met | |
| 1110268-003E | | | | | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110268-004A | LC-42 | 10/12/2011 1410h | | | | SS-W-2540F | ☐ | ww - ss/tss | 2 |
| | | | | | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1110268-004B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | 1 |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110268-004C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110268-004D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110268-004E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110268-004F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |

# WORK ORDER Summary

**Work Order:** 1110268

**Client:** Carbon Resources

 10/26/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110268-004F | LC-42 | 10/12/2011 1410h | 10/13/2011 1617h | 10/27/2011 | Aqueous | 6010C-W | ☑ | DF - total met | 1 |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110268-005A | LC-45 | 10/12/2011 1630h | | | | TDS-W-2540C | ☐ | ww - tds | |
| 1110268-005B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110268-005C | | | | | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | | | NH3-W-PR | ☐ | df - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | df - nh3 | |
| | | | | | | PO4-W-PR | ☐ | df - nh3 | |
| 1110268-005D | | | | | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | df - dis met | |
| | | | | | | HARD-2340B | ☐ | df - dis met | |
| 1110268-005E | | | | | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110268-006A | LC-39 | 10/12/2011 1245h | | | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1110268-006B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |

# WORK ORDER Summary

**Client:** Carbon Resources

**Work Order:** 1110268

 10/26/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110268-006B | LC-39 | 10/12/2011 1245h | 10/13/2011 1617h | 10/27/2011 | Aqueous | CL-W-4500CLE | ☐ | DF - wc | 1 |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110268-006C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110268-006D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110268-006E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110268-006F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110268-007A | LC-38 | 10/12/2011 1222h | | | | SS-W-2540F | ☐ | ww - ss/tss | 2 |
| | | | | | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1110268-007B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | 1 |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110268-007C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110268-007D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |

# WORK ORDER Summary

**Work Order:** **1110268**

**Client:** Carbon Resources

 10/26/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110268-007D | LC-38 | 10/12/2011 1222h | 10/13/2011 1617h | 10/27/2011 | Aqueous | NH3-W-PR | ☐ | DF - nh3 | 1 |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110268-007E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110268-007F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110268-008A | LC-40 | 10/12/2011 1330h | | | | TDS-W-2540C | ☐ | ww - tds | |
| 1110268-008B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110268-008C | | | | | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | | | NH3-W-PR | ☐ | df - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | df - nh3 | |
| | | | | | | PO4-W-PR | ☐ | df - nh3 | |
| 1110268-008D | | | | | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | df - dis met | |
| | | | | | | HARD-2340B | ☐ | df - dis met | |

# WORK ORDER Summary

**Work Order:** **1110268**

**Client:** Carbon Resources

 10/26/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110268-008E | LC-40 | 10/12/2011 1330h | 10/13/2011 1617h | 10/27/2011 | Aqueous | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110268-009A | Mud Creek | 10/13/2011 | | | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1110268-009B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110268-009C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110268-009D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110268-009E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110268-009F | | | | | | 3005A-ICPMS-PR | ☐ | df - met | 1 |
| | | | | | | 6010C-W | ☑ | df - met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110268-010A | Sulfur Spring | 10/13/2011 1200h | | | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |

# WORK ORDER Summary

**Work Order:** 1110268

**Client:** Carbon Resources

 10/26/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110268-010B | Sulfur Spring | 10/13/2011 1200h | 10/13/2011 1617h | 10/27/2011 | Aqueous | ACIDITY-W-2310B | ☐ | DF - wc | 1 |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110268-010C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110268-010D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110268-010E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110268-010F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110268-011A | Miller Creek | 10/13/2011 1400h | | | | TDS-W-2540C | ☐ | ww - tss/tds | |
| | | | | | | TSS-W-2540D | ☐ | ww - tss/tds | |
| 1110268-011B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |

# WORK ORDER Summary

**Client:** Carbon Resources

**Work Order:** 1110268

 10/26/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110268-011C | Miller Creek | 10/13/2011 1400h | 10/13/2011 1617h | 10/27/2011 | Aqueous | OGB-W-1664A | ☐ | ogb | 1 |
| 1110268-011D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110268-011E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110268-011F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110268-012A | Scofield Reservoir | 10/13/2011 1330h | | | | TDS-W-2540C | ☐ | ww - tss/tds | |
| | | | | | | TSS-W-2540D | ☐ | ww - tss/tds | |
| 1110268-012B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110268-012C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110268-012D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110268-012E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |

# WORK ORDER Summary

**Work Order:** **1110268**

**Client:** Carbon Resources

 10/26/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110268-012E | Scofield Reservoir | 10/13/2011 1330h | 10/13/2011 1617h | 10/27/2011 | Aqueous | 6020-DIS | ☑ | DF - dis met | 2 |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110268-012F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110268-013A | CR-10-12 | 10/13/2011 1025h | | | | TDS-W-2540C | ☐ | ww - tds | |
| 1110268-013B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110268-013C | | | | | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | | | NH3-W-PR | ☐ | df - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | df - nh3 | |
| | | | | | | PO4-W-PR | ☐ | df - nh3 | |
| 1110268-013D | | | | | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | df - dis met | |
| | | | | | | HARD-2340B | ☐ | df - dis met | |
| 1110268-013E | | | | | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110268-014A | CR-10-11 | 10/13/2011 | | | | TDS-W-2540C | ☐ | ww - tds | |

# WORK ORDER Summary

**Client:** Carbon Resources

**Work Order:** 1110268

 10/26/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110268-014B | CR-10-11 | 10/13/2011 | 10/13/2011 1617h | 10/27/2011 | Aqueous | ACIDITY-W-2310B | ☐ | DF - wc | 1 |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110268-014C | | | | | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | | | NH3-W-PR | ☐ | df - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | df - nh3 | |
| | | | | | | PO4-W-PR | ☐ | df - nh3 | |
| 1110268-014D | | | | | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | df - dis met | |
| | | | | | | HARD-2340B | ☐ | df - dis met | |
| 1110268-014E | | | | | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |

Client Carbon Resources c/o Rock Logic

Address

City State Zip

Phone 970-260-0448 Fax

Contact Greg Hunt

E-mail

Project Name Kinney Mine

Project Number/P.O.#

Sampler Name Greg Hunt / Ty Berry / Michael Keller


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# CHAIN OF CUSTODY


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Lab Sample Set # 1110268

Page 1 of 2

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day Standard

| | Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TESTS REQUIRED: Table 4 | TESTS REQUIRED: Table 3 | COMMENTS |
|---|---|---|---|---|---|---|---|
| 1 | LC-30 | 10-12-11 9:40am | Surf grnd | 5 | ✓ | | |
| 2 | LC-32 | 10-12-11 10:40am | Surf | 6 | | ✓ | |
| 3 | LC-35 | 10-12-11 11:30am | Grnd | 5 | ✓ | | |
| 4 | LC-42 | 10-12-11 2:10pm | Grnd Surf | 6 | | ✓ | |
| 5 | LC-45 | 10-12-11 4:30pm | Grnd | 5 | ✓ | | |
| 6 | LC-39 | 10-12-11 12:45pm | Surf | 6 | | ✓ | |
| 7 | LC-38 | 10-12-11 12:20pm | Surf | 6 | | ✓ | |
| 8 | LC-40 | 10-12-11 1:30pm | Grnd | 5 | ✓ | | |
| 9 | Mud Creek | 10-13-11 | Surf | 6 | | ✓ | |
| 10 | Sulfur Spring | 10-13-11 12:00pm | Surf | 6 | | ✓ | |
| 11 | Miller Creek * | 10-13-11 2:00pm | Surf | 6 | | ✓ | *Cancelled SS per no sample received. |
| 12 | Scofield Reservoir * | 10-13-11 1:30pm | Surf | 6 | | ✓ | *Cancelled SS per no sample received. |

**QC LEVEL**

1 2 2+

3 3+ 4

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes: ambient

3 Temperature 1.7°C

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Checked at Bench
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME Tyler Berry | Time 16:17 | PRINT NAME Samantha Broadhead | Time 1617 |
| | | | |
| | | | |
| | | | |
| | | | |

Special Instructions:

* Per Greg Hunt. SB 10/13/11

Client Carbon Resources c/o Rock Logic

Address

City State Zip

Phone 970-260-0448 Fax

Contact Greg Hunt

E-mail

Project Name Kinney Mine

Project Number/P.O.#

Sampler Name Ty Berry / Mike Keller

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# CHAIN OF CUSTODY

Lab Sample Set # 1110268

Page 2 of 2

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day Standard

| | Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TESTS REQUIRED: Table 4 | TESTS REQUIRED: Table 3 | QC LEVEL | COMMENTS |
|---|---|---|---|---|---|---|---|---|
| 13 | CR-10-12 | 10-13-11 10:25am | grab | 5 | ✓ | ✓ | 1 2 2+ 3 3+ 4 | |
| 14 | CR-10-11 | 10-13-11 | grab | 5 | ✓ | | | |

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes: ontce

3 Temperature 1.7°C

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Checked at Bench
Y N
Notes:

6 Received Within Holding Times
(Y) N
Notes:

COC Tape Was:

1 Present on Outer Package
Y (N) NA

2 Unbroken on Outer Package
Y N (NA)

3 Present on Sample
Y (N) NA

4 Unbroken on Sample
Y N (NA)

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME Tyler Berry | Time 16:17 | PRINT NAME Samantha Broadhead | Time 1617 |
| | | | |
| | | | |
| | | | |

Special Instructions:

Carbon Resources



TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Requirements
Baseline, Operational and Post-mining

| | | | | | REPORTED AS |
|---|---|---|---|---|---|
| | | | FIELD MEASUREMENTS | | |
| | * | - | Water level or Flow | | Depth, Flow |
| 1 L HDPE | * | - | pH | | Standard units |
| 1 L HDPE | * | - | Specific Conductivity | | umhos/cm @ 25° C |
| 250 mL HDPE | * | - | Temperature | | °C |
| 1 500 mL HNO3 | | | | | |
| 1 250 mL H2SO4 | | | | | |
| | | | LABORATORY MEASUREMENTS | | |
| | * | - | Total Dissolved Solids | | mg/l |
| | * | - | Total Hardness ($CaCO_3$) | | mg/l |
| | * | - | Total Alkalinity | | mg/l |
| | | - | Acidity | | mg/l |
| | | - | Aluminum (Dissolved) | | mg/l |
| | | - | Arsenic (Dissolved) | | mg/l |
| | | - | Boron (Dissolved)[1] | | mg/l |
| | * | - | Carbonate | | mg/l |
| | * | - | Bicarbonate | | mg/l |
| | | - | Cadmium (Dissolved) | | mg/l |
| | * | - | Calcium (Dissolved) | | mg/l |
| | * | - | Chloride | | mg/l |
| | | - | Copper (Dissolved) | | mg/l |
| | * | - | Iron (Dissolved) | | mg/l |
| | * | - | Iron (Total) | | mg/l |
| | | - | Lead (Dissolved) | mg/l | |
| | * | - | Magnesium (Dissolved) | | mg/l |
| | * | - | Manganese (Dissolved) | | mg/l |
| | * | - | Manganese (Total) | | mg/l |
| | | - | Molybdenum (Dissolved) | | mg/l |
| | | - | Ammonia | | mg/l |
| | | - | Nitrates | | mg/l |
| | | - | Nitrites | | mg/l |
| | * | - | Potassium (Dissolved) | | mg/l |
| | | - | Phosphate (Ortho) | | mg/l |
| | | - | Selenium[1] (Dissolved) | | mg/l |
| | * | - | Sodium (Dissolved) | | mg/l |
| | * | - | Sulfate | | mg/l |
| | | - | Zinc (Dissolved) | mg/l | |
| | * | - | Cations | | meq/l |
| | * | - | Anions | | meq/l |

Changed to Total Phosphate per Greg Hunt 6-30-97

[1] These parameters will be analyzed in the baseline for all sites and included as operational at waste rock sites only.
- Indicates parameters required for Baseline monitoring.
* Indicates parameters required for Operational and Post-mining monitoring unless amended as per section 5E above.

Carbon Resources



TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Requirements
Baseline, Operational and Post-mining

| | | | | |
|---|---|---|---|---|
| | | FIELD MEASUREMENTS | | REPORTED AS |
| | * - | Water level or Flow | | Depth, Flow |
| | * - | pH | | Standard units |
| | * - | Specific Conductivity | | umhos/cm @ 25° C |
| 1/2 gal HDPE | * - | Dissolved Oxygen | | mg/l |
| 1 L HDPE | * - | Temperature | | °C |
| 1 L HDPE | | | | |
| 1 500 mL HNO3 | | | | |
| 1 250 mL H2SO4 | | LABORATORY MEASUREMENTS | | |
| 1 Amber L HCL | | | | |
| | * - | Total Dissolved Solids | | mg/l |
| | * - | Total Settleable Solids | | (UPDES) |
| | * - | Total Suspended Solids | | mg/l |
| | * - | Total Hardness ($CaCO_3$) | | mg/l |
| | * - | Total Alkalinity | | mg/l |
| | - | Acidity | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved)[1] | | mg/l |
| | * - | Carbonate | | mg/l |
| | * - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| | * - | Calcium (Dissolved) | | mg/l |
| | * - | Chloride | | mg/l |
| | - | Copper (Dissolved) | | mg/l |
| | * - | Iron (Dissolved) | | mg/l |
| | * - | Iron (Total) | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| | * - | Magnesium (Dissolved) | | mg/l |
| | * - | Manganese (Dissolved) | | mg/l |
| | * - | Manganese (Total) | | mg/l |
| | - | Molybdenum (Dissolved) | | mg/l |
| | - | Ammonia | | mg/l |
| | - | Nitrates | | mg/l |
| | - | Nitrites | | mg/l |
| | * - | Potassium (Dissolved) | | mg/l |
| | - | ~~Phosphates(Ortho)~~ | | mg/l Changed to Total Phosphate per Greg Hunt 6/30/11 DWQ |
| | - | Selenium[1] (Dissolved) | | mg/l |
| | * - | Sodium (Dissolved) | | mg/l |
| | * - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| | * - | Oil & Grease[2] | | mg/l |
| | * - | Cations | | meq/l |
| | * - | Anions | | meq/l |

1 Parameters will be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters required for Baseline monitoring.
* Parameters required for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 1110268

## Preservation Check Sheet

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Scofield Baseline

Dear Brad Lindsay: Lab Set ID: 1110390

American West Analytical Laboratories received 6 sample(s) on 10/20/2011 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado, Idaho, and Missouri. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Kyle F. Gross — Digitally signed by Kyle F. Gross DN: cn=Kyle F. Gross, o=AWAL, ou=AWAL, email=kyle@awal-labs.com, c=US Date: 2011.11.02 15:24:52 -06'00'

Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-001
**Client Sample ID:** LB-4
**Collection Date:** 10/17/2011 1300h
**Received Date:** 10/20/2011 1435h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/21/2011 1750h | 10/25/2011 1706h | SW6010C | 0.100 | **2.62** | |
| Manganese | mg/L | 10/21/2011 1750h | 10/24/2011 1815h | SW6020A | 0.00120 | **0.140** | |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-002
**Client Sample ID:** LB-1
**Collection Date:** 10/17/2011 1200h
**Received Date:** 10/20/2011 1435h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/21/2011 1750h | 10/25/2011 1734h | SW6010C | 0.100 | **0.171** | |
| Manganese | mg/L | 10/21/2011 1750h | 10/24/2011 1905h | SW6020A | 0.00120 | **0.0220** | |

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-003
**Client Sample ID:** BC-4
**Collection Date:** 10/17/2011 1500h
**Received Date:** 10/20/2011 1435h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/21/2011 1750h | 10/25/2011 1738h | SW6010C | 0.100 | **0.204** | |
| Manganese | mg/L | 10/21/2011 1750h | 10/24/2011 1910h | SW6020A | 0.00120 | **0.00762** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-004
**Client Sample ID:** BC-7
**Collection Date:** 10/17/2011 1615h
**Received Date:** 10/20/2011 1435h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/21/2011 1750h | 10/25/2011 1742h | SW6010C | 0.100 | < 0.100 | |
| Manganese | mg/L | 10/21/2011 1750h | 10/24/2011 1916h | SW6020A | 0.00120 | **0.00361** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-005
**Client Sample ID:** LB-2
**Collection Date:** 10/17/2011 1230h
**Received Date:** 10/20/2011 1435h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/21/2011 1750h | 10/25/2011 1746h | SW6010C | 0.100 | **0.221** | |
| Manganese | mg/L | 10/21/2011 1750h | 10/24/2011 1922h | SW6020A | 0.00120 | **0.0236** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-006
**Client Sample ID:** BC-9
**Collection Date:** 10/17/2011 1700h
**Received Date:** 10/20/2011 1435h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/21/2011 1750h | 10/25/2011 1749h | SW6010C | 0.100 | **0.105** | |
| Manganese | mg/L | 10/21/2011 1750h | 10/24/2011 1927h | SW6020A | 0.00120 | **0.00549** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-001
**Client Sample ID:** LB-4
**Collection Date:** 10/17/2011 1300h
**Received Date:** 10/20/2011 1435h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/21/2011 1351h | 10/26/2011 1838h | SW6010C | 0.100 | < 0.100 | H |
| Arsenic | mg/L | 10/21/2011 1351h | 10/24/2011 0633h | SW6020A | 0.000600 | **0.000777** | H |
| Boron | mg/L | 10/21/2011 1351h | 10/26/2011 1838h | SW6010C | 0.500 | < 0.500 | H |
| Cadmium | mg/L | 10/21/2011 1351h | 10/24/2011 0633h | SW6020A | 0.000180 | < 0.000180 | H |
| Calcium | mg/L | 10/21/2011 1351h | 10/26/2011 1646h | SW6010C | 10.0 | **84.9** | H |
| Copper | mg/L | 10/21/2011 1351h | 10/24/2011 0633h | SW6020A | 0.000800 | **0.00115** | H |
| Iron | mg/L | 10/21/2011 1351h | 10/26/2011 1838h | SW6010C | 0.100 | < 0.100 | H |
| Lead | mg/L | 10/21/2011 1351h | 10/24/2011 0633h | SW6020A | 0.000400 | < 0.000400 | H |
| Magnesium | mg/L | 10/21/2011 1351h | 10/26/2011 1838h | SW6010C | 1.00 | **22.2** | H |
| Manganese | mg/L | 10/21/2011 1351h | 10/24/2011 0633h | SW6020A | 0.00120 | **0.0312** | H |
| Molybdenum | mg/L | 10/21/2011 1351h | 10/26/2011 1838h | SW6010C | 0.0200 | < 0.0200 | H |
| Potassium | mg/L | 10/21/2011 1351h | 10/26/2011 1838h | SW6010C | 1.00 | **3.43** | H |
| Selenium | mg/L | 10/21/2011 1351h | 10/24/2011 0633h | SW6020A | 0.000800 | < 0.000800 | H |
| Sodium | mg/L | 10/21/2011 1351h | 10/26/2011 1838h | SW6010C | 1.00 | **6.91** | H |
| Zinc | mg/L | 10/21/2011 1351h | 10/24/2011 0633h | SW6020A | 0.00500 | < 0.00500 | H |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*
*H - Sample was received outside of the prep holding time.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-002
**Client Sample ID:** LB-1
**Collection Date:** 10/17/2011 1200h
**Received Date:** 10/20/2011 1435h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/21/2011 1351h | 10/26/2011 1841h | SW6010C | 0.100 | < 0.100 | H |
| Arsenic | mg/L | 10/21/2011 1351h | 10/24/2011 0638h | SW6020A | 0.000600 | < 0.000600 | H |
| Boron | mg/L | 10/21/2011 1351h | 10/26/2011 1841h | SW6010C | 0.500 | < 0.500 | H |
| Cadmium | mg/L | 10/21/2011 1351h | 10/24/2011 0638h | SW6020A | 0.000180 | < 0.000180 | H |
| Calcium | mg/L | 10/21/2011 1351h | 10/26/2011 1650h | SW6010C | 10.0 | **100** | H |
| Copper | mg/L | 10/21/2011 1351h | 10/24/2011 0638h | SW6020A | 0.000800 | < 0.000800 | H |
| Iron | mg/L | 10/21/2011 1351h | 10/26/2011 1841h | SW6010C | 0.100 | < 0.100 | H |
| Lead | mg/L | 10/21/2011 1351h | 10/24/2011 0638h | SW6020A | 0.000400 | < 0.000400 | H |
| Magnesium | mg/L | 10/21/2011 1351h | 10/26/2011 1841h | SW6010C | 1.00 | **23.1** | H |
| Manganese | mg/L | 10/21/2011 1351h | 10/24/2011 0638h | SW6020A | 0.00120 | **0.0143** | H |
| Molybdenum | mg/L | 10/21/2011 1351h | 10/26/2011 1841h | SW6010C | 0.0200 | < 0.0200 | H |
| Potassium | mg/L | 10/21/2011 1351h | 10/26/2011 1841h | SW6010C | 1.00 | **1.98** | H |
| Selenium | mg/L | 10/21/2011 1351h | 10/24/2011 0638h | SW6020A | 0.000800 | **0.00120** | H |
| Sodium | mg/L | 10/21/2011 1351h | 10/26/2011 1841h | SW6010C | 1.00 | **7.24** | H |
| Zinc | mg/L | 10/21/2011 1351h | 10/24/2011 0638h | SW6020A | 0.00500 | < 0.00500 | H |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*
*H - Sample was received outside of the prep holding time.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-003
**Client Sample ID:** BC-4
**Collection Date:** 10/17/2011 1500h
**Received Date:** 10/20/2011 1435h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/21/2011 1351h | 10/26/2011 1845h | SW6010C | 0.100 | < 0.100 | H |
| Arsenic | mg/L | 10/21/2011 1351h | 10/24/2011 0644h | SW6020A | 0.000600 | < 0.000600 | H |
| Boron | mg/L | 10/21/2011 1351h | 10/26/2011 1845h | SW6010C | 0.500 | < 0.500 | H |
| Cadmium | mg/L | 10/21/2011 1351h | 10/24/2011 0644h | SW6020A | 0.000180 | < 0.000180 | H |
| Calcium | mg/L | 10/21/2011 1351h | 10/26/2011 1655h | SW6010C | 10.0 | **85.4** | H |
| Copper | mg/L | 10/21/2011 1351h | 10/24/2011 0644h | SW6020A | 0.000800 | < 0.000800 | H |
| Iron | mg/L | 10/21/2011 1351h | 10/26/2011 1845h | SW6010C | 0.100 | < 0.100 | H |
| Lead | mg/L | 10/21/2011 1351h | 10/24/2011 0644h | SW6020A | 0.000400 | < 0.000400 | H |
| Magnesium | mg/L | 10/21/2011 1351h | 10/26/2011 1845h | SW6010C | 1.00 | **12.8** | H |
| Manganese | mg/L | 10/21/2011 1351h | 10/24/2011 0644h | SW6020A | 0.00120 | < 0.00120 | H |
| Molybdenum | mg/L | 10/21/2011 1351h | 10/26/2011 1845h | SW6010C | 0.0200 | < 0.0200 | H |
| Potassium | mg/L | 10/21/2011 1351h | 10/26/2011 1845h | SW6010C | 1.00 | **1.44** | H |
| Selenium | mg/L | 10/21/2011 1351h | 10/24/2011 0644h | SW6020A | 0.000800 | < 0.000800 | H |
| Sodium | mg/L | 10/21/2011 1351h | 10/26/2011 1845h | SW6010C | 1.00 | **3.78** | H |
| Zinc | mg/L | 10/21/2011 1351h | 10/24/2011 0644h | SW6020A | 0.00500 | < 0.00500 | H |

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*H - Sample was received outside of the prep holding time.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-004
**Client Sample ID:** BC-7
**Collection Date:** 10/17/2011 1615h
**Received Date:** 10/20/2011 1435h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/21/2011 1351h | 10/26/2011 1902h | SW6010C | 0.100 | < 0.100 | H |
| Arsenic | mg/L | 10/21/2011 1351h | 10/24/2011 0650h | SW6020A | 0.000600 | < 0.000600 | H |
| Boron | mg/L | 10/21/2011 1351h | 10/26/2011 1902h | SW6010C | 0.500 | < 0.500 | H |
| Cadmium | mg/L | 10/21/2011 1351h | 10/24/2011 0650h | SW6020A | 0.000180 | < 0.000180 | H |
| Calcium | mg/L | 10/21/2011 1351h | 10/26/2011 1659h | SW6010C | 10.0 | **85.1** | H |
| Copper | mg/L | 10/21/2011 1351h | 10/24/2011 0650h | SW6020A | 0.000800 | < 0.000800 | H |
| Iron | mg/L | 10/21/2011 1351h | 10/26/2011 1902h | SW6010C | 0.100 | < 0.100 | H |
| Lead | mg/L | 10/21/2011 1351h | 10/24/2011 0650h | SW6020A | 0.000400 | < 0.000400 | H |
| Magnesium | mg/L | 10/21/2011 1351h | 10/26/2011 1902h | SW6010C | 1.00 | **12.3** | H |
| Manganese | mg/L | 10/21/2011 1351h | 10/24/2011 0650h | SW6020A | 0.00120 | < 0.00120 | H |
| Molybdenum | mg/L | 10/21/2011 1351h | 10/26/2011 1902h | SW6010C | 0.0200 | < 0.0200 | H |
| Potassium | mg/L | 10/21/2011 1351h | 10/26/2011 1902h | SW6010C | 1.00 | **1.13** | H |
| Selenium | mg/L | 10/21/2011 1351h | 10/24/2011 0650h | SW6020A | 0.000800 | < 0.000800 | H |
| Sodium | mg/L | 10/21/2011 1351h | 10/26/2011 1902h | SW6010C | 1.00 | **3.68** | H |
| Zinc | mg/L | 10/21/2011 1351h | 10/24/2011 0650h | SW6020A | 0.00500 | < 0.00500 | H |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-005
**Client Sample ID:** LB-2
**Collection Date:** 10/17/2011 1230h
**Received Date:** 10/20/2011 1435h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/21/2011 1351h | 10/26/2011 1906h | SW6010C | 0.100 | < 0.100 | H |
| Arsenic | mg/L | 10/21/2011 1351h | 10/24/2011 0655h | SW6020A | 0.000600 | < 0.000600 | H |
| Boron | mg/L | 10/21/2011 1351h | 10/26/2011 1906h | SW6010C | 0.500 | < 0.500 | H |
| Cadmium | mg/L | 10/21/2011 1351h | 10/24/2011 0655h | SW6020A | 0.000180 | < 0.000180 | H |
| Calcium | mg/L | 10/21/2011 1351h | 10/26/2011 1716h | SW6010C | 10.0 | **89.7** | H |
| Copper | mg/L | 10/21/2011 1351h | 10/24/2011 0655h | SW6020A | 0.000800 | < 0.000800 | H |
| Iron | mg/L | 10/21/2011 1351h | 10/26/2011 1906h | SW6010C | 0.100 | < 0.100 | H |
| Lead | mg/L | 10/21/2011 1351h | 10/24/2011 0655h | SW6020A | 0.000400 | < 0.000400 | H |
| Magnesium | mg/L | 10/21/2011 1351h | 10/26/2011 1906h | SW6010C | 1.00 | **21.9** | H |
| Manganese | mg/L | 10/21/2011 1351h | 10/24/2011 0655h | SW6020A | 0.00120 | **0.00624** | H |
| Molybdenum | mg/L | 10/21/2011 1351h | 10/26/2011 1906h | SW6010C | 0.0200 | < 0.0200 | H |
| Potassium | mg/L | 10/21/2011 1351h | 10/26/2011 1906h | SW6010C | 1.00 | **2.29** | H |
| Selenium | mg/L | 10/21/2011 1351h | 10/24/2011 0655h | SW6020A | 0.000800 | < 0.000800 | H |
| Sodium | mg/L | 10/21/2011 1351h | 10/26/2011 1906h | SW6010C | 1.00 | **6.75** | H |
| Zinc | mg/L | 10/21/2011 1351h | 10/24/2011 0655h | SW6020A | 0.00500 | < 0.00500 | H |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*
*H - Sample was received outside of the prep holding time.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-006
**Client Sample ID:** BC-9
**Collection Date:** 10/17/2011 1700h
**Received Date:** 10/20/2011 1435h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/21/2011 1351h | 10/26/2011 1910h | SW6010C | 0.100 | < 0.100 | H |
| Arsenic | mg/L | 10/21/2011 1351h | 10/24/2011 0701h | SW6020A | 0.000600 | < 0.000600 | H |
| Boron | mg/L | 10/21/2011 1351h | 10/26/2011 1910h | SW6010C | 0.500 | < 0.500 | H |
| Cadmium | mg/L | 10/21/2011 1351h | 10/24/2011 0701h | SW6020A | 0.000180 | < 0.000180 | H |
| Calcium | mg/L | 10/21/2011 1351h | 10/26/2011 1720h | SW6010C | 10.0 | **80.5** | H |
| Copper | mg/L | 10/21/2011 1351h | 10/24/2011 0701h | SW6020A | 0.000800 | < 0.000800 | H |
| Iron | mg/L | 10/21/2011 1351h | 10/26/2011 1910h | SW6010C | 0.100 | < 0.100 | H |
| Lead | mg/L | 10/21/2011 1351h | 10/24/2011 0701h | SW6020A | 0.000400 | < 0.000400 | H |
| Magnesium | mg/L | 10/21/2011 1351h | 10/26/2011 1910h | SW6010C | 1.00 | **12.5** | H |
| Manganese | mg/L | 10/21/2011 1351h | 10/24/2011 0701h | SW6020A | 0.00120 | < 0.00120 | H |
| Molybdenum | mg/L | 10/21/2011 1351h | 10/26/2011 1910h | SW6010C | 0.0200 | < 0.0200 | H |
| Potassium | mg/L | 10/21/2011 1351h | 10/26/2011 1910h | SW6010C | 1.00 | **1.16** | H |
| Selenium | mg/L | 10/21/2011 1351h | 10/24/2011 0701h | SW6020A | 0.000800 | < 0.000800 | H |
| Sodium | mg/L | 10/21/2011 1351h | 10/26/2011 1910h | SW6010C | 1.00 | **3.56** | H |
| Zinc | mg/L | 10/21/2011 1351h | 10/24/2011 0701h | SW6020A | 0.00500 | < 0.00500 | H |

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*H - Sample was received outside of the prep holding time.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-001
**Client Sample ID:** LB-4
**Collection Date:** 10/17/2011 1300h
**Received Date:** 10/20/2011 1435h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/24/2011 1040h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | **271** | |
| Ammonia (as N) | mg/L | 10/31/2011 1523h | 11/1/2011 2026h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | **271** | |
| Carbonate (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/27/2011 2158h | SM4500-Cl-E | 5.00 | **11.3** | 1 |
| Hardness (as CaCO3) | mg/L | | 10/26/2011 | SM2340B | 10.0 | **303** | |
| Nitrate (as N) | mg/L | | 10/21/2011 1205h | E353.2 | 0.0100 | < 0.0100 | H |
| Nitrite (as N) | mg/L | | 10/21/2011 1205h | E353.2 | 0.0100 | **0.0230** | H |
| Oil & Grease | mg/L | | 10/21/2011 1452h | E1664A | 3.00 | **4.90** | |
| Phosphate, Total (as P) | mg/L | 10/26/2011 0715h | 10/26/2011 1839h | SM4500-P-F | 0.0500 | **0.145** | |
| Settleable Solids | mL/L | | 10/21/2011 1000h | SM2540F | 0.100 | **0.100** | H |
| Sulfate | mg/L | | 10/26/2011 1207h | SM4500-SO4-E | 5.00 | **40.2** | |
| Total Dissolved Solids | mg/L | | 10/21/2011 1300h | SM2540C | 20.0 | **384** | |
| Total Suspended Solids | mg/L | | 10/21/2011 1745h | SM2540D | 3.00 | **144** | |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*
*H - Sample was received outside of the holding time.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-002
**Client Sample ID:** LB-1
**Collection Date:** 10/17/2011 1200h
**Received Date:** 10/20/2011 1435h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/24/2011 1040h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | **292** | |
| Ammonia (as N) | mg/L | 10/31/2011 1523h | 11/1/2011 2023h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | **292** | |
| Carbonate (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/27/2011 2202h | SM4500-Cl-E | 5.00 | **13.0** | |
| Hardness (as CaCO3) | mg/L | | 10/26/2011 | SM2340B | 10.0 | **345** | |
| Nitrate (as N) | mg/L | | 10/21/2011 1218h | E353.2 | 0.0100 | **0.182** | H |
| Nitrite (as N) | mg/L | | 10/21/2011 1218h | E353.2 | 0.0100 | < 0.0100 | H |
| Phosphate, Total (as P) | mg/L | 10/26/2011 0715h | 10/26/2011 1841h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/26/2011 1207h | SM4500-SO4-E | 12.5 | **63.3** | |
| Total Dissolved Solids | mg/L | | 10/21/2011 1300h | SM2540C | 20.0 | **404** | |

*H - Sample was received outside of the holding time.*


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-003
**Client Sample ID:** BC-4
**Collection Date:** 10/17/2011 1500h
**Received Date:** 10/20/2011 1435h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/24/2011 1040h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | **234** | |
| Ammonia (as N) | mg/L | 10/31/2011 1523h | 11/1/2011 2027h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | **234** | |
| Carbonate (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/27/2011 2203h | SM4500-Cl-E | 5.00 | **6.06** | |
| Hardness (as CaCO3) | mg/L | | 10/26/2011 | SM2340B | 10.0 | **266** | |
| Nitrate (as N) | mg/L | | 10/21/2011 1220h | E353.2 | 0.0100 | **1.57** | H |
| Nitrite (as N) | mg/L | | 10/21/2011 1220h | E353.2 | 0.0100 | < 0.0100 | H |
| Oil & Grease | mg/L | | 10/21/2011 1452h | E1664A | 3.00 | **3.80** | |
| Phosphate, Total (as P) | mg/L | 10/26/2011 0715h | 10/26/2011 1846h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 10/21/2011 1000h | SM2540F | 0.100 | **0.100** | H |
| Sulfate | mg/L | | 10/26/2011 1207h | SM4500-SO4-E | 5.00 | **14.4** | |
| Total Dissolved Solids | mg/L | | 10/21/2011 1300h | SM2540C | 20.0 | **312** | |
| Total Suspended Solids | mg/L | | 10/21/2011 1745h | SM2540D | 3.00 | **17.0** | @ |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*
*H - Sample was received outside of the holding time.*


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-004
**Client Sample ID:** BC-7
**Collection Date:** 10/17/2011 1615h
**Received Date:** 10/20/2011 1435h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/24/2011 1040h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | **238** | |
| Ammonia (as N) | mg/L | 10/31/2011 1523h | 11/1/2011 2029h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | **238** | |
| Carbonate (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/27/2011 2207h | SM4500-Cl-E | 5.00 | < 5.00 | |
| Hardness (as CaCO3) | mg/L | | 10/26/2011 | SM2340B | 10.0 | **263** | |
| Nitrate (as N) | mg/L | | 10/21/2011 1221h | E353.2 | 0.0100 | **1.83** | H |
| Nitrite (as N) | mg/L | | 10/21/2011 1221h | E353.2 | 0.0100 | < 0.0100 | H |
| Phosphate, Total (as P) | mg/L | 10/26/2011 0715h | 10/26/2011 1846h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/26/2011 1207h | SM4500-SO4-E | 5.00 | **6.45** | |
| Total Dissolved Solids | mg/L | | 10/21/2011 1300h | SM2540C | 20.0 | **308** | |

*H - Sample was received outside of the holding time.*


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-005
**Client Sample ID:** LB-2
**Collection Date:** 10/17/2011 1230h
**Received Date:** 10/20/2011 1435h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/24/2011 1040h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | **256** | |
| Ammonia (as N) | mg/L | 10/31/2011 1523h | 11/1/2011 2030h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | **256** | |
| Carbonate (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/27/2011 2209h | SM4500-Cl-E | 5.00 | **12.5** | |
| Hardness (as CaCO3) | mg/L | | 10/26/2011 | SM2340B | 10.0 | **314** | |
| Nitrate (as N) | mg/L | | 10/21/2011 1222h | E353.2 | 0.0100 | < 0.0100 | H |
| Nitrite (as N) | mg/L | | 10/21/2011 1222h | E353.2 | 0.0100 | < 0.0100 | H |
| Phosphate, Total (as P) | mg/L | 10/26/2011 0715h | 10/26/2011 1847h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/26/2011 1207h | SM4500-SO4-E | 5.00 | **41.2** | |
| Total Dissolved Solids | mg/L | | 10/21/2011 1300h | SM2540C | 20.0 | **380** | |

*H - Sample was received outside of the holding time.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Scofield Baseline
**Lab Sample ID:** 1110390-006
**Client Sample ID:** BC-9
**Collection Date:** 10/17/2011 1700h
**Received Date:** 10/20/2011 1435h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/24/2011 1040h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | **223** | |
| Ammonia (as N) | mg/L | 10/31/2011 1523h | 11/1/2011 2031h | E350.1 | 0.0500 | **0.0799** | |
| Bicarbonate (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | **223** | |
| Carbonate (as CaCO3) | mg/L | | 10/24/2011 0947h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 10/27/2011 2210h | SM4500-Cl-E | 5.00 | < 5.00 | |
| Hardness (as CaCO3) | mg/L | | 10/26/2011 | SM2340B | 10.0 | **252** | |
| Nitrate (as N) | mg/L | | 10/21/2011 1224h | E353.2 | 0.0100 | **1.41** | H |
| Nitrite (as N) | mg/L | | 10/21/2011 1224h | E353.2 | 0.0100 | < 0.0100 | H |
| Phosphate, Total (as P) | mg/L | 10/26/2011 0715h | 10/26/2011 1848h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/26/2011 1207h | SM4500-SO4-E | 5.00 | **15.4** | |
| Total Dissolved Solids | mg/L | | 10/21/2011 1300h | SM2540C | 20.0 | **292** | |

*H - Sample was received outside of the holding time.*

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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110390
**Project:** Scofield Baseline

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-15137 | Aluminum | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 80-120 | | | | 10/26/2011 1529h |
| LCS-15137 | Boron | mg/L | SW6010C | 1.11 | 1.000 | 0 | 111 | 80-120 | | | | 10/26/2011 1529h |
| LCS-15137 | Calcium | mg/L | SW6010C | 10.4 | 10.00 | 0 | 104 | 80-120 | | | | 10/26/2011 1529h |
| LCS-15137 | Iron | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 80-120 | | | | 10/26/2011 1529h |
| LCS-15137 | Magnesium | mg/L | SW6010C | 10.6 | 10.00 | 0 | 106 | 80-120 | | | | 10/26/2011 1529h |
| LCS-15137 | Molybdenum | mg/L | SW6010C | 0.221 | 0.2000 | 0 | 111 | 80-120 | | | | 10/26/2011 1529h |
| LCS-15137 | Potassium | mg/L | SW6010C | 10.7 | 10.00 | 0 | 107 | 80-120 | | | | 10/26/2011 1529h |
| LCS-15137 | Sodium | mg/L | SW6010C | 10.5 | 10.00 | 0 | 105 | 80-120 | | | | 10/26/2011 1529h |
| LCS-15145 | Iron | mg/L | SW6010C | 1.04 | 1.000 | 0 | 104 | 80-120 | | | | 10/25/2011 1555h |
| LCS-15137 | Arsenic | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 101 | 85-115 | | | | 10/24/2011 0409h |
| LCS-15137 | Cadmium | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 102 | 85-115 | | | | 10/24/2011 0409h |
| LCS-15137 | Copper | mg/L | SW6020A | 0.197 | 0.2000 | 0 | 98.7 | 85-115 | | | | 10/24/2011 0409h |
| LCS-15137 | Lead | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 85-115 | | | | 10/24/2011 0409h |
| LCS-15137 | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 85-115 | | | | 10/24/2011 0409h |
| LCS-15137 | Selenium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 10/24/2011 0409h |
| LCS-15137 | Zinc | mg/L | SW6020A | 0.995 | 1.000 | 0 | 99.5 | 85-115 | | | | 10/24/2011 0409h |
| LCS-15145 | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 10/24/2011 1630h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110390
**Project:** Scofield Baseline

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-15137 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 10/26/2011 1524h |
| MB-15137 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 10/26/2011 1524h |
| MB-15137 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/26/2011 1524h |
| MB-15137 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 10/26/2011 1524h |
| MB-15137 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/26/2011 1524h |
| MB-15137 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 10/26/2011 1524h |
| MB-15137 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/26/2011 1524h |
| MB-15137 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 10/26/2011 1524h |
| MB-15145 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 10/25/2011 1551h |
| MB-15137 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 10/24/2011 0402h |
| MB-15137 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 10/24/2011 0402h |
| MB-15137 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 10/24/2011 0402h |
| MB-15137 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 10/24/2011 0402h |
| MB-15137 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 10/24/2011 0402h |
| MB-15137 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 10/24/2011 0402h |
| MB-15137 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 10/24/2011 0402h |
| MB-15145 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 10/24/2011 1624h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110390
**Project:** Scofield Baseline

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110291-001DMS | Aluminum | mg/L | SW6010C | 1.10 | 1.000 | 0 | 110 | 75-125 | | | | 10/26/2011 1742h |
| 1110291-001DMS | Boron | mg/L | SW6010C | 1.10 | 1.000 | 0.01270 | 109 | 75-125 | | | | 10/26/2011 1742h |
| 1110291-001DMS | Calcium | mg/L | SW6010C | 83.1 | 10.00 | 71.67 | 114 | 75-125 | | | | 10/26/2011 1545h |
| 1110291-001DMS | Iron | mg/L | SW6010C | 1.03 | 1.000 | 0 | 103 | 75-125 | | | | 10/26/2011 1742h |
| 1110291-001DMS | Magnesium | mg/L | SW6010C | 22.0 | 10.00 | 11.64 | 104 | 75-125 | | | | 10/26/2011 1742h |
| 1110291-001DMS | Molybdenum | mg/L | SW6010C | 0.214 | 0.2000 | 0 | 107 | 75-125 | | | | 10/26/2011 1742h |
| 1110291-001DMS | Potassium | mg/L | SW6010C | 11.7 | 10.00 | 0.9397 | 108 | 75-125 | | | | 10/26/2011 1742h |
| 1110291-001DMS | Sodium | mg/L | SW6010C | 13.8 | 10.00 | 3.084 | 107 | 75-125 | | | | 10/26/2011 1742h |
| 1110390-006DMS | Aluminum | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 75-125 | | | | 10/26/2011 1914h |
| 1110390-006DMS | Boron | mg/L | SW6010C | 1.10 | 1.000 | 0.01554 | 108 | 75-125 | | | | 10/26/2011 1914h |
| 1110390-006DMS | Calcium | mg/L | SW6010C | 91.0 | 10.00 | 80.49 | 105 | 75-125 | | | | 10/26/2011 1725h |
| 1110390-006DMS | Iron | mg/L | SW6010C | 1.01 | 1.000 | 0 | 101 | 75-125 | | | | 10/26/2011 1914h |
| 1110390-006DMS | Magnesium | mg/L | SW6010C | 22.1 | 10.00 | 12.52 | 96.2 | 75-125 | | | | 10/26/2011 1914h |
| 1110390-006DMS | Molybdenum | mg/L | SW6010C | 0.206 | 0.2000 | 0 | 103 | 75-125 | | | | 10/26/2011 1914h |
| 1110390-006DMS | Potassium | mg/L | SW6010C | 11.6 | 10.00 | 1.161 | 104 | 75-125 | | | | 10/26/2011 1914h |
| 1110390-006DMS | Sodium | mg/L | SW6010C | 13.7 | 10.00 | 3.558 | 102 | 75-125 | | | | 10/26/2011 1914h |
| 1110390-001FMS | Iron | mg/L | SW6010C | 3.78 | 1.000 | 2.620 | 116 | 75-125 | | | | 10/25/2011 1714h |
| 1110291-001DMS | Arsenic | mg/L | SW6020A | 0.199 | 0.2000 | 0.0005090 | 99.3 | 75-125 | | | | 10/24/2011 0505h |
| 1110291-001DMS | Cadmium | mg/L | SW6020A | 0.199 | 0.2000 | 0.0001110 | 99.6 | 75-125 | | | | 10/24/2011 0505h |
| 1110291-001DMS | Copper | mg/L | SW6020A | 0.200 | 0.2000 | 0.0009030 | 99.7 | 75-125 | | | | 10/24/2011 0505h |
| 1110291-001DMS | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | | | | 10/24/2011 0505h |
| 1110291-001DMS | Manganese | mg/L | SW6020A | 0.201 | 0.2000 | 0.0001530 | 100 | 75-125 | | | | 10/24/2011 0505h |
| 1110291-001DMS | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.0004640 | 101 | 75-125 | | | | 10/24/2011 0505h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110390
**Project:** Scofield Baseline

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110291-001DMS | Zinc | mg/L | SW6020A | 0.992 | 1.000 | 0.005550 | 98.7 | 75-125 | | | | 10/24/2011 0505h |
| 1110390-006DMS | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0002060 | 100 | 75-125 | | | | 10/24/2011 0728h |
| 1110390-006DMS | Cadmium | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.3 | 75-125 | | | | 10/24/2011 0728h |
| 1110390-006DMS | Copper | mg/L | SW6020A | 0.199 | 0.2000 | 0.0005900 | 99.2 | 75-125 | | | | 10/24/2011 0728h |
| 1110390-006DMS | Lead | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 102 | 75-125 | | | | 10/24/2011 0728h |
| 1110390-006DMS | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0.0003580 | 101 | 75-125 | | | | 10/24/2011 0728h |
| 1110390-006DMS | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | | | | 10/24/2011 0728h |
| 1110390-006DMS | Zinc | mg/L | SW6020A | 0.998 | 1.000 | 0 | 99.8 | 75-125 | | | | 10/24/2011 0728h |
| 1110390-001FMS | Manganese | mg/L | SW6020A | 0.337 | 0.2000 | 0.1397 | 98.5 | 75-125 | | | | 10/24/2011 1832h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110390
**Project:** Scofield Baseline

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110291-001DMSD | Aluminum | mg/L | SW6010C | 1.08 | 1.000 | 0 | 108 | 75-125 | 2.15 | 20 | | 10/26/2011 1746h |
| 1110291-001DMSD | Boron | mg/L | SW6010C | 1.09 | 1.000 | 0.01270 | 108 | 75-125 | 1.4 | 20 | | 10/26/2011 1746h |
| 1110291-001DMSD | Calcium | mg/L | SW6010C | 81.4 | 10.00 | 71.67 | 96.8 | 75-125 | 2.1 | 20 | | 10/26/2011 1549h |
| 1110291-001DMSD | Iron | mg/L | SW6010C | 1.03 | 1.000 | 0 | 103 | 75-125 | 0.478 | 20 | | 10/26/2011 1746h |
| 1110291-001DMSD | Magnesium | mg/L | SW6010C | 22.0 | 10.00 | 11.64 | 104 | 75-125 | 0.152 | 20 | | 10/26/2011 1746h |
| 1110291-001DMSD | Molybdenum | mg/L | SW6010C | 0.202 | 0.2000 | 0 | 101 | 75-125 | 5.8 | 20 | | 10/26/2011 1746h |
| 1110291-001DMSD | Potassium | mg/L | SW6010C | 11.4 | 10.00 | 0.9397 | 105 | 75-125 | 2.87 | 20 | | 10/26/2011 1746h |
| 1110291-001DMSD | Sodium | mg/L | SW6010C | 13.5 | 10.00 | 3.084 | 104 | 75-125 | 2.23 | 20 | | 10/26/2011 1746h |
| 1110390-006DMSD | Aluminum | mg/L | SW6010C | 1.07 | 1.000 | 0 | 107 | 75-125 | 1.08 | 20 | | 10/26/2011 1918h |
| 1110390-006DMSD | Boron | mg/L | SW6010C | 1.11 | 1.000 | 0.01554 | 109 | 75-125 | 0.983 | 20 | | 10/26/2011 1918h |
| 1110390-006DMSD | Calcium | mg/L | SW6010C | 91.1 | 10.00 | 80.49 | 106 | 75-125 | 0.0787 | 20 | | 10/26/2011 1729h |
| 1110390-006DMSD | Iron | mg/L | SW6010C | 1.01 | 1.000 | 0 | 101 | 75-125 | 0.159 | 20 | | 10/26/2011 1918h |
| 1110390-006DMSD | Magnesium | mg/L | SW6010C | 22.1 | 10.00 | 12.52 | 95.4 | 75-125 | 0.375 | 20 | | 10/26/2011 1918h |
| 1110390-006DMSD | Molybdenum | mg/L | SW6010C | 0.208 | 0.2000 | 0 | 104 | 75-125 | 0.991 | 20 | | 10/26/2011 1918h |
| 1110390-006DMSD | Potassium | mg/L | SW6010C | 11.4 | 10.00 | 1.161 | 103 | 75-125 | 0.939 | 20 | | 10/26/2011 1918h |
| 1110390-006DMSD | Sodium | mg/L | SW6010C | 13.8 | 10.00 | 3.558 | 102 | 75-125 | 0.237 | 20 | | 10/26/2011 1918h |
| 1110390-001FMSD | Iron | mg/L | SW6010C | 3.72 | 1.000 | 2.620 | 110 | 75-125 | 1.6 | 20 | | 10/25/2011 1718h |
| 1110291-001DMSD | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0.0005090 | 99.8 | 75-125 | 0.483 | 20 | | 10/24/2011 0511h |
| 1110291-001DMSD | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0.0001110 | 99.9 | 75-125 | 0.247 | 20 | | 10/24/2011 0511h |
| 1110291-001DMSD | Copper | mg/L | SW6020A | 0.200 | 0.2000 | 0.0009030 | 99.3 | 75-125 | 0.362 | 20 | | 10/24/2011 0511h |
| 1110291-001DMSD | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | 0.235 | 20 | | 10/24/2011 0511h |
| 1110291-001DMSD | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0.0001530 | 99.9 | 75-125 | 0.295 | 20 | | 10/24/2011 0511h |
| 1110291-001DMSD | Selenium | mg/L | SW6020A | 0.204 | 0.2000 | 0.0004640 | 102 | 75-125 | 0.931 | 20 | | 10/24/2011 0511h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110390
**Project:** Scofield Baseline

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110291-001DMSD | Zinc | mg/L | SW6020A | 0.995 | 1.000 | 0.005550 | 98.9 | 75-125 | 0.255 | 20 | | 10/24/2011 0511h |
| 1110390-006DMSD | Arsenic | mg/L | SW6020A | 0.204 | 0.2000 | 0.0002060 | 102 | 75-125 | 1.38 | 20 | | 10/24/2011 0734h |
| 1110390-006DMSD | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | 0.697 | 20 | | 10/24/2011 0734h |
| 1110390-006DMSD | Copper | mg/L | SW6020A | 0.195 | 0.2000 | 0.0005900 | 97.2 | 75-125 | 2.08 | 20 | | 10/24/2011 0734h |
| 1110390-006DMSD | Lead | mg/L | SW6020A | 0.204 | 0.2000 | 0 | 102 | 75-125 | 0.258 | 20 | | 10/24/2011 0734h |
| 1110390-006DMSD | Manganese | mg/L | SW6020A | 0.199 | 0.2000 | 0.0003580 | 99.4 | 75-125 | 1.65 | 20 | | 10/24/2011 0734h |
| 1110390-006DMSD | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 75-125 | 0.192 | 20 | | 10/24/2011 0734h |
| 1110390-006DMSD | Zinc | mg/L | SW6020A | 1.00 | 1.000 | 0 | 100 | 75-125 | 0.382 | 20 | | 10/24/2011 0734h |
| 1110390-001FMSD | Manganese | mg/L | SW6020A | 0.335 | 0.2000 | 0.1397 | 97.7 | 75-125 | 0.481 | 20 | | 10/24/2011 1838h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110390
**Project:** Scofield Baseline

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110390-005BDUP | Sulfate | mg/L | SM4500-SO4-E | 43.5 | | 41.24 | | - | 5.24 | 10 | | 10/26/2011 1207h |
| 1110390-006ADUP | Total Dissolved Solids | mg/L | SM2540C | 296 | | 292.0 | | - | 1.36 | 5 | | 10/21/2011 1300h |
| 1110390-003ADUP | Total Suspended Solids | mg/L | SM2540D | 20.0 | | 17.00 | | - | 16.2 | 5 | @ | 10/21/2011 1745h |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*



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Laboratory Director

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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110390
**Project:** Scofield Baseline

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R32833 | Acidity | mg/L | SM2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | | | | 10/24/2011 1040h |
| LCS-R32832 | Alkalinity (as CaCO3) | mg/L | SM2320B | 47,600 | 50,000 | 0 | 95.1 | 90-110 | | | | 10/24/2011 0947h |
| LCS-R33050 | Chloride | mg/L | SM4500-Cl-E | 25.2 | 25.00 | 0 | 101 | 90-110 | | | | 10/27/2011 2053h |
| LCS-15320 | Ammonia (as N) | mg/L | E350.1 | 1.05 | 1.000 | 0 | 105 | 90-110 | | | | 11/1/2011 2020h |
| LCS-R32782 | Nitrite (as N) | mg/L | E353.2 | 1.05 | 1.000 | 0 | 105 | 90-110 | | | | 10/21/2011 1128h |
| LCS-R32783 | Nitrate (as N) | mg/L | E353.2 | 0.952 | 1.000 | 0 | 95.2 | 90-110 | | | | 10/21/2011 1129h |
| LCS-R32839 | Oil & Grease | mg/L | E1664A | 36.0 | 40.00 | 0 | 90.0 | 78-114 | | | | 10/21/2011 1452h |
| LCS-15209 | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.934 | 1.000 | 0 | 93.4 | 90-110 | | | | 10/26/2011 1836h |
| LCS-R32952 | Sulfate | mg/L | SM4500-SO4-E | 981 | 1,000 | 0 | 98.1 | 90-110 | | | | 10/26/2011 1207h |
| LCS-R32980 | Total Dissolved Solids | mg/L | SM2540C | 212 | 205.0 | 0 | 103 | 80-120 | | | | 10/21/2011 1300h |
| LCS-R32824 | Total Suspended Solids | mg/L | SM2540D | 101 | 100.0 | 0 | 101 | 80-120 | | | | 10/21/2011 1745h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110390
**Project:** Scofield Baseline

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R32833 | Acidity | mg/L | SM2310B | < 15.0 | | | | - | | | | 10/24/2011 1040h |
| MB-R32832 | Alkalinity (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 10/24/2011 0947h |
| MB-R32832 | Bicarbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 10/24/2011 0947h |
| MB-R32832 | Carbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 10/24/2011 0947h |
| MB-R33050 | Chloride | mg/L | SM4500-Cl-E | < 5.00 | | | | - | | | | 10/27/2011 2050h |
| MB-15320 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 11/1/2011 2019h |
| MB-R32782 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 10/21/2011 1126h |
| MB-R32783 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 10/21/2011 1126h |
| MB-R32839 | Oil & Grease | mg/L | E1664A | < 3.00 | | | | - | | | | 10/21/2011 1452h |
| MB-15209 | Phosphate, Total (as P) | mg/L | SM4500-P-F | < 0.0500 | | | | - | | | | 10/26/2011 1835h |
| MB-R32952 | Sulfate | mg/L | SM4500-SO4-E | < 5.00 | | | | - | | | | 10/26/2011 1207h |
| MB-R32980 | Total Dissolved Solids | mg/L | SM2540C | < 10.0 | | | | - | | | | 10/21/2011 1300h |
| MB-R32824 | Total Suspended Solids | mg/L | SM2540D | < 3.00 | | | | - | | | | 10/21/2011 1745h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110390
**Project:** Scofield Baseline

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110390-006BMS | Acidity | mg/L | SM2310B | 54.0 | 50.00 | 0 | 108 | 80-120 | | | | 10/24/2011 1040h |
| 1110390-001BMS | Alkalinity (as CaCO3) | mg/L | SM2320B | 369 | 100.0 | 270.6 | 98.4 | 80-120 | | | | 10/24/2011 0947h |
| 1110390-001BMS | Chloride | mg/L | SM4500-Cl-E | 24.3 | 10.00 | 11.32 | 130 | 90-110 | | | 1 | 10/27/2011 2159h |
| 1110390-002CMS | Ammonia (as N) | mg/L | E350.1 | 1.02 | 1.000 | 0 | 102 | 90-110 | | | | 11/1/2011 2024h |
| 1110390-001BMS | Nitrite (as N) | mg/L | E353.2 | 1.09 | 1.000 | 0.02300 | 106 | 90-110 | | | H | 10/21/2011 1213h |
| 1110390-001BMS | Nitrate (as N) | mg/L | E353.2 | 0.990 | 1.000 | 0 | 99.0 | 90-110 | | | H | 10/21/2011 1215h |
| 1110390-001DMS | Phosphate, Total (as P) | mg/L | SM4500-P-F | 1.11 | 1.000 | 0.1450 | 96.6 | 90-110 | | | | 10/26/2011 1840h |
| 1110390-004BMS | Sulfate | mg/L | SM4500-SO4-E | 26.3 | 20.00 | 6.450 | 99.4 | 80-120 | | | | 10/26/2011 1207h |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*
*H - Sample was received outside of the holding time.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110390
**Project:** Scofield Baseline

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110390-006BMSD | Acidity | mg/L | SM2310B | 54.0 | 50.00 | 0 | 108 | 80-120 | 0 | 0 | | 10/24/2011 1040h |
| 1110390-001BMSD | Alkalinity (as CaCO3) | mg/L | SM2320B | 362 | 100.0 | 270.6 | 91.8 | 80-120 | 1.8 | 10 | | 10/24/2011 0947h |
| 1110390-001BMSD | Chloride | mg/L | SM4500-Cl-E | 24.4 | 10.00 | 11.32 | 131 | 90-110 | 0.542 | 10 | 1 | 10/27/2011 2200h |
| 1110390-002CMSD | Ammonia (as N) | mg/L | E350.1 | 1.03 | 1.000 | 0 | 103 | 90-110 | 0.86 | 10 | | 11/1/2011 2025h |
| 1110390-001BMSD | Nitrite (as N) | mg/L | E353.2 | 1.07 | 1.000 | 0.02300 | 105 | 90-110 | 1.1 | 10 | H | 10/21/2011 1214h |
| 1110390-001BMSD | Nitrate (as N) | mg/L | E353.2 | 0.997 | 1.000 | 0 | 99.7 | 90-110 | 0.684 | 10 | H | 10/21/2011 1217h |
| 1110390-001DMSD | Phosphate, Total (as P) | mg/L | SM4500-P-F | 1.10 | 1.000 | 0.1450 | 95.0 | 90-110 | 1.44 | 10 | | 10/26/2011 1840h |
| 1110390-004BMSD | Sulfate | mg/L | SM4500-SO4-E | 25.3 | 20.00 | 6.450 | 94.4 | 80-120 | 3.83 | 10 | | 10/26/2011 1207h |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*
*H - Sample was received outside of the holding time.*



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## WORK ORDER Summary

**Work Order:** **1110390**

**Client:** Carbon Resources — Page 1 of 5 — 10/21/2011

**Client ID:** CAR300 **Contact:** Brad Lindsay

**Project:** Scofield Baseline **QC Level:** LEVEL II+ **WO Type:** Project

**Comments:** No Hard Copies. QC 2+, EDD. Footnote report, NO2, NO3, SS and Dissolved Metals received outside of hold.;

DB

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110390-001A | LB-4 | 10/17/2011 1300h | 10/20/2011 1435h | 11/3/2011 | Aqueous | SS-W-2540F | ☐ | ww - ss/tss | 1 |
| | | | | | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1110390-001B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110390-001C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110390-001D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110390-001E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110390-001F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110390-002A | LB-1 | 10/17/2011 1200h | | | | TDS-W-2540C | ☐ | ww - tds | |

# WORK ORDER Summary

Work Order: **1110390**

Client: Carbon Resources

 10/21/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110390-002B | LB-1 | 10/17/2011 1200h | 10/20/2011 1435h | 11/3/2011 | Aqueous | ACIDITY-W-2310B | ☐ | DF - wc | 1 |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110390-002C | | | | | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | | | NH3-W-PR | ☐ | df - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | df - nh3 | |
| | | | | | | PO4-W-PR | ☐ | df - nh3 | |
| 1110390-002D | | | | | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | df - dis met | |
| | | | | | | HARD-2340B | ☐ | df - dis met | |
| 1110390-002E | | | | | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110390-003A | BC-4 | 10/17/2011 1500h | | | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1110390-003B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110390-003C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110390-003D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |

# WORK ORDER Summary

**Client:** Carbon Resources

**Work Order:** 1110390

 10/21/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110390-003D | BC-4 | 10/17/2011 1500h | 10/20/2011 1435h | 11/3/2011 | Aqueous | NH3-W-PR | ☐ | DF - nh3 | 1 |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110390-003E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110390-003F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110390-004A | BC-7 | 10/17/2011 1615h | | | | TDS-W-2540C | ☐ | ww - tds | |
| 1110390-004B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110390-004C | | | | | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | | | NH3-W-PR | ☐ | df - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | df - nh3 | |
| | | | | | | PO4-W-PR | ☐ | df - nh3 | |
| 1110390-004D | | | | | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | df - dis met | |
| | | | | | | HARD-2340B | ☐ | df - dis met | |

# WORK ORDER Summary

Work Order: **1110390**

Client: Carbon Resources



10/21/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110390-004E | BC-7 | 10/17/2011 1615h | 10/20/2011 1435h | 11/3/2011 | Aqueous | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110390-005A | LB-2 | 10/17/2011 1230h | | | | TDS-W-2540C | ☐ | ww - tds | |
| 1110390-005B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110390-005C | | | | | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | | | NH3-W-PR | ☐ | df - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | df - nh3 | |
| | | | | | | PO4-W-PR | ☐ | df - nh3 | |
| 1110390-005D | | | | | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | df - dis met | |
| | | | | | | HARD-2340B | ☐ | df - dis met | |
| 1110390-005E | | | | | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110390-006A | BC-9 | 10/17/2011 1700h | | | | TDS-W-2540C | ☐ | ww - tds | |
| 1110390-006B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |

# WORK ORDER Summary

Work Order: **1110390**

Client: Carbon Resources



10/21/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110390-006B | BC-9 | 10/17/2011 1700h | 10/20/2011 1435h | 11/3/2011 | Aqueous | NO3-W-353.2 | | DF - wc | 1 |
| | | | | | | SO4-W-4500SO4E | | DF - wc | |
| 1110390-006C | | | | | | NH3-W-350.1 | | df - nh3 | |
| | | | | | | NH3-W-PR | | df - nh3 | |
| | | | | | | PO4-W-4500PF | | df - nh3 | |
| | | | | | | PO4-W-PR | | df - nh3 | |
| 1110390-006D | | | | | | 3005A-DIS-PR | | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | | df - dis met | |
| | | | | | | HARD-2340B | | df - dis met | |
| 1110390-006E | | | | | | 3005A-ICPMS-PR | | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |

Client: Carbon Resources c/o Rock Logic
Address: Box 544
Cedaredge CO 81413
City State Zip
Phone: 970-260-0448 Fax:
Contact: Greg Hunt
E-mail:
Project Name:
Project Number/P.O.#: Kinney Mine
Sampler Name:

AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com

# CHAIN OF CUSTODY

Lab Sample Set # 1110390
Page _____ of _____

**Turn Around Time (Circle One)**
1 day 2 day 3 day 4 day 5 day (Standard)

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TESTS REQUIRED: Table 4 | TESTS REQUIRED: Table 3 | QC LEVEL | COMMENTS |
|---|---|---|---|---|---|---|---|
| LB-4 | 10/17/11 1:00p | GW | 6 | | ✓ | 1 2 2+ 3 3+ 4 | |
| LB-1 | 10/17/11 12:00p | GW | 5 | ✓ | | | |
| RC-4 | 10/17/11 3:00p | GW | 6 | | ✓ | | |
| BC-7 | 10/17/11 4:15p | GW | 5 | ✓ | ✓ | | |
| LB-2 | 10/17/11 12:30p | GW | 5 | ✓ | ✓ | | |
| RC-9 | 10/17/11 5:00p | GW | 5 | ✓ | | | |

**LABORATORY USE ONLY**

SAMPLES WERE:
1 Shipped or Hand delivered
Notes:
2 Ambient or (Chilled)
Notes:
3 Temperature 10.9°
4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:
5 Properly Preserved
(Y) N
Checked at Bench
Y N
Notes:
6 Received Within Holding Times
Y (N)
Notes:
pH E. DB 10/21/11
NO2 & NO3, Dissolved and SS out of method hold.

COC Tape Was:
1 Present on Outer Package
Y (N) NA
2 Unbroken on Outer Package
Y N (NA)
3 Present on Sample
Y (N) NA
4 Unbroken on Sample
Y N (NA)

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME: Tyler Berry | Time: 14:25 | PRINT NAME: Denise Braun | Time: 14:35 |
| | | | |
| | | | |
| | | | |

Special Instructions:

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Requirements
Baseline, Operational and Post-mining

| | | | | REPORTED AS |
|---|---|---|---|---|
| | | FIELD MEASUREMENTS | | |
| * | - | Water level or Flow | | Depth, Flow |
| * | - | pH | | Standard units |
| * | - | Specific Conductivity | | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | | mg/l |
| * | - | Temperature | | °C |
| | | LABORATORY MEASUREMENTS | | |
| * | - | Total Dissolved Solids | | mg/l |
| * | - | Total Settleable Solids | | (UPDES) |
| * | - | Total Suspended Solids | | mg/l |
| * | - | Total Hardness ($CaCO_3$) | | mg/l |
| * | - | Total Alkalinity | | mg/l |
| | - | Acidity | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved)[1] | | mg/l |
| * | - | Carbonate | | mg/l |
| * | - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| * | - | Calcium (Dissolved) | | mg/l |
| * | - | Chloride | | mg/l |
| | - | Copper (Dissolved) | | mg/l |
| * | - | Iron (Dissolved) | | mg/l |
| * | - | Iron (Total) | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| * | - | Magnesium (Dissolved) | | mg/l |
| * | - | Manganese (Dissolved) | | mg/l |
| * | - | Manganese (Total) | | mg/l |
| | - | Molybdenum (Dissolved) | | mg/l |
| | - | Ammonia | | mg/l |
| | - | Nitrates | | mg/l |
| | - | Nitrites | | mg/l |
| * | - | Potassium (Dissolved) | | mg/l |
| | - | ~~Phosphates(Ortho)~~ | | mg/l Changed to Total Phosphate per Greg Hunt 6/30/11 -RW |
| | - | Selenium[1] (Dissolved) | | mg/l |
| * | - | Sodium (Dissolved) | | mg/l |
| * | - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| * | - | Oil & Grease[2] | | mg/l |
| * | - | Cations | | meq/l |
| * | - | Anions | | meq/l |

1/2 gal HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 Amber L HCL

1 Parameters will be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
- Parameters required for Baseline monitoring.
* Parameters required for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Requirements
Baseline, Operational and Post-mining

| | | | | | |
|---|---|---|---|---|---|
| | | FIELD MEASUREMENTS | | | REPORTED AS |
| | * | - | Water level or Flow | | Depth, Flow |
| 1 L HDPE | * | - | pH | | Standard units |
| 1 L HDPE | * | - | Specific Conductivity | | umhos/cm @ 25° C |
| 250 mL HDPE | * | - | Temperature | | °C |
| 1 500 mL HNO3 | | | | | |
| 1 250 mL H2SO4 | | | LABORATORY MEASUREMENTS | | |
| | * | - | Total Dissolved Solids | | mg/l |
| | * | - | Total Hardness ($CaCO_3$) | | mg/l |
| | * | - | Total Alkalinity | | mg/l |
| | | - | Acidity | | mg/l |
| | | - | Aluminum (Dissolved) | | mg/l |
| | | - | Arsenic (Dissolved) | | mg/l |
| | | - | Boron (Dissolved)[1] | | mg/l |
| | * | - | Carbonate | | mg/l |
| | * | - | Bicarbonate | | mg/l |
| | | - | Cadmium (Dissolved) | | mg/l |
| | * | - | Calcium (Dissolved) | | mg/l |
| | * | - | Chloride | | mg/l |
| | | - | Copper (Dissolved) | | mg/l |
| | * | - | Iron (Dissolved) | | mg/l |
| | * | - | Iron (Total) | | mg/l |
| | | - | Lead (Dissolved) | mg/l | |
| | * | - | Magnesium (Dissolved) | | mg/l |
| | * | - | Manganese (Dissolved) | | mg/l |
| | * | - | Manganese (Total) | | mg/l |
| | | - | Molybdenum (Dissolved) | | mg/l |
| | | - | Ammonia | | mg/l |
| | | - | Nitrates | | mg/l |
| | | - | Nitrites | | mg/l |
| | * | - | Potassium (Dissolved) | | mg/l |
| | | - | ~~Phosphate (Ortho)~~ | | mg/l Changed to Total Phosphate per Greg Hunt 6/30/11 RW |
| | | - | Selenium[1] (Dissolved) | | mg/l |
| | * | - | Sodium (Dissolved) | | mg/l |
| | * | - | Sulfate | | mg/l |
| | | - | Zinc (Dissolved) | mg/l | |
| | * | - | Cations | | meq/l |
| | * | - | Anions | | meq/l |

[1] These parameters will be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters required for Baseline monitoring.
* Indicates parameters required for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 1110390

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

American West
ANALYTICAL LABORATORIES

463 West 3600 South
Salt Lake City, UT 84115

Phone: (801) 263-8686
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web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Kinney Baseline

Dear Brad Lindsay: Lab Set ID: 1110422

American West Analytical Laboratories received 7 sample(s) on 10/24/2011 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado, Idaho, and Missouri. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Kyle F. Gross
Digitally signed by Kyle F. Gross
DN: cn=Kyle F. Gross, o=AWAL, ou=AWAL, email=kyle@awal-labs.com, c=US
Date: 2011.11.04 19:21:03 -06'00'

Laboratory Director or designee



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-001
**Client Sample ID:** MC-2
**Collection Date:** 10/20/2011 1500h
**Received Date:** 10/24/2011 1000h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/25/2011 1644h | 11/2/2011 1114h | SW6010C | 0.100 | < 0.100 | |
| Manganese | mg/L | 10/25/2011 1644h | 10/25/2011 2300h | SW6020A | 0.00120 | **0.00245** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-002
**Client Sample ID:** MC-1
**Collection Date:** 10/20/2011 1430h
**Received Date:** 10/24/2011 1000h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/25/2011 1644h | 11/2/2011 1126h | SW6010C | 0.100 | **1.07** | |
| Manganese | mg/L | 10/25/2011 1644h | 10/25/2011 2350h | SW6020A | 0.00120 | **0.0176** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-003
**Client Sample ID:** MC-4
**Collection Date:** 10/20/2011 1610h
**Received Date:** 10/24/2011 1000h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/25/2011 1644h | 11/2/2011 1130h | SW6010C | 0.100 | **0.490** | |
| Manganese | mg/L | 10/25/2011 1644h | 10/25/2011 2356h | SW6020A | 0.00120 | **0.0339** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-004
**Client Sample ID:** MI-8
**Collection Date:** 10/21/2011 1230h
**Received Date:** 10/24/2011 1000h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/25/2011 1644h | 11/2/2011 1134h | SW6010C | 0.100 | **0.466** | |
| Manganese | mg/L | 10/25/2011 1644h | 10/26/2011 0002h | SW6020A | 0.00120 | **0.0429** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-005
**Client Sample ID:** MI-2
**Collection Date:** 10/21/2011 1640h
**Received Date:** 10/24/2011 1000h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/25/2011 1644h | 11/2/2011 1138h | SW6010C | 0.100 | **0.814** | |
| Manganese | mg/L | 10/25/2011 1644h | 10/26/2011 0007h | SW6020A | 0.00120 | **0.166** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-006
**Client Sample ID:** MI-10
**Collection Date:** 10/21/2011 1530h
**Received Date:** 10/24/2011 1000h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/25/2011 1644h | 11/2/2011 1142h | SW6010C | 0.100 | **0.609** | |
| Manganese | mg/L | 10/25/2011 1644h | 10/26/2011 0013h | SW6020A | 0.00120 | **0.0174** | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-007
**Client Sample ID:** MI-1
**Collection Date:** 10/21/2011 1630h
**Received Date:** 10/24/2011 1000h

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/25/2011 1644h | 11/2/2011 1145h | SW6010C | 0.100 | < 0.100 | |
| Manganese | mg/L | 10/25/2011 1644h | 10/26/2011 0019h | SW6020A | 0.00120 | < 0.00120 | |


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-001
**Client Sample ID:** MC-2
**Collection Date:** 10/20/2011 1500h
**Received Date:** 10/24/2011 1000h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/25/2011 1641h | 11/3/2011 1541h | SW6010C | 0.100 | < 0.100 | H |
| Arsenic | mg/L | 10/25/2011 1641h | 10/25/2011 2053h | SW6020A | 0.000600 | < 0.000600 | H |
| Boron | mg/L | 10/25/2011 1641h | 11/3/2011 1541h | SW6010C | 0.500 | < 0.500 | H |
| Cadmium | mg/L | 10/25/2011 1641h | 10/25/2011 2053h | SW6020A | 0.000180 | < 0.000180 | H |
| Calcium | mg/L | 10/25/2011 1641h | 11/3/2011 0920h | SW6010C | 10.0 | **87.2** | [2] H |
| Copper | mg/L | 10/25/2011 1641h | 10/25/2011 2053h | SW6020A | 0.000800 | < 0.000800 | H |
| Iron | mg/L | 10/25/2011 1641h | 11/3/2011 1541h | SW6010C | 0.100 | < 0.100 | H |
| Lead | mg/L | 10/25/2011 1641h | 10/25/2011 2053h | SW6020A | 0.000400 | < 0.000400 | H |
| Magnesium | mg/L | 10/25/2011 1641h | 11/3/2011 1541h | SW6010C | 1.00 | **6.39** | H |
| Manganese | mg/L | 10/25/2011 1641h | 10/25/2011 2053h | SW6020A | 0.00120 | **0.00222** | H |
| Molybdenum | mg/L | 10/25/2011 1641h | 11/3/2011 1541h | SW6010C | 0.0200 | < 0.0200 | H |
| Potassium | mg/L | 10/25/2011 1641h | 11/3/2011 1541h | SW6010C | 1.00 | **1.15** | H |
| Selenium | mg/L | 10/25/2011 1641h | 10/25/2011 2053h | SW6020A | 0.000800 | < 0.000800 | H |
| Sodium | mg/L | 10/25/2011 1641h | 11/3/2011 1541h | SW6010C | 1.00 | **3.82** | H |
| Zinc | mg/L | 10/25/2011 1641h | 10/25/2011 2053h | SW6020A | 0.00500 | < 0.00500 | H |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*
*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*
*H - Sample was received outside of the prep holding time.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-002
**Client Sample ID:** MC-1
**Collection Date:** 10/20/2011 1430h
**Received Date:** 10/24/2011 1000h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/25/2011 1641h | 11/3/2011 1553h | SW6010C | 0.100 | < 0.100 | H |
| Arsenic | mg/L | 10/25/2011 1641h | 10/25/2011 2115h | SW6020A | 0.000600 | < 0.000600 | H |
| Boron | mg/L | 10/25/2011 1641h | 11/3/2011 1553h | SW6010C | 0.500 | < 0.500 | H |
| Cadmium | mg/L | 10/25/2011 1641h | 10/25/2011 2115h | SW6020A | 0.000180 | < 0.000180 | H |
| Calcium | mg/L | 10/25/2011 1641h | 11/3/2011 0937h | SW6010C | 10.0 | **86.8** | H |
| Copper | mg/L | 10/25/2011 1641h | 10/25/2011 2115h | SW6020A | 0.000800 | < 0.000800 | H |
| Iron | mg/L | 10/25/2011 1641h | 11/3/2011 1553h | SW6010C | 0.100 | < 0.100 | H |
| Lead | mg/L | 10/25/2011 1641h | 10/25/2011 2115h | SW6020A | 0.000400 | < 0.000400 | H |
| Magnesium | mg/L | 10/25/2011 1641h | 11/3/2011 1553h | SW6010C | 1.00 | **8.57** | H |
| Manganese | mg/L | 10/25/2011 1641h | 10/25/2011 2115h | SW6020A | 0.00120 | < 0.00120 | H |
| Molybdenum | mg/L | 10/25/2011 1641h | 11/3/2011 1553h | SW6010C | 0.0200 | < 0.0200 | H |
| Potassium | mg/L | 10/25/2011 1641h | 11/3/2011 1553h | SW6010C | 1.00 | < 1.00 | H |
| Selenium | mg/L | 10/25/2011 1641h | 10/25/2011 2115h | SW6020A | 0.000800 | < 0.000800 | H |
| Sodium | mg/L | 10/25/2011 1641h | 11/3/2011 1553h | SW6010C | 1.00 | **3.70** | H |
| Zinc | mg/L | 10/25/2011 1641h | 10/25/2011 2115h | SW6020A | 0.00500 | < 0.00500 | H |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*
*H - Sample was received outside of the prep holding time.*

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Laboratory Director

Jose Rocha
QA Officer

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-003
**Client Sample ID:** MC-4
**Collection Date:** 10/20/2011 1610h
**Received Date:** 10/24/2011 1000h

**Analytical Results** — DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/25/2011 1641h | 11/3/2011 1557h | SW6010C | 0.100 | < 0.100 | H |
| Arsenic | mg/L | 10/25/2011 1641h | 10/25/2011 2120h | SW6020A | 0.000600 | < 0.000600 | H |
| Boron | mg/L | 10/25/2011 1641h | 11/3/2011 1557h | SW6010C | 0.500 | < 0.500 | H |
| Cadmium | mg/L | 10/25/2011 1641h | 10/25/2011 2120h | SW6020A | 0.000180 | < 0.000180 | H |
| Calcium | mg/L | 10/25/2011 1641h | 11/3/2011 0941h | SW6010C | 10.0 | **93.8** | H |
| Copper | mg/L | 10/25/2011 1641h | 10/25/2011 2120h | SW6020A | 0.000800 | < 0.000800 | H |
| Iron | mg/L | 10/25/2011 1641h | 11/3/2011 1557h | SW6010C | 0.100 | < 0.100 | H |
| Lead | mg/L | 10/25/2011 1641h | 10/25/2011 2120h | SW6020A | 0.000400 | < 0.000400 | H |
| Magnesium | mg/L | 10/25/2011 1641h | 11/3/2011 1557h | SW6010C | 1.00 | **6.18** | H |
| Manganese | mg/L | 10/25/2011 1641h | 10/25/2011 2120h | SW6020A | 0.00120 | < 0.00120 | H |
| Molybdenum | mg/L | 10/25/2011 1641h | 11/3/2011 1557h | SW6010C | 0.0200 | < 0.0200 | H |
| Potassium | mg/L | 10/25/2011 1641h | 11/3/2011 1557h | SW6010C | 1.00 | **1.01** | H |
| Selenium | mg/L | 10/25/2011 1641h | 10/25/2011 2120h | SW6020A | 0.000800 | < 0.000800 | H |
| Sodium | mg/L | 10/25/2011 1641h | 11/3/2011 1557h | SW6010C | 1.00 | **3.74** | H |
| Zinc | mg/L | 10/25/2011 1641h | 10/25/2011 2120h | SW6020A | 0.00500 | < 0.00500 | H |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*
*H - Sample was received outside of the prep holding time.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-004
**Client Sample ID:** MI-8
**Collection Date:** 10/21/2011 1230h
**Received Date:** 10/24/2011 1000h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/25/2011 1641h | 11/3/2011 1601h | SW6010C | 0.100 | < 0.100 | H |
| Arsenic | mg/L | 10/25/2011 1641h | 10/25/2011 2126h | SW6020A | 0.000600 | < 0.000600 | H |
| Boron | mg/L | 10/25/2011 1641h | 11/3/2011 1601h | SW6010C | 0.500 | < 0.500 | H |
| Cadmium | mg/L | 10/25/2011 1641h | 10/25/2011 2126h | SW6020A | 0.000180 | < 0.000180 | H |
| Calcium | mg/L | 10/25/2011 1641h | 11/3/2011 0946h | SW6010C | 10.0 | **96.8** | H |
| Copper | mg/L | 10/25/2011 1641h | 10/25/2011 2126h | SW6020A | 0.000800 | < 0.000800 | H |
| Iron | mg/L | 10/25/2011 1641h | 11/3/2011 1601h | SW6010C | 0.100 | < 0.100 | H |
| Lead | mg/L | 10/25/2011 1641h | 10/25/2011 2126h | SW6020A | 0.000400 | < 0.000400 | H |
| Magnesium | mg/L | 10/25/2011 1641h | 11/3/2011 1601h | SW6010C | 1.00 | **14.7** | H |
| Manganese | mg/L | 10/25/2011 1641h | 10/25/2011 2126h | SW6020A | 0.00120 | **0.00762** | H |
| Molybdenum | mg/L | 10/25/2011 1641h | 11/3/2011 1601h | SW6010C | 0.0200 | < 0.0200 | H |
| Potassium | mg/L | 10/25/2011 1641h | 11/3/2011 1601h | SW6010C | 1.00 | **1.03** | H |
| Selenium | mg/L | 10/25/2011 1641h | 10/25/2011 2126h | SW6020A | 0.000800 | < 0.000800 | H |
| Sodium | mg/L | 10/25/2011 1641h | 11/3/2011 1601h | SW6010C | 1.00 | **3.45** | H |
| Zinc | mg/L | 10/25/2011 1641h | 10/25/2011 2126h | SW6020A | 0.00500 | < 0.00500 | H |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*
*H - Sample was received outside of the prep holding time.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-005
**Client Sample ID:** MI-2
**Collection Date:** 10/21/2011 1640h
**Received Date:** 10/24/2011 1000h

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/25/2011 1641h | 11/3/2011 1605h | SW6010C | 0.100 | < 0.100 | H |
| Arsenic | mg/L | 10/25/2011 1641h | 10/25/2011 2132h | SW6020A | 0.000600 | **0.00141** | H |
| Boron | mg/L | 10/25/2011 1641h | 11/3/2011 1605h | SW6010C | 0.500 | < 0.500 | H |
| Cadmium | mg/L | 10/25/2011 1641h | 10/25/2011 2132h | SW6020A | 0.000180 | < 0.000180 | H |
| Calcium | mg/L | 10/25/2011 1641h | 11/3/2011 1029h | SW6010C | 10.0 | **30.7** | H |
| Copper | mg/L | 10/25/2011 1641h | 10/25/2011 2132h | SW6020A | 0.000800 | **0.00151** | H |
| Iron | mg/L | 10/25/2011 1641h | 11/3/2011 1605h | SW6010C | 0.100 | < 0.100 | H |
| Lead | mg/L | 10/25/2011 1641h | 10/25/2011 2132h | SW6020A | 0.000400 | < 0.000400 | H |
| Magnesium | mg/L | 10/25/2011 1641h | 11/3/2011 1605h | SW6010C | 1.00 | **4.49** | H |
| Manganese | mg/L | 10/25/2011 1641h | 10/25/2011 2132h | SW6020A | 0.00120 | **0.00236** | H |
| Molybdenum | mg/L | 10/25/2011 1641h | 11/3/2011 1605h | SW6010C | 0.0200 | < 0.0200 | H |
| Potassium | mg/L | 10/25/2011 1641h | 11/3/2011 1605h | SW6010C | 1.00 | **7.74** | H |
| Selenium | mg/L | 10/25/2011 1641h | 10/25/2011 2132h | SW6020A | 0.000800 | < 0.000800 | H |
| Sodium | mg/L | 10/25/2011 1641h | 11/3/2011 1605h | SW6010C | 1.00 | **3.10** | H |
| Zinc | mg/L | 10/25/2011 1641h | 10/25/2011 2132h | SW6020A | 0.00500 | < 0.00500 | H |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*
*H - Sample was received outside of the prep holding time.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-006
**Client Sample ID:** MI-10
**Collection Date:** 10/21/2011 1530h
**Received Date:** 10/24/2011 1000h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/25/2011 1641h | 11/3/2011 1608h | SW6010C | 0.100 | < 0.100 | H |
| Arsenic | mg/L | 10/25/2011 1641h | 10/25/2011 2138h | SW6020A | 0.000600 | < 0.000600 | H |
| Boron | mg/L | 10/25/2011 1641h | 11/3/2011 1608h | SW6010C | 0.500 | < 0.500 | H |
| Cadmium | mg/L | 10/25/2011 1641h | 10/25/2011 2138h | SW6020A | 0.000180 | < 0.000180 | H |
| Calcium | mg/L | 10/25/2011 1641h | 11/3/2011 1033h | SW6010C | 10.0 | **121** | H |
| Copper | mg/L | 10/25/2011 1641h | 10/25/2011 2138h | SW6020A | 0.000800 | **0.000816** | H |
| Iron | mg/L | 10/25/2011 1641h | 11/3/2011 1608h | SW6010C | 0.100 | < 0.100 | H |
| Lead | mg/L | 10/25/2011 1641h | 10/25/2011 2138h | SW6020A | 0.000400 | < 0.000400 | H |
| Magnesium | mg/L | 10/25/2011 1641h | 11/3/2011 1608h | SW6010C | 1.00 | **12.2** | H |
| Manganese | mg/L | 10/25/2011 1641h | 10/25/2011 2138h | SW6020A | 0.00120 | < 0.00120 | H |
| Molybdenum | mg/L | 10/25/2011 1641h | 11/3/2011 1608h | SW6010C | 0.0200 | < 0.0200 | H |
| Potassium | mg/L | 10/25/2011 1641h | 11/3/2011 1608h | SW6010C | 1.00 | < 1.00 | H |
| Selenium | mg/L | 10/25/2011 1641h | 10/25/2011 2138h | SW6020A | 0.000800 | < 0.000800 | H |
| Sodium | mg/L | 10/25/2011 1641h | 11/3/2011 1608h | SW6010C | 1.00 | **2.89** | H |
| Zinc | mg/L | 10/25/2011 1641h | 10/25/2011 2138h | SW6020A | 0.00500 | < 0.00500 | H |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*
*H - Sample was received outside of the prep holding time.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-007
**Client Sample ID:** MI-1
**Collection Date:** 10/21/2011 1630h
**Received Date:** 10/24/2011 1000h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/25/2011 1641h | 11/3/2011 1625h | SW6010C | 0.100 | < 0.100 | H |
| Arsenic | mg/L | 10/25/2011 1641h | 10/25/2011 2205h | SW6020A | 0.000600 | < 0.000600 | H |
| Boron | mg/L | 10/25/2011 1641h | 11/3/2011 1625h | SW6010C | 0.500 | < 0.500 | H |
| Cadmium | mg/L | 10/25/2011 1641h | 10/25/2011 2205h | SW6020A | 0.000180 | < 0.000180 | H |
| Calcium | mg/L | 10/25/2011 1641h | 11/3/2011 1038h | SW6010C | 10.0 | **137** | H |
| Copper | mg/L | 10/25/2011 1641h | 10/25/2011 2205h | SW6020A | 0.000800 | **0.000833** | H |
| Iron | mg/L | 10/25/2011 1641h | 11/3/2011 1625h | SW6010C | 0.100 | < 0.100 | H |
| Lead | mg/L | 10/25/2011 1641h | 10/25/2011 2205h | SW6020A | 0.000400 | < 0.000400 | H |
| Magnesium | mg/L | 10/25/2011 1641h | 11/3/2011 1625h | SW6010C | 1.00 | **11.2** | H |
| Manganese | mg/L | 10/25/2011 1641h | 10/25/2011 2205h | SW6020A | 0.00120 | < 0.00120 | H |
| Molybdenum | mg/L | 10/25/2011 1641h | 11/3/2011 1625h | SW6010C | 0.0200 | < 0.0200 | H |
| Potassium | mg/L | 10/25/2011 1641h | 11/3/2011 1625h | SW6010C | 1.00 | < 1.00 | H |
| Selenium | mg/L | 10/25/2011 1641h | 10/25/2011 2205h | SW6020A | 0.000800 | < 0.000800 | H |
| Sodium | mg/L | 10/25/2011 1641h | 11/3/2011 1625h | SW6010C | 1.00 | **4.37** | H |
| Zinc | mg/L | 10/25/2011 1641h | 10/25/2011 2205h | SW6020A | 0.00500 | < 0.00500 | H |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*
*H - Sample was received outside of the prep holding time.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-001
**Client Sample ID:** MC-2
**Collection Date:** 10/20/2011 1500h
**Received Date:** 10/24/2011 1000h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/27/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | **195** | |
| Ammonia (as N) | mg/L | 11/2/2011 1105h | 11/2/2011 1752h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | **189** | |
| Carbonate (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 11/1/2011 1711h | SM4500-Cl-E | 5.00 | < 5.00 | |
| Hardness (as CaCO3) | mg/L | | 11/3/2011 | SM2340B | 10.0 | **244** | |
| Nitrate (as N) | mg/L | | 10/24/2011 1531h | E353.2 | 0.100 | **2.42** | H[1] |
| Nitrite (as N) | mg/L | | 10/24/2011 1510h | E353.2 | 0.0100 | < 0.0100 | H |
| Oil & Grease | mg/L | | 10/25/2011 1308h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total (as P) | mg/L | 10/26/2011 0830h | 10/26/2011 1858h | SM4500-P-F | 0.0500 | < 0.0500 | [1]@ |
| Settleable Solids | mL/L | | 10/24/2011 1430h | SM2540F | 0.100 | **0.200** | H |
| Sulfate | mg/L | | 10/27/2011 1200h | SM4500-SO4-E | 5.00 | **15.2** | |
| Total Dissolved Solids | mg/L | | 10/25/2011 1300h | SM2540C | 20.0 | **372** | |
| Total Suspended Solids | mg/L | | 10/25/2011 1515h | SM2540D | 3.00 | **29.0** | @ |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*
*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*
*H - Sample was received outside of the holding time.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-002
**Client Sample ID:** MC-1
**Collection Date:** 10/20/2011 1430h
**Received Date:** 10/24/2011 1000h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/27/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | **216** | |
| Ammonia (as N) | mg/L | 11/2/2011 1105h | 11/2/2011 1753h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | **216** | |
| Carbonate (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 11/1/2011 1713h | SM4500-Cl-E | 5.00 | < 5.00 | 1 |
| Hardness (as CaCO3) | mg/L | | 11/3/2011 | SM2340B | 10.0 | **252** | |
| Nitrate (as N) | mg/L | | 10/24/2011 1533h | E353.2 | 0.100 | **2.58** | H |
| Nitrite (as N) | mg/L | | 10/24/2011 1517h | E353.2 | 0.0100 | < 0.0100 | H |
| Phosphate, Total (as P) | mg/L | 10/26/2011 0830h | 10/26/2011 1900h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/27/2011 1200h | SM4500-SO4-E | 5.00 | **14.2** | |
| Total Dissolved Solids | mg/L | | 10/25/2011 1300h | SM2540C | 20.0 | **392** | |

*1 - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*
*H - Sample was received outside of the holding time.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-003
**Client Sample ID:** MC-4
**Collection Date:** 10/20/2011 1610h
**Received Date:** 10/24/2011 1000h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/27/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | **194** | |
| Ammonia (as N) | mg/L | 11/2/2011 1105h | 11/2/2011 1754h | E350.1 | 0.0500 | **0.107** | |
| Bicarbonate (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | **194** | |
| Carbonate (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 11/1/2011 1716h | SM4500-Cl-E | 5.00 | < 5.00 | |
| Hardness (as CaCO3) | mg/L | | 11/3/2011 | SM2340B | 10.0 | **260** | |
| Nitrate (as N) | mg/L | | 10/24/2011 1534h | E353.2 | 0.100 | **2.60** | H |
| Nitrite (as N) | mg/L | | 10/24/2011 1518h | E353.2 | 0.0100 | < 0.0100 | H |
| Phosphate, Total (as P) | mg/L | 10/26/2011 0830h | 10/26/2011 1900h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/27/2011 1200h | SM4500-SO4-E | 5.00 | **10.1** | |
| Total Dissolved Solids | mg/L | | 10/25/2011 1300h | SM2540C | 20.0 | **384** | |

*H - Sample was received outside of the holding time.*


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-004
**Client Sample ID:** MI-8
**Collection Date:** 10/21/2011 1230h
**Received Date:** 10/24/2011 1000h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/27/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | **249** | |
| Ammonia (as N) | mg/L | 11/2/2011 1105h | 11/2/2011 1755h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | **249** | |
| Carbonate (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 11/1/2011 1717h | SM4500-Cl-E | 5.00 | **6.24** | |
| Hardness (as CaCO3) | mg/L | | 11/3/2011 | SM2340B | 10.0 | **302** | |
| Nitrate (as N) | mg/L | | 10/24/2011 1526h | E353.2 | 0.0100 | **0.742** | H |
| Nitrite (as N) | mg/L | | 10/24/2011 1526h | E353.2 | 0.0100 | < 0.0100 | H |
| Oil & Grease | mg/L | | 10/25/2011 1308h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total (as P) | mg/L | 10/26/2011 0830h | 10/26/2011 1901h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 10/24/2011 1430h | SM2540F | 0.100 | **0.100** | H |
| Sulfate | mg/L | | 10/27/2011 1200h | SM4500-SO4-E | 5.00 | < 5.00 | |
| Total Dissolved Solids | mg/L | | 10/25/2011 1300h | SM2540C | 20.0 | **436** | |
| Total Suspended Solids | mg/L | | 10/25/2011 1515h | SM2540D | 3.00 | **21.0** | |

*H - Sample was received outside of the holding time.*


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-005
**Client Sample ID:** MI-2
**Collection Date:** 10/21/2011 1640h
**Received Date:** 10/24/2011 1000h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/27/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | **100** | |
| Ammonia (as N) | mg/L | 11/2/2011 1105h | 11/2/2011 1757h | E350.1 | 0.0500 | **0.218** | |
| Bicarbonate (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | **100** | |
| Carbonate (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 11/1/2011 1719h | SM4500-Cl-E | 5.00 | < 5.00 | |
| Hardness (as CaCO3) | mg/L | | 11/3/2011 | SM2340B | 10.0 | **95.0** | |
| Nitrate (as N) | mg/L | | 10/24/2011 1527h | E353.2 | 0.0100 | **0.0850** | H |
| Nitrite (as N) | mg/L | | 10/24/2011 1527h | E353.2 | 0.0100 | < 0.0100 | H |
| Oil & Grease | mg/L | | 10/25/2011 1308h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total (as P) | mg/L | 10/26/2011 0830h | 10/26/2011 1902h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 10/24/2011 1430h | SM2540F | 0.100 | **0.300** | H |
| Sulfate | mg/L | | 10/27/2011 1200h | SM4500-SO4-E | 5.00 | < 5.00 | |
| Total Dissolved Solids | mg/L | | 10/25/2011 1300h | SM2540C | 20.0 | **304** | |
| Total Suspended Solids | mg/L | | 10/25/2011 1515h | SM2540D | 3.00 | **29.0** | |

*H - Sample was received outside of the holding time.*


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-006
**Client Sample ID:** MI-10
**Collection Date:** 10/21/2011 1530h
**Received Date:** 10/24/2011 1000h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/27/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | **277** | |
| Ammonia (as N) | mg/L | 11/2/2011 1105h | 11/2/2011 1758h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | **277** | |
| Carbonate (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 11/1/2011 1723h | SM4500-Cl-E | 5.00 | < 5.00 | |
| Hardness (as CaCO3) | mg/L | | 11/3/2011 | SM2340B | 10.0 | **352** | |
| Nitrate (as N) | mg/L | | 10/24/2011 1529h | E353.2 | 0.0100 | **0.548** | H |
| Nitrite (as N) | mg/L | | 10/24/2011 1529h | E353.2 | 0.0100 | **0.0130** | H |
| Phosphate, Total (as P) | mg/L | 10/26/2011 0830h | 10/26/2011 1903h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/27/2011 1200h | SM4500-SO4-E | 5.00 | < 5.00 | |
| Total Dissolved Solids | mg/L | | 10/25/2011 1300h | SM2540C | 20.0 | **496** | |

*H - Sample was received outside of the holding time.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney Baseline
**Lab Sample ID:** 1110422-007
**Client Sample ID:** MI-1
**Collection Date:** 10/21/2011 1630h
**Received Date:** 10/24/2011 1000h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/27/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | **256** | |
| Ammonia (as N) | mg/L | 11/2/2011 1105h | 11/2/2011 1748h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | **256** | |
| Carbonate (as CaCO3) | mg/L | | 10/27/2011 0830h | SM2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 11/1/2011 1724h | SM4500-Cl-E | 5.00 | **12.1** | |
| Hardness (as CaCO3) | mg/L | | 11/3/2011 | SM2340B | 10.0 | **388** | |
| Nitrate (as N) | mg/L | | 10/24/2011 1536h | E353.2 | 0.100 | **7.65** | H |
| Nitrite (as N) | mg/L | | 10/24/2011 1530h | E353.2 | 0.0100 | < 0.0100 | H |
| Phosphate, Total (as P) | mg/L | 10/26/2011 0830h | 10/26/2011 1907h | SM4500-P-F | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 10/27/2011 1200h | SM4500-SO4-E | 5.00 | < 5.00 | |
| Total Dissolved Solids | mg/L | | 10/25/2011 1300h | SM2540C | 20.0 | **512** | @ |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*
*H - Sample was received outside of the holding time.*


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110422
**Project:** Kinney Baseline

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-15199 | Aluminum | mg/L | SW6010C | 1.06 | 1.000 | 0 | 106 | 80-120 | | | | 11/3/2011 0912h |
| LCS-15199 | Boron | mg/L | SW6010C | 1.04 | 1.000 | 0 | 104 | 80-120 | | | | 11/3/2011 0912h |
| LCS-15199 | Calcium | mg/L | SW6010C | 10.1 | 10.00 | 0 | 101 | 80-120 | | | | 11/3/2011 0912h |
| LCS-15199 | Iron | mg/L | SW6010C | 1.02 | 1.000 | 0 | 102 | 80-120 | | | | 11/2/2011 1656h |
| LCS-15199 | Iron | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 80-120 | | | | 11/3/2011 0912h |
| LCS-15199 | Magnesium | mg/L | SW6010C | 10.7 | 10.00 | 0 | 107 | 80-120 | | | | 11/3/2011 0912h |
| LCS-15199 | Molybdenum | mg/L | SW6010C | 0.198 | 0.2000 | 0 | 99.0 | 80-120 | | | | 11/3/2011 0912h |
| LCS-15199 | Potassium | mg/L | SW6010C | 10.7 | 10.00 | 0 | 107 | 80-120 | | | | 11/3/2011 0912h |
| LCS-15199 | Sodium | mg/L | SW6010C | 10.8 | 10.00 | 0 | 108 | 80-120 | | | | 11/3/2011 0912h |
| LCS-15200 | Iron | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 80-120 | | | | 11/2/2011 1434h |
| LCS-15199 | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 85-115 | | | | 10/25/2011 2044h |
| LCS-15199 | Cadmium | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.6 | 85-115 | | | | 10/25/2011 2044h |
| LCS-15199 | Copper | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.7 | 85-115 | | | | 10/25/2011 2044h |
| LCS-15199 | Lead | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.5 | 85-115 | | | | 10/25/2011 2044h |
| LCS-15199 | Manganese | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 10/25/2011 2044h |
| LCS-15199 | Selenium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 10/25/2011 2044h |
| LCS-15199 | Zinc | mg/L | SW6020A | 0.995 | 1.000 | 0 | 99.5 | 85-115 | | | | 10/25/2011 2044h |
| LCS-15200 | Manganese | mg/L | SW6020A | 0.196 | 0.2000 | 0 | 97.8 | 85-115 | | | | 10/25/2011 2255h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110422
**Project:** Kinney Baseline

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-15199 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 11/3/2011 0907h |
| MB-15199 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 11/3/2011 0907h |
| MB-15199 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 11/3/2011 0907h |
| MB-15199 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 11/2/2011 1652h |
| MB-15199 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 11/3/2011 0907h |
| MB-15199 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 11/3/2011 0907h |
| MB-15199 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 11/3/2011 0907h |
| MB-15199 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 11/3/2011 0907h |
| MB-15199 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 11/3/2011 0907h |
| MB-15200 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 11/2/2011 1430h |
| MB-15199 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 10/25/2011 2038h |
| MB-15199 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 10/25/2011 2038h |
| MB-15199 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 10/25/2011 2038h |
| MB-15199 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 10/25/2011 2038h |
| MB-15199 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 10/25/2011 2038h |
| MB-15199 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 10/25/2011 2038h |
| MB-15199 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 10/25/2011 2038h |
| MB-15200 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 10/25/2011 2249h |



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Jose Rocha
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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110422
**Project:** Kinney Baseline

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110422-001EMS | Aluminum | mg/L | SW6010C | 0.965 | 1.000 | 0 | 96.5 | 75-125 | | | | 11/3/2011 1545h |
| 1110422-001EMS | Boron | mg/L | SW6010C | 1.20 | 1.000 | 0.02482 | 118 | 75-125 | | | | 11/3/2011 1545h |
| 1110422-001EMS | Calcium | mg/L | SW6010C | 101 | 10.00 | 87.17 | 143 | 75-125 | | | [2] | 11/3/2011 0928h |
| 1110422-001EMS | Iron | mg/L | SW6010C | 0.965 | 1.000 | 0 | 96.5 | 75-125 | | | | 11/3/2011 1545h |
| 1110422-001EMS | Magnesium | mg/L | SW6010C | 15.8 | 10.00 | 6.395 | 94.5 | 75-125 | | | | 11/3/2011 1545h |
| 1110422-001EMS | Molybdenum | mg/L | SW6010C | 0.212 | 0.2000 | 0 | 106 | 75-125 | | | | 11/3/2011 1545h |
| 1110422-001EMS | Potassium | mg/L | SW6010C | 11.1 | 10.00 | 1.151 | 99.9 | 75-125 | | | | 11/3/2011 1545h |
| 1110422-001EMS | Sodium | mg/L | SW6010C | 13.6 | 10.00 | 3.819 | 98.2 | 75-125 | | | | 11/3/2011 1545h |
| 1110422-001FMS | Iron | mg/L | SW6010C | 1.08 | 1.000 | 0.05380 | 103 | 75-125 | | | | 11/2/2011 1118h |
| 1110422-001EMS | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0003390 | 100 | 75-125 | | | | 10/25/2011 2059h |
| 1110422-001EMS | Cadmium | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 75-125 | | | | 10/25/2011 2059h |
| 1110422-001EMS | Copper | mg/L | SW6020A | 0.201 | 0.2000 | 0.0006790 | 100 | 75-125 | | | | 10/25/2011 2059h |
| 1110422-001EMS | Lead | mg/L | SW6020A | 0.198 | 0.2000 | 0 | 99.1 | 75-125 | | | | 10/25/2011 2059h |
| 1110422-001EMS | Manganese | mg/L | SW6020A | 0.204 | 0.2000 | 0.002223 | 101 | 75-125 | | | | 10/25/2011 2059h |
| 1110422-001EMS | Selenium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 75-125 | | | | 10/25/2011 2059h |
| 1110422-001EMS | Zinc | mg/L | SW6020A | 1.00 | 1.000 | 0 | 100 | 75-125 | | | | 10/25/2011 2059h |
| 1110422-001FMS | Manganese | mg/L | SW6020A | 0.198 | 0.2000 | 0.002452 | 97.9 | 75-125 | | | | 10/25/2011 2339h |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110422
**Project:** Kinney Baseline

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110422-001EMSD | Aluminum | mg/L | SW6010C | 0.948 | 1.000 | 0 | 94.8 | 75-125 | 1.8 | 20 | | 11/3/2011 1549h |
| 1110422-001EMSD | Boron | mg/L | SW6010C | 1.13 | 1.000 | 0.02482 | 111 | 75-125 | 5.85 | 20 | | 11/3/2011 1549h |
| 1110422-001EMSD | Calcium | mg/L | SW6010C | 100 | 10.00 | 87.17 | 129 | 75-125 | 1.33 | 20 | [2] | 11/3/2011 0933h |
| 1110422-001EMSD | Iron | mg/L | SW6010C | 0.976 | 1.000 | 0 | 97.6 | 75-125 | 1.15 | 20 | | 11/3/2011 1549h |
| 1110422-001EMSD | Magnesium | mg/L | SW6010C | 15.8 | 10.00 | 6.395 | 94.2 | 75-125 | 0.197 | 20 | | 11/3/2011 1549h |
| 1110422-001EMSD | Molybdenum | mg/L | SW6010C | 0.199 | 0.2000 | 0 | 99.7 | 75-125 | 5.93 | 20 | | 11/3/2011 1549h |
| 1110422-001EMSD | Potassium | mg/L | SW6010C | 10.9 | 10.00 | 1.151 | 97.7 | 75-125 | 2.01 | 20 | | 11/3/2011 1549h |
| 1110422-001EMSD | Sodium | mg/L | SW6010C | 13.4 | 10.00 | 3.819 | 96.1 | 75-125 | 1.6 | 20 | | 11/3/2011 1549h |
| 1110422-001FMSD | Iron | mg/L | SW6010C | 1.08 | 1.000 | 0.05380 | 103 | 75-125 | 0 | 20 | | 11/2/2011 1122h |
| 1110422-001EMSD | Arsenic | mg/L | SW6020A | 0.204 | 0.2000 | 0.0003390 | 102 | 75-125 | 1.2 | 20 | | 10/25/2011 2105h |
| 1110422-001EMSD | Cadmium | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 101 | 75-125 | 0.345 | 20 | | 10/25/2011 2105h |
| 1110422-001EMSD | Copper | mg/L | SW6020A | 0.202 | 0.2000 | 0.0006790 | 101 | 75-125 | 0.457 | 20 | | 10/25/2011 2105h |
| 1110422-001EMSD | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | 1.03 | 20 | | 10/25/2011 2105h |
| 1110422-001EMSD | Manganese | mg/L | SW6020A | 0.204 | 0.2000 | 0.002223 | 101 | 75-125 | 0.115 | 20 | | 10/25/2011 2105h |
| 1110422-001EMSD | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 99.9 | 75-125 | 0.527 | 20 | | 10/25/2011 2105h |
| 1110422-001EMSD | Zinc | mg/L | SW6020A | 0.998 | 1.000 | 0 | 99.8 | 75-125 | 0.159 | 20 | | 10/25/2011 2105h |
| 1110422-001FMSD | Manganese | mg/L | SW6020A | 0.199 | 0.2000 | 0.002452 | 98.4 | 75-125 | 0.583 | 20 | | 10/25/2011 2344h |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110422
**Project:** Kinney Baseline

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110422-007ADUP | Total Dissolved Solids | mg/L | SM2540C | 552 | | 512.0 | | - | 7.52 | 5 | @ | 10/25/2011 1300h |
| 1110422-001ADUP | Total Suspended Solids | mg/L | SM2540D | 35.0 | | 29.00 | | - | 18.8 | 5 | @ | 10/25/2011 1515h |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110422
**Project:** Kinney Baseline

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R33052 | Acidity | mg/L | SM2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | | | | 10/27/2011 1110h |
| LCS-R33003 | Alkalinity (as CaCO3) | mg/L | SM2320B | 48,400 | 50,000 | 0 | 96.8 | 90-110 | | | | 10/27/2011 0830h |
| LCS-R33245 | Chloride | mg/L | SM4500-Cl-E | 26.9 | 25.00 | 0 | 107 | 90-110 | | | | 11/1/2011 1709h |
| LCS-15351 | Ammonia (as N) | mg/L | E350.1 | 1.02 | 1.000 | 0 | 102 | 90-110 | | | | 11/2/2011 1733h |
| LCS-R3285 | Nitrite (as N) | mg/L | E353.2 | 1.03 | 1.000 | 0 | 103 | 90-110 | | | | 10/24/2011 1506h |
| LCS-R32854 | Nitrate (as N) | mg/L | E353.2 | 1.07 | 1.000 | 0 | 107 | 90-110 | | | | 10/24/2011 1508h |
| LCS-R32949 | Oil & Grease | mg/L | E1664A | 37.3 | 40.00 | 0 | 93.3 | 78-114 | | | | 10/25/2011 1308h |
| LCS-15211 | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.908 | 1.000 | 0 | 90.8 | 90-110 | | | | 10/26/2011 1857h |
| LCS-R33054 | Sulfate | mg/L | SM4500-SO4-E | 1,020 | 1,000 | 0 | 102 | 90-110 | | | | 10/27/2011 1200h |
| LCS-R32983 | Total Dissolved Solids | mg/L | SM2540C | 194 | 205.0 | 0 | 94.6 | 80-120 | | | | 10/25/2011 1300h |
| LCS-R32941 | Total Suspended Solids | mg/L | SM2540D | 98.0 | 100.0 | 0 | 98.0 | 80-120 | | | | 10/25/2011 1515h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110422
**Project:** Kinney Baseline

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** LCSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCSD-R33245 | Chloride | mg/L | SM4500-Cl-E | 26.8 | 25.00 | 0 | 107 | 90-110 | 0.171 | 10 | | 11/1/2011 1710h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110422
**Project:** Kinney Baseline

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R33052 | Acidity | mg/L | SM2310B | < 15.0 | | | | - | | | | 10/27/2011 1110h |
| MB-R33003 | Alkalinity (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 10/27/2011 0830h |
| MB-R33003 | Bicarbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 10/27/2011 0830h |
| MB-R33003 | Carbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 10/27/2011 0830h |
| MB-R33245 | Chloride | mg/L | SM4500-Cl-E | < 5.00 | | | | - | | | | 11/1/2011 1708h |
| MB-15351 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 11/2/2011 1732h |
| MB-R32853 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 10/24/2011 1505h |
| MB-R32854 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 10/24/2011 1505h |
| MB-R32949 | Oil & Grease | mg/L | E1664A | < 3.00 | | | | - | | | | 10/25/2011 1308h |
| MB-15211 | Phosphate, Total (as P) | mg/L | SM4500-P-F | < 0.0500 | | | | - | | | | 10/26/2011 1856h |
| MB-R33054 | Sulfate | mg/L | SM4500-SO4-E | < 5.00 | | | | - | | | | 10/27/2011 1200h |
| MB-R32983 | Total Dissolved Solids | mg/L | SM2540C | < 10.0 | | | | - | | | | 10/25/2011 1300h |
| MB-R32941 | Total Suspended Solids | mg/L | SM2540D | < 3.00 | | | | - | | | | 10/25/2011 1515h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110422
**Project:** Kinney Baseline

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110422-001BMS | Acidity | mg/L | SM2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | | | | 10/27/2011 1110h |
| 1110506-002BMS | Acidity | mg/L | SM2310B | 48.0 | 50.00 | 0 | 96.0 | 80-120 | | | | 10/27/2011 1110h |
| 1110422-001BMS | Alkalinity (as CaCO3) | mg/L | SM2320B | 289 | 100.0 | 195.2 | 93.4 | 80-120 | | | | 10/27/2011 0830h |
| 1110422-002BMS | Chloride | mg/L | SM4500-Cl-E | 15.0 | 10.00 | 3.880 | 111 | 90-110 | | | 1 | 11/1/2011 1714h |
| 1110422-007CMS | Ammonia (as N) | mg/L | E350.1 | 1.02 | 1.000 | 0 | 102 | 90-110 | | | | 11/2/2011 1750h |
| 1110422-001BMS | Nitrite (as N) | mg/L | E353.2 | 1.02 | 1.000 | 0 | 102 | 90-110 | | | | 10/24/2011 1511h |
| 1110422-001BMS | Nitrate (as N) | mg/L | E353.2 | 10.7 | 10.00 | 2.420 | 82.4 | 90-110 | | | 1 | 10/24/2011 1514h |
| 1110422-001DMS | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.895 | 1.000 | 0 | 89.5 | 90-110 | | | 1 | 10/26/2011 1858h |
| 1110506-001CMS | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.696 | 1.000 | 0 | 69.6 | 90-110 | | | 1 | 10/26/2011 1908h |
| 1110422-001BMS | Sulfate | mg/L | SM4500-SO4-E | 34.5 | 20.00 | 15.20 | 96.7 | 80-120 | | | | 10/27/2011 1200h |

[1] - *Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110422
**Project:** Kinney Baseline

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110422-001BMSD | Acidity | mg/L | SM2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | 3.92 | 0 | | 10/27/2011 1110h |
| 1110506-002BMSD | Acidity | mg/L | SM2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | 4.08 | 0 | | 10/27/2011 1110h |
| 1110422-001BMSD | Alkalinity (as CaCO3) | mg/L | SM2320B | 289 | 100.0 | 195.2 | 93.4 | 80-120 | 0 | 10 | | 10/27/2011 0830h |
| 1110422-002BMSD | Chloride | mg/L | SM4500-Cl-E | 14.9 | 10.00 | 3.880 | 111 | 90-110 | 0.361 | 10 | ' | 11/1/2011 1715h |
| 1110422-007CMSD | Ammonia (as N) | mg/L | E350.1 | 1.01 | 1.000 | 0 | 101 | 90-110 | 1.52 | 10 | | 11/2/2011 1751h |
| 1110422-001BMSD | Nitrite (as N) | mg/L | E353.2 | 1.02 | 1.000 | 0 | 102 | 90-110 | 0.236 | 10 | | 10/24/2011 1513h |
| 1110422-001BMSD | Nitrate (as N) | mg/L | E353.2 | 10.9 | 10.00 | 2.420 | 84.3 | 90-110 | 1.83 | 10 | ' | 10/24/2011 1515h |
| 1110422-001DMSD | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.727 | 1.000 | 0 | 72.7 | 90-110 | 20.7 | 10 | '@ | 10/26/2011 1859h |
| 1110506-001CMSD | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.851 | 1.000 | 0 | 85.1 | 90-110 | 20 | 10 | '@ | 10/26/2011 1909h |
| 1110422-001BMSD | Sulfate | mg/L | SM4500-SO4-E | 36.6 | 20.00 | 15.20 | 107 | 80-120 | 5.74 | 10 | | 10/27/2011 1200h |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*

*' - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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ı Resources

## WORK ORDER Summary

**Work Order:** 1110422
Page 1 of 6 10/25/2011

**Client:** Carbon Resources
**Client ID:** CAR300 **Contact:** Brad Lindsay
**Project:** Kinney Baseline **QC Level:** LEVEL II+ **WO Type:** Project
**Comments:** No Hard Copies. QC 2+, EDD / Footnote report Total Settleable Solids received outside of hold.;

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110422-001A | MC-2 | 10/20/2011 1500h | 10/24/2011 1000h | 11/7/2011 | Aqueous | SS-W-2540F | ☐ | ww - ss/tss | 1 |
| | | | | | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1110422-001B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110422-001C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110422-001D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110422-001E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110422-001F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110422-002A | MC-1 | 10/20/2011 1430h | | | | TDS-W-2540C | ☐ | ww - tds | |

# WORK ORDER Summary

**Client:** Carbon Resources

**Work Order:** 1110422

 10/24/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110422-002B | MC-1 | 10/20/2011 1430h | 10/24/2011 1000h | 11/7/2011 | Aqueous | ACIDITY-W-2310B | ☐ | DF - wc | 1 |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110422-002C | | | | | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | | | NH3-W-PR | ☐ | df - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | df - nh3 | |
| | | | | | | PO4-W-PR | ☐ | df - nh3 | |
| 1110422-002D | | | | | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | df - dis met | |
| | | | | | | HARD-2340B | ☐ | df - dis met | |
| 1110422-002E | | | | | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110422-003A | MC-4 | 10/20/2011 1610h | | | | TDS-W-2540C | ☐ | ww - tds | |
| 1110422-003B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110422-003C | | | | | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | | | NH3-W-PR | ☐ | df - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | df - nh3 | |
| | | | | | | PO4-W-PR | ☐ | df - nh3 | |

# WORK ORDER Summary

**Client:** Carbon Resources

**Work Order:** 1110422



10/24/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110422-003D | MC-4 | 10/20/2011 1610h | 10/24/2011 1000h | 11/7/2011 | Aqueous | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | df - dis met | |
| | | | | | | HARD-2340B | ☐ | df - dis met | |
| 1110422-003E | | | | | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110422-004A | MI-8 | 10/21/2011 1230h | | | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1110422-004B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110422-004C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110422-004D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110422-004E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110422-004F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |

# WORK ORDER Summary

**Client:** Carbon Resources

**Work Order:** 1110422

 10/24/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110422-004F | MI-8 | 10/21/2011 1230h | 10/24/2011 1000h | 11/7/2011 | Aqueous | 6010C-W | ☑ | DF - total met | 1 |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110422-005A | MI-2 | 10/21/2011 1640h | | | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1110422-005B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110422-005C | | | | | | OGB-W-1664A | ☐ | ogb | |
| 1110422-005D | | | | | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | | | NH3-W-PR | ☐ | DF - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | DF - nh3 | |
| | | | | | | PO4-W-PR | ☐ | DF - nh3 | |
| 1110422-005E | | | | | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | DF - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | DF - dis met | |
| | | | | | | HARD-2340B | ☐ | DF - dis met | |
| 1110422-005F | | | | | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | | | 6010C-W | ☑ | DF - total met | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | DF - total met | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110422-006A | MI-10 | 10/21/2011 1530h | | | | TDS-W-2540C | ☐ | ww - tds | |

# WORK ORDER Summary

**Client:** Carbon Resources

**Work Order:** 1110422



10/24/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110422-006B | MI-10 | 10/21/2011 1530h | 10/24/2011 1000h | 11/7/2011 | Aqueous | ACIDITY-W-2310B | ☐ | DF - wc | 1 |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110422-006C | | | | | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | | | NH3-W-PR | ☐ | df - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | df - nh3 | |
| | | | | | | PO4-W-PR | ☐ | df - nh3 | |
| 1110422-006D | | | | | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | df - dis met | |
| | | | | | | HARD-2340B | ☐ | df - dis met | |
| 1110422-006E | | | | | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110422-007A | MI-1 | 10/21/2011 1630h | | | | TDS-W-2540C | ☐ | ww - tds | |
| 1110422-007B | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | CL-W-4500CLE | ☐ | DF - wc | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | | | SO4-W-4500SO4E | ☐ | DF - wc | |
| 1110422-007C | | | | | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | | | NH3-W-PR | ☐ | df - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | df - nh3 | |
| | | | | | | PO4-W-PR | ☐ | df - nh3 | |

# WORK ORDER Summary

**Client:** Carbon Resources

**Work Order:** 1110422



10/24/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110422-007D | MI-1 | 10/21/2011 1630h | 10/24/2011 1000h | 11/7/2011 | Aqueous | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | df - dis met | |
| | | | | | | HARD-2340B | ☐ | df - dis met | |
| 1110422-007E | | | | | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |

Client Carbon Resources

Address

City State Zip

Phone Fax

Contact Greg Hunt

E-mail ghunt@bbc.net.com

Project Name Kinney Baseline

Project Number/P.O.#

Sampler Name Sam G & Mike K

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# CHAIN OF CUSTODY

Lab Sample Set # 1110422

Page of

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day Standard

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TESTS REQUIRED: GW Table 4 | TESTS REQUIRED: SW Table 3 | QC LEVEL | COMMENTS |
|---|---|---|---|---|---|---|---|
| MC-2 | 10/20/11 15:01 | SW | 6 | | ✓ | 1 2 2+ 3 3+ 4 | |
| MC-1 | 10/20/11 14:30 | GW | 5 | ✓ | | | |
| MC-4 | 10/22/11 16:10 | | 5 | ✓ | | | |
| | ~~10/20/11 15:30~~ | | | | | | |
| MI-8 | 11/21/11 12:32 | SW | 6 | | ✓ | | |
| MI-2 | 10/21/11 16:40 | | 6 | | ✓ | | |
| MI-10 | 10/21/11 15:30 | 5 | | ✓ | | | |
| MI-1 | 10/21/11 16:30 | 5 | | ✓ | | | |

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
Notes:

2 Ambient or (Chilled)
Notes: ice

3 Temperature 5°

4 Received Broken/Leaking (Improperly Sealed)
Y (N)
Notes:

5 Properly Preserved
(Y) N
Checked at Bench
Y N
Notes:

6 Received Within Holding Times
Y (N)
Notes: Settleable solids received outside of hold.

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA

Discrepancies Between Sample Labels and COC Record?
Y (N)
Notes:

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME Sam Garners | Time 10:30AM | PRINT NAME Zelma Hayward | Time 1020 |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |

Special Instructions:

please filter

TABLE 3

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Requirements
Baseline, Operational and Post-mining

| | | | | |
|---|---|---|---|---|
| | | FIELD MEASUREMENTS | | REPORTED AS |
| | * - | Water level or Flow | | Depth, Flow |
| | * - | pH | | Standard units |
| | * - | Specific Conductivity | | umhos/cm @ 25° C |
| 1/2 gal HDPE | * - | Dissolved Oxygen | | mg/l |
| 1 L HDPE | * - | Temperature | | °C |
| 1 L HDPE | | | | |
| 1 500 mL HNO3 | | | | |
| 1 250 mL H2SO4 | | LABORATORY MEASUREMENTS | | |
| 1 Amber L HCL | | | | |
| | * - | Total Dissolved Solids | | mg/l |
| | * - | Total Settleable Solids | | (UPDES) |
| | * - | Total Suspended Solids | | mg/l |
| | * - | Total Hardness ($CaCO_3$) | | mg/l |
| | * - | Total Alkalinity | | mg/l |
| | - | Acidity | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved)[1] | | mg/l |
| | * - | Carbonate | | mg/l |
| | * - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| | * - | Calcium (Dissolved) | | mg/l |
| | * - | Chloride | | mg/l |
| | - | Copper (Dissolved) | | mg/l |
| | * - | Iron (Dissolved) | | mg/l |
| | * - | Iron (Total) | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| | * - | Magnesium (Dissolved) | | mg/l |
| | * - | Manganese (Dissolved) | | mg/l |
| | * - | Manganese (Total) | | mg/l |
| | - | ~~Molybdenum (Dissolved)~~ | | ~~mg/l~~ |
| | - | Ammonia | | mg/l |
| | - | Nitrates | | mg/l |
| | - | Nitrites | | mg/l |
| | * - | Potassium (Dissolved) | | mg/l |
| | - | ~~Phosphates(Ortho)~~ | | ~~mg/l~~ Changed to Total Phosphate per Greg Hunt 8/20/01 RKS |
| | - | Selenium[1] (Dissolved) | | mg/l |
| | * - | Sodium (Dissolved) | | mg/l |
| | * - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| | * - | Oil & Grease[2] | | mg/l |
| | * - | Cations | | meq/l |
| | * - | Anions | | meq/l |

1 Parameters will be analyzed for baseline at all sites and included as operational at waste rock sites.
2 O&G to be collected above and below mine sites.
\- Parameters required for Baseline monitoring.
* Parameters required for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Requirements
Baseline, Operational and Post-mining

| | | | | |
|---|---|---|---|---|
| | | FIELD MEASUREMENTS | | REPORTED AS |
| | * - | Water level or Flow | | Depth, Flow |
| 1 L HDPE | * - | pH | | Standard units |
| 1 L HDPE | * - | Specific Conductivity | | umhos/cm @ 25° C |
| 250 mL HDPE | * - | Temperature | | °C |
| 1 500 mL HNO3 | | | | |
| 1 250 mL H2SO4 | | | | |
| | | LABORATORY MEASUREMENTS | | |
| | * - | Total Dissolved Solids | | mg/l |
| | * - | Total Hardness ($CaCO_3$) | | mg/l |
| | * - | Total Alkalinity | | mg/l |
| | - | Acidity | | mg/l |
| | - | Aluminum (Dissolved) | | mg/l |
| | - | Arsenic (Dissolved) | | mg/l |
| | - | Boron (Dissolved)[1] | | mg/l |
| | * - | Carbonate | | mg/l |
| | * - | Bicarbonate | | mg/l |
| | - | Cadmium (Dissolved) | | mg/l |
| | * - | Calcium (Dissolved) | | mg/l |
| | * - | Chloride | | mg/l |
| | - | Copper (Dissolved) | | mg/l |
| | * - | Iron (Dissolved) | | mg/l |
| | * - | Iron (Total) | | mg/l |
| | - | Lead (Dissolved) | mg/l | |
| | * - | Magnesium (Dissolved) | | mg/l |
| | * - | Manganese (Dissolved) | | mg/l |
| | * - | Manganese (Total) | | mg/l |
| | - | Molybdenum (Dissolved) | | mg/l |
| | - | Ammonia | | mg/l |
| | - | Nitrates | | mg/l |
| | - | Nitrites | | mg/l |
| | * - | Potassium (Dissolved) | | mg/l |
| | - | ~~Phosphate (Ortho)~~ | | mg/l |
| | - | Selenium[1] (Dissolved) | | mg/l |
| | * - | Sodium (Dissolved) | | mg/l |
| | * - | Sulfate | | mg/l |
| | - | Zinc (Dissolved) | mg/l | |
| | * - | Cations | | meq/l |
| | * - | Anions | | meq/l |

Changed to Total Phosphate per Greg Hunt 5/30/97 RAS

1 These parameters will be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters required for Baseline monitoring.
* Indicates parameters required for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 1110422

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

American West
ANALYTICAL LABORATORIES

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (970) 856-6788

RE: Kinney #2 Mine

Dear Brad Lindsay: Lab Set ID: 1110506

American West Analytical Laboratories received 2 sample(s) on 10/25/2011 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado, Idaho, and Missouri. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitation limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Kyle F. Gross
Digitally signed by Kyle F. Gross
DN: cn=Kyle F. Gross, o=AWAL, ou=AWAL, email=kyle@awal-labs.com, c=US
Date: 2011.11.07 15:30:53 -07'00'

Laboratory Director or designee



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney #2 Mine
**Lab Sample ID:** 1110506-001
**Client Sample ID:** LC-D2-1
**Collection Date:** 10/25/2011 1030h
**Received Date:** 10/25/2011 1708h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/26/2011 1425h | 11/2/2011 1534h | SW6010C | 0.100 | **0.190** | |
| Manganese | mg/L | 10/26/2011 1425h | 10/26/2011 2131h | SW6020A | 0.00120 | **0.00475** | |

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web: www.awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney #2 Mine
**Lab Sample ID:** 1110506-002
**Client Sample ID:** LC-D2-2
**Collection Date:** 10/25/2011 1130h
**Received Date:** 10/25/2011 1708h

**Contact:** Brad Lindsay

**Analytical Results** TOTAL METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 10/26/2011 1425h | 11/2/2011 1550h | SW6010C | 0.100 | **2.47** | |
| Manganese | mg/L | 10/26/2011 1425h | 10/26/2011 2200h | SW6020A | 0.00120 | **0.0977** | |


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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer




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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney #2 Mine
**Lab Sample ID:** 1110506-001
**Client Sample ID:** LC-D2-1
**Collection Date:** 10/25/2011 1030h
**Received Date:** 10/25/2011 1708h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/26/2011 1419h | 11/4/2011 1243h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/26/2011 1419h | 10/26/2011 2242h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/26/2011 1419h | 11/3/2011 1642h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/26/2011 1419h | 10/26/2011 2242h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/26/2011 1419h | 11/3/2011 1058h | SW6010C | 10.0 | **175** | 2 |
| Copper | mg/L | 10/26/2011 1419h | 10/26/2011 2242h | SW6020A | 0.000800 | **0.000834** | |
| Iron | mg/L | 10/26/2011 1419h | 11/3/2011 1642h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/26/2011 1419h | 10/26/2011 2242h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/26/2011 1419h | 11/3/2011 1058h | SW6010C | 10.0 | **25.9** | 2 |
| Manganese | mg/L | 10/26/2011 1419h | 10/26/2011 2242h | SW6020A | 0.00120 | **0.00185** | |
| Molybdenum | mg/L | 10/26/2011 1419h | 11/3/2011 1642h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/26/2011 1419h | 11/3/2011 1642h | SW6010C | 1.00 | **1.11** | |
| Selenium | mg/L | 10/26/2011 1419h | 10/26/2011 2242h | SW6020A | 0.000800 | **0.00220** | |
| Sodium | mg/L | 10/26/2011 1419h | 11/3/2011 1058h | SW6010C | 10.0 | **15.3** | 2 |
| Zinc | mg/L | 10/26/2011 1419h | 10/26/2011 2242h | SW6020A | 0.00500 | < 0.00500 | |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*
*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney #2 Mine
**Lab Sample ID:** 1110506-002
**Client Sample ID:** LC-D2-2
**Collection Date:** 10/25/2011 1130h
**Received Date:** 10/25/2011 1708h

**Contact:** Brad Lindsay

**Analytical Results** DISSOLVED METALS

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 10/26/2011 1419h | 11/4/2011 1255h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 10/26/2011 1419h | 10/26/2011 2304h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 10/26/2011 1419h | 11/3/2011 1653h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 10/26/2011 1419h | 10/26/2011 2304h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 10/26/2011 1419h | 11/3/2011 1132h | SW6010C | 10.0 | **111** | |
| Copper | mg/L | 10/26/2011 1419h | 10/26/2011 2304h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 10/26/2011 1419h | 11/3/2011 1653h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 10/26/2011 1419h | 10/26/2011 2304h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 10/26/2011 1419h | 11/3/2011 1653h | SW6010C | 1.00 | **13.2** | |
| Manganese | mg/L | 10/26/2011 1419h | 10/26/2011 2304h | SW6020A | 0.00120 | **0.0362** | |
| Molybdenum | mg/L | 10/26/2011 1419h | 11/3/2011 1653h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 10/26/2011 1419h | 11/3/2011 1653h | SW6010C | 1.00 | < 1.00 | |
| Selenium | mg/L | 10/26/2011 1419h | 10/26/2011 2304h | SW6020A | 0.000800 | **0.00124** | |
| Sodium | mg/L | 10/26/2011 1419h | 11/3/2011 1653h | SW6010C | 1.00 | **6.72** | |
| Zinc | mg/L | 10/26/2011 1419h | 10/26/2011 2304h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Project:** Kinney #2 Mine
**Lab Sample ID:** 1110506-001
**Client Sample ID:** LC-D2-1
**Collection Date:** 10/25/2011 1030h
**Received Date:** 10/25/2011 1708h

**Contact:** Brad Lindsay

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/27/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/24/2011 0810h | SM2320B | 40.0 | **266** | |
| Ammonia (as N) | mg/L | 11/3/2011 1156h | 11/3/2011 1929h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/24/2011 0810h | SM2320B | 40.0 | **266** | |
| Carbonate (as CaCO3) | mg/L | | 10/24/2011 0810h | SM2320B | 40.0 | < 40.0 | |
| Chloride | mg/L | | 11/2/2011 0627h | E300.0 | 1.00 | **27.9** | |
| Hardness (as CaCO3) | mg/L | | 11/3/2011 | SM2340B | 10.0 | **544** | |
| Nitrate (as N) | mg/L | | 10/26/2011 1001h | E353.2 | 0.100 | **3.25** | [1]@ |
| Nitrite (as N) | mg/L | | 10/26/2011 0929h | E353.2 | 0.0100 | < 0.0100 | |
| Phosphate, Total (as P) | mg/L | 10/26/2011 0830h | 10/26/2011 1908h | SM4500-P-F | 0.0500 | < 0.0500 | [1]@ |
| Sulfate | mg/L | | 11/2/2011 0627h | E300.0 | 7.50 | **64.8** | |
| Total Dissolved Solids | mg/L | | 10/28/2011 1300h | SM2540C | 20.0 | **512** | |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*
*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*


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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources
**Contact:** Brad Lindsay
**Project:** Kinney #2 Mine
**Lab Sample ID:** 1110506-002
**Client Sample ID:** LC-D2-2
**Collection Date:** 10/25/2011 1130h
**Received Date:** 10/25/2011 1708h

**Analytical Results**

| Compound | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 10/27/2011 1110h | SM2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 10/24/2011 0810h | SM2320B | 40.0 | **272** | |
| Ammonia (as N) | mg/L | 11/3/2011 1156h | 11/3/2011 1926h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 10/24/2011 0810h | SM2320B | 40.0 | **272** | |
| Carbonate (as CaCO3) | mg/L | | 10/24/2011 0810h | SM2320B | 40.0 | < 40.0 | |
| Chloride | mg/L | | 11/2/2011 0740h | E300.0 | 1.00 | **12.5** | |
| Hardness (as CaCO3) | mg/L | | 11/3/2011 | SM2340B | 10.0 | **332** | |
| Nitrate (as N) | mg/L | | 10/26/2011 1005h | E353.2 | 0.100 | **16.0** | |
| Nitrite (as N) | mg/L | | 10/26/2011 0954h | E353.2 | 0.0100 | < 0.0100 | |
| Phosphate, Total (as P) | mg/L | 10/26/2011 0830h | 10/26/2011 1910h | SM4500-P-F | 0.0500 | **0.173** | |
| Sulfate | mg/L | | 11/2/2011 0740h | E300.0 | 7.50 | **23.0** | |
| Total Dissolved Solids | mg/L | | 10/28/2011 1300h | SM2540C | 20.0 | **436** | |

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110506
**Project:** Kinney #2 Mine

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-15223 | Aluminum | mg/L | SW6010C | 0.997 | 1.000 | 0 | 99.7 | 80-120 | | | | 11/4/2011 1352h |
| LCS-15223 | Boron | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 80-120 | | | | 11/3/2011 1051h |
| LCS-15223 | Calcium | mg/L | SW6010C | 9.91 | 10.00 | 0 | 99.1 | 80-120 | | | | 11/3/2011 1051h |
| LCS-15223 | Iron | mg/L | SW6010C | 1.01 | 1.000 | 0 | 101 | 80-120 | | | | 11/3/2011 1051h |
| LCS-15223 | Magnesium | mg/L | SW6010C | 10.8 | 10.00 | 0 | 108 | 80-120 | | | | 11/3/2011 1051h |
| LCS-15223 | Molybdenum | mg/L | SW6010C | 0.205 | 0.2000 | 0 | 102 | 80-120 | | | | 11/3/2011 1051h |
| LCS-15223 | Potassium | mg/L | SW6010C | 10.8 | 10.00 | 0 | 108 | 80-120 | | | | 11/3/2011 1051h |
| LCS-15223 | Sodium | mg/L | SW6010C | 10.9 | 10.00 | 0 | 109 | 80-120 | | | | 11/3/2011 1051h |
| LCS-15225 | Iron | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 80-120 | | | | 11/2/2011 1526h |
| LCS-15223 | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 101 | 85-115 | | | | 10/26/2011 2211h |
| LCS-15223 | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 10/26/2011 2211h |
| LCS-15223 | Copper | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.7 | 85-115 | | | | 10/26/2011 2211h |
| LCS-15223 | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 10/26/2011 2211h |
| LCS-15223 | Manganese | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 10/26/2011 2211h |
| LCS-15223 | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 10/26/2011 2211h |
| LCS-15223 | Zinc | mg/L | SW6020A | 1.02 | 1.000 | 0 | 102 | 85-115 | | | | 10/26/2011 2211h |
| LCS-15225 | Manganese | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 10/26/2011 2125h |



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110506
**Project:** Kinney #2 Mine

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-15223 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 11/4/2011 1347h |
| MB-15223 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 11/3/2011 1046h |
| MB-15223 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 11/3/2011 1046h |
| MB-15223 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 11/3/2011 1046h |
| MB-15223 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 11/3/2011 1046h |
| MB-15223 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 11/3/2011 1046h |
| MB-15223 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 11/3/2011 1046h |
| MB-15223 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 11/3/2011 1046h |
| MB-15225 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 11/2/2011 1522h |
| MB-15223 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 10/26/2011 2205h |
| MB-15223 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 10/26/2011 2205h |
| MB-15223 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 10/26/2011 2205h |
| MB-15223 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 10/26/2011 2205h |
| MB-15223 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 10/26/2011 2205h |
| MB-15223 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 10/26/2011 2205h |
| MB-15223 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 10/26/2011 2205h |
| MB-15225 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 10/26/2011 2119h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110506
**Project:** Kinney #2 Mine

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110506-001DMS | Aluminum | mg/L | SW6010C | 1.03 | 1.000 | 0 | 103 | 75-125 | | | | 11/4/2011 1247h |
| 1110506-001DMS | Boron | mg/L | SW6010C | 1.19 | 1.000 | 0.01994 | 118 | 75-125 | | | | 11/3/2011 1646h |
| 1110506-001DMS | Calcium | mg/L | SW6010C | 125 | 10.00 | 175.2 | -506 | 75-125 | | | 2 | 11/3/2011 1107h |
| 1110506-001DMS | Iron | mg/L | SW6010C | 1.00 | 1.000 | 0 | 100 | 75-125 | | | | 11/3/2011 1646h |
| 1110506-001DMS | Magnesium | mg/L | SW6010C | 32.0 | 10.00 | 25.94 | 61.0 | 75-125 | | | 2 | 11/3/2011 1107h |
| 1110506-001DMS | Molybdenum | mg/L | SW6010C | 0.208 | 0.2000 | 0 | 104 | 75-125 | | | | 11/3/2011 1646h |
| 1110506-001DMS | Potassium | mg/L | SW6010C | 11.1 | 10.00 | 1.113 | 99.6 | 75-125 | | | | 11/3/2011 1646h |
| 1110506-001DMS | Sodium | mg/L | SW6010C | 22.6 | 10.00 | 15.31 | 73.2 | 75-125 | | | 2 | 11/3/2011 1107h |
| 1110506-001EMS | Iron | mg/L | SW6010C | 1.21 | 1.000 | 0.1900 | 102 | 75-125 | | | | 11/2/2011 1542h |
| 1110506-001DMS | Arsenic | mg/L | SW6020A | 0.200 | 0.2000 | 0.0003060 | 99.9 | 75-125 | | | | 10/26/2011 2248h |
| 1110506-001DMS | Cadmium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 75-125 | | | | 10/26/2011 2248h |
| 1110506-001DMS | Copper | mg/L | SW6020A | 0.205 | 0.2000 | 0.0008340 | 102 | 75-125 | | | | 10/26/2011 2248h |
| 1110506-001DMS | Lead | mg/L | SW6020A | 0.202 | 0.2000 | 0 | 101 | 75-125 | | | | 10/26/2011 2248h |
| 1110506-001DMS | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0.001849 | 100 | 75-125 | | | | 10/26/2011 2248h |
| 1110506-001DMS | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.002197 | 100 | 75-125 | | | | 10/26/2011 2248h |
| 1110506-001DMS | Zinc | mg/L | SW6020A | 1.00 | 1.000 | 0 | 100 | 75-125 | | | | 10/26/2011 2248h |
| 1110506-001EMS | Manganese | mg/L | SW6020A | 0.206 | 0.2000 | 0.004749 | 101 | 75-125 | | | | 10/26/2011 2148h |

*[2] - Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110506
**Project:** Kinney #2 Mine

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110506-001DMSD | Aluminum | mg/L | SW6010C | 1.01 | 1.000 | 0 | 101 | 75-125 | 1.84 | 20 | | 11/4/2011 1251h |
| 1110506-001DMSD | Boron | mg/L | SW6010C | 1.13 | 1.000 | 0.01994 | 111 | 75-125 | 5.82 | 20 | | 11/3/2011 1650h |
| 1110506-001DMSD | Calcium | mg/L | SW6010C | 138 | 10.00 | 175.2 | -374 | 75-125 | 10.1 | 20 | [2] | 11/3/2011 1124h |
| 1110506-001DMSD | Iron | mg/L | SW6010C | 0.964 | 1.000 | 0 | 96.4 | 75-125 | 3.88 | 20 | | 11/3/2011 1650h |
| 1110506-001DMSD | Magnesium | mg/L | SW6010C | 37.2 | 10.00 | 25.94 | 113 | 75-125 | 14.9 | 20 | | 11/3/2011 1124h |
| 1110506-001DMSD | Molybdenum | mg/L | SW6010C | 0.196 | 0.2000 | 0 | 98.0 | 75-125 | 6.08 | 20 | | 11/3/2011 1650h |
| 1110506-001DMSD | Potassium | mg/L | SW6010C | 11.3 | 10.00 | 1.113 | 102 | 75-125 | 1.73 | 20 | | 11/3/2011 1650h |
| 1110506-001DMSD | Sodium | mg/L | SW6010C | 25.9 | 10.00 | 15.31 | 106 | 75-125 | 13.4 | 20 | | 11/3/2011 1124h |
| 1110506-001EMSD | Iron | mg/L | SW6010C | 1.19 | 1.000 | 0.1900 | 100 | 75-125 | 1.67 | 20 | | 11/2/2011 1546h |
| 1110506-001DMSD | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0003060 | 100 | 75-125 | 0.345 | 20 | | 10/26/2011 2254h |
| 1110506-001DMSD | Cadmium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | 0.477 | 20 | | 10/26/2011 2254h |
| 1110506-001DMSD | Copper | mg/L | SW6020A | 0.204 | 0.2000 | 0.0008340 | 102 | 75-125 | 0.158 | 20 | | 10/26/2011 2254h |
| 1110506-001DMSD | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 75-125 | 0.681 | 20 | | 10/26/2011 2254h |
| 1110506-001DMSD | Manganese | mg/L | SW6020A | 0.202 | 0.2000 | 0.001849 | 99.9 | 75-125 | 0.238 | 20 | | 10/26/2011 2254h |
| 1110506-001DMSD | Selenium | mg/L | SW6020A | 0.203 | 0.2000 | 0.002197 | 100 | 75-125 | 0.187 | 20 | | 10/26/2011 2254h |
| 1110506-001DMSD | Zinc | mg/L | SW6020A | 0.996 | 1.000 | 0 | 99.6 | 75-125 | 0.502 | 20 | | 10/26/2011 2254h |
| 1110506-001EMSD | Manganese | mg/L | SW6020A | 0.204 | 0.2000 | 0.004749 | 99.8 | 75-125 | 0.691 | 20 | | 10/26/2011 2154h |

[2] - *Analyte concentration is too high for accurate matrix spike recovery and/or RPD.*



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110506
**Project:** Kinney #2 Mine

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110506-002ADUP | Total Dissolved Solids | mg/L | SM2540C | 440 | | 436.0 | | - | 0.913 | 5 | | 10/28/2011 1300h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110506
**Project:** Kinney #2 Mine

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-33281 | Chloride | mg/L | E300.0 | 4.75 | 5.000 | 0 | 95.1 | 90-110 | | | | 11/2/2011 0538h |
| LCS-33281 | Sulfate | mg/L | E300.0 | 4.89 | 5.000 | 0 | 97.9 | 90-110 | | | | 11/2/2011 0538h |
| LCS-R33052 | Acidity | mg/L | SM2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | | | | 10/27/2011 1110h |
| LCS-R33051 | Alkalinity (as CaCO3) | mg/L | SM2320B | 49,200 | 50,000 | 0 | 98.4 | 90-110 | | | | 10/24/2011 0810h |
| LCS-15393 | Ammonia (as N) | mg/L | E350.1 | 1.03 | 1.000 | 0 | 103 | 90-110 | | | | 11/3/2011 1906h |
| LCS-R32941 | Nitrite (as N) | mg/L | E353.2 | 1.04 | 1.000 | 0 | 104 | 90-110 | | | | 10/26/2011 0918h |
| LCS-R32943 | Nitrate (as N) | mg/L | E353.2 | 1.05 | 1.000 | 0 | 105 | 90-110 | | | | 10/26/2011 0920h |
| LCS-15211 | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.908 | 1.000 | 0 | 90.8 | 90-110 | | | | 10/26/2011 1857h |
| LCS-R33228 | Total Dissolved Solids | mg/L | SM2540C | 204 | 205.0 | 0 | 99.5 | 80-120 | | | | 10/28/2011 1300h |



All analyses applicable to the CWA, SDWA, and RCRA are performed in accordance to NELAC protocols. Pertinent sampling information is located on the attached COC. This report is provided for the exclusive use of the addressee. Privileges of subsequent use of the name of this company or any member of its staff, or reproduction of this report in connection with the advertisement, promotion or sale of any product or process, or in connection with the re-publication of this report for any purpose other than for the addressee will be granted only on contact. This company accepts no responsibility except for the due performance of inspection and/or analysis in good faith and according to the rules of the trade and of science.

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110506
**Project:** Kinney #2 Mine

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-33281 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | | 11/2/2011 0514h |
| MB-33281 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 11/2/2011 0514h |
| MB-R33052 | Acidity | mg/L | SM2310B | < 15.0 | | | | - | | | | 10/27/2011 1110h |
| MB-R33051 | Alkalinity (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 10/24/2011 0810h |
| MB-R33051 | Bicarbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 10/24/2011 0810h |
| MB-R33051 | Carbonate (as CaCO3) | mg/L | SM2320B | < 10.0 | | | | - | | | | 10/24/2011 0810h |
| MB-15393 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 11/3/2011 1904h |
| MB-R32941 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 10/26/2011 0917h |
| MB-R32943 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 10/26/2011 0917h |
| MB-15211 | Phosphate, Total (as P) | mg/L | SM4500-P-F | < 0.0500 | | | | - | | | | 10/26/2011 1856h |
| MB-R33228 | Total Dissolved Solids | mg/L | SM2540C | < 10.0 | | | | - | | | | 10/28/2011 1300h |



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110506
**Project:** Kinney #2 Mine

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110506-001BMS | Chloride | mg/L | E300.0 | 77.6 | 50.00 | 27.93 | 99.3 | 90-110 | | | | 11/2/2011 0651h |
| 1110506-001BMS | Sulfate | mg/L | E300.0 | 115 | 50.00 | 64.80 | 101 | 90-110 | | | | 11/2/2011 0651h |
| 1110422-001BMS | Acidity | mg/L | SM2310B | 52.0 | 50.00 | 0 | 104 | 80-120 | | | | 10/27/2011 1110h |
| 1110506-002BMS | Acidity | mg/L | SM2310B | 48.0 | 50.00 | 0 | 96.0 | 80-120 | | | | 10/27/2011 1110h |
| 1110506-001BMS | Alkalinity (as CaCO3) | mg/L | SM2320B | 462 | 200.0 | 265.7 | 98.4 | 80-120 | | | | 10/24/2011 0810h |
| 1110506-002CMS | Ammonia (as N) | mg/L | E350.1 | 1.07 | 1.000 | 0 | 107 | 90-110 | | | | 11/3/2011 1927h |
| 1110506-001BMS | Nitrite (as N) | mg/L | E353.2 | 1.04 | 1.000 | 0 | 104 | 90-110 | | | | 10/26/2011 0937h |
| 1110506-001BMS | Nitrate (as N) | mg/L | E353.2 | 17.1 | 10.00 | 3.248 | 138 | 90-110 | | | 1 | 10/26/2011 1002h |
| 1110422-001DMS | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.895 | 1.000 | 0 | 89.5 | 90-110 | | | 1 | 10/26/2011 1858h |
| 1110506-001CMS | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.696 | 1.000 | 0 | 69.6 | 90-110 | | | 1 | 10/26/2011 1908h |

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1110506
**Project:** Kinney #2 Mine

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limit | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1110506-001BMSD | Chloride | mg/L | E300.0 | 76.8 | 50.00 | 27.93 | 97.8 | 90-110 | 0.971 | 20 | | 11/2/2011 0715h |
| 1110506-001BMSD | Sulfate | mg/L | E300.0 | 114 | 50.00 | 64.80 | 99.0 | 90-110 | 0.789 | 20 | | 11/2/2011 0715h |
| 1110422-001BMSD | Acidity | mg/L | SM2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | 3.92 | 0 | | 10/27/2011 1110h |
| 1110506-002BMSD | Acidity | mg/L | SM2310B | 50.0 | 50.00 | 0 | 100 | 80-120 | 4.08 | 0 | | 10/27/2011 1110h |
| 1110506-001BMSD | Alkalinity (as CaCO3) | mg/L | SM2320B | 459 | 200.0 | 265.7 | 96.8 | 80-120 | 0.716 | 10 | | 10/24/2011 0810h |
| 1110506-002CMSD | Ammonia (as N) | mg/L | E350.1 | 1.09 | 1.000 | 0 | 109 | 90-110 | 1.77 | 10 | | 11/3/2011 1928h |
| 1110506-001BMSD | Nitrite (as N) | mg/L | E353.2 | 1.01 | 1.000 | 0 | 101 | 90-110 | 3.16 | 10 | | 10/26/2011 0938h |
| 1110506-001BMSD | Nitrate (as N) | mg/L | E353.2 | 11.8 | 10.00 | 3.248 | 85.2 | 90-110 | 36.7 | 10 | [1]@ | 10/26/2011 1004h |
| 1110422-001DMSD | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.727 | 1.000 | 0 | 72.7 | 90-110 | 20.7 | 10 | [1]@ | 10/26/2011 1859h |
| 1110506-001CMSD | Phosphate, Total (as P) | mg/L | SM4500-P-F | 0.851 | 1.000 | 0 | 85.1 | 90-110 | 20 | 10 | [1]@ | 10/26/2011 1909h |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*

*[1] - Matrix spike recovery indicates matrix interference. The method is in control as indicated by the LCS.*



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# American West Analytical Laboratories

D
ı Resources

## WORK ORDER Summary

**Work Order:** 1110506
Page 1 of 2 10/26/2011

**Client:** Carbon Resources
**Client ID:** CAR300 **Contact:** Brad Lindsay
**Project:** Kinney #2 Mine **QC Level:** LEVEL II+ **WO Type:** Project
**Comments:** No Hard Copies. QC 2+, EDD;

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110506-001A | LC-D2-1 | 10/25/2011 1030h | 10/25/2011 1708h | 11/8/2011 | Aqueous | TDS-W-2540C | ☐ | ww - tds | 1 |
| 1110506-001B | | | | | | 300.0-W | ☑ | DF - wc | |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |
| | | | | | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| 1110506-001C | | | | | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | | | NH3-W-PR | ☐ | df - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | df - nh3 | |
| | | | | | | PO4-W-PR | ☐ | df - nh3 | |
| 1110506-001D | | | | | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | df - dis met | |
| | | | | | | HARD-2340B | ☐ | df - dis met | |
| 1110506-001E | | | | | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |
| 1110506-002A | LC-D2-2 | 10/25/2011 1130h | | | | TDS-W-2540C | ☐ | ww - tds | |
| 1110506-002B | | | | | | 300.0-W | ☑ | DF - wc | |
| | **SEL Analytes: CL SO4** | | | | | | | | |
| | | | | | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | | | ALK-W-2320B | ☑ | DF - wc | |
| | **SEL Analytes: ALK ALKB ALKC** | | | | | | | | |

# WORK ORDER Summary

**Client:** Carbon Resources

**Work Order:** 1110506



10/26/2011

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1110506-002B | LC-D2-2 | 10/25/2011 1130h | 10/25/2011 1708h | 11/8/2011 | Aqueous | NO2-W-353.2 | ☐ | DF - wc | 1 |
| | | | | | | NO3-W-353.2 | ☐ | DF - wc | |
| 1110506-002C | | | | | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | | | NH3-W-PR | ☐ | df - nh3 | |
| | | | | | | PO4-W-4500PF | ☐ | df - nh3 | |
| | | | | | | PO4-W-PR | ☐ | df - nh3 | |
| 1110506-002D | | | | | | 3005A-DIS-PR | ☐ | df - dis met | 2 |
| | | | | | | 6010C-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AL B CA FE MG MO K NA** | | | | | | | | |
| | | | | | | 6020-DIS | ☑ | df - dis met | |
| | **SEL Analytes: AS CD CU PB MN SE ZN** | | | | | | | | |
| | | | | | | FILTER-PR | ☐ | df - dis met | |
| | | | | | | HARD-2340B | ☐ | df - dis met | |
| 1110506-002E | | | | | | 3005A-ICPMS-PR | ☐ | df - metals | 1 |
| | | | | | | 6010C-W | ☑ | df - metals | |
| | **SEL Analytes: FE** | | | | | | | | |
| | | | | | | 6020-W | ☑ | df - metals | |
| | **SEL Analytes: MN** | | | | | | | | |

Client CARBON RESOURCES

Address

City State Zip

Phone Fax

Contact GREG HUNT

E-mail

Project Name KINNEY NO 2 MINE

Project Number/P.O.#

Sampler Name MIKE KELLER

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# CHAIN OF CUSTODY

Lab Sample Set # 1110506

Page 1 of 1

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day Standard

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | TESTS REQUIRED: GROUNDWATER | QC LEVEL | COMMENTS |
|---|---|---|---|---|---|---|
| LC-D2-1 | 10/25/11/10:30 | | 5 | X | 1 2 2+ 3 3+ 4 | |
| LC-D2-2 | 10/25/11/11:30 | | 5 | X | | |

**LABORATORY USE ONLY**

SAMPLES WERE:
1 Shipped or hand delivered
Notes:

2 Ambient or Chilled
Notes:

3 Temperature 1.8

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Checked at Bench
Y N
Notes:

6 Received Within Holding Times
Y N
Notes:

COC Tape Was:
1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

| Relinquished By: Signature | Date | Received By: Signature | Date |
|---|---|---|---|
| PRINT NAME MIKE KELLER | Time 12:30 | PRINT NAME BEN GRIMES | Time 12:30 |
| Relinquished By: Signature | Date 10/25/11 | Received By: Signature | Date 10/25/11 |
| PRINT NAME Michael Keller | Time 1708 | PRINT NAME Samantha Broadhead | Time 1708 |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |
| Relinquished By: Signature | Date | Received By: Signature | Date |
| PRINT NAME | Time | PRINT NAME | Time |

Special Instructions:
PLEASE FILTER

TABLE 4

Utah Division of Oil, Gas & Mining
Ground Water Monitoring Requirements
Baseline, Operational and Post-mining

| | | | | | |
|---|---|---|---|---|---|
| | | FIELD MEASUREMENTS | | | REPORTED AS |
| 1 L HDPE | * | - | Water level or Flow | | Depth, Flow |
| 1 L HDPE | * | - | pH | | Standard units |
| 250 mL HDPE | * | - | Specific Conductivity | | umhos/cm @ 25° C |
| 1 500 mL HNO3 | * | - | Temperature | | °C |
| 1 250 mL H2SO4 | | | | | |
| | | LABORATORY MEASUREMENTS | | | |
| | * | - | Total Dissolved Solids | | mg/l |
| | * | - | Total Hardness ($CaCO_3$) | | mg/l |
| | * | - | Total Alkalinity | | mg/l |
| | | - | Acidity | | mg/l |
| | | - | Aluminum (Dissolved) | | mg/l |
| | | - | Arsenic (Dissolved) | | mg/l |
| | | - | Boron (Dissolved)[1] | | mg/l |
| | * | - | Carbonate | | mg/l |
| | * | - | Bicarbonate | | mg/l |
| | | - | Cadmium (Dissolved) | | mg/l |
| | * | - | Calcium (Dissolved) | | mg/l |
| | * | - | Chloride | | mg/l |
| | | - | Copper (Dissolved) | | mg/l |
| | * | - | Iron (Dissolved) | | mg/l |
| | * | - | Iron (Total) | | mg/l |
| | | - | Lead (Dissolved) | mg/l | |
| | * | - | Magnesium (Dissolved) | | mg/l |
| | * | - | Manganese (Dissolved) | | mg/l |
| | * | - | Manganese (Total) | | mg/l |
| | | - | Molybdenum (Dissolved) | | mg/l |
| | | - | Ammonia | | mg/l |
| | | - | Nitrates | | mg/l |
| | | - | Nitrites | | mg/l |
| | * | - | Potassium (Dissolved) | | mg/l |
| | | - | ~~Phosphate (Ortho)~~ | | mg/l Changed to Total Phosphate per Greg Hunt |
| | | - | Selenium[1] (Dissolved) | | mg/l 6/30/11 -RW |
| | * | - | Sodium (Dissolved) | | mg/l |
| | * | - | Sulfate | | mg/l |
| | | - | Zinc (Dissolved) | mg/l | |
| | * | - | Cations | | meq/l |
| | * | - | Anions | | meq/l |

[1] These parameters will be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters required for Baseline monitoring.
* Indicates parameters required for Operational and Post-mining monitoring unless amended as per section 5E above.

Sample Set: 1110506

## Preservation Check Sheet

**Sample Set Extension and pH**

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

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Kyle F. Gross
Laboratory Director

Jose Rocha
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Brad Lindsay
Carbon Resources
PO Box 544
Cedaredge, CO 81413
TEL: (435) 851-9044

RE: Scofield Baseline (Kinney)

Dear Brad Lindsay: Lab Set ID: 1012038

American West Analytical Laboratories received 5 sample(s) on 12/2/2010 for the analyses presented in the following report.

All analyses were performed in accordance to The NELAC Institute protocols unless noted otherwise. American West Analytical Laboratories is certified by The NELAC Institute in Utah and Texas; and is state certified in Colorado and Idaho. Certification document is available upon request. If you have any questions or concerns regarding this report please feel free to call.

The abbreviation "Surr" found in organic reports indicates a surrogate compound that is intentionally added by the laboratory to determine sample injection, extraction, and/or purging efficiency. The "Reporting Limit" found on the report is equivalent to the practical quantitaion limit (PQL). This is the minimum concentration that can be reported by the method referenced and the sample matrix. The reporting limit must not be confused with any regulatory limit. Analytical results are reported to three significant figures for quality control and calculation purposes.

Thank You,

Approved by: Jose G. Rocha
Digitally signed by Jose G. Rocha
DN: cn=Jose G. Rocha, o=American West Analytical Laboratories, ou=Quality Assurance Officer, email=jose@awal-labs.com, c=US
Date: 2010.12.09 14:10:35 -07'00'

Laboratory Director or designee



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# INORGANIC ANALYTICAL REPORT

AMERICAN
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email: awal@awal-labs.com

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-001
**Client Sample ID:** CR-10-11
**Collection Date:** 11/30/2010 1645h
**Received Date:** 12/2/2010 1040h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 12/3/2010 1111h | 12/6/2010 1540h | SW6010C | 0.100 | **5.76** | |
| Manganese | mg/L | 12/3/2010 1111h | 12/3/2010 2304h | SW6020A | 0.00120 | **0.0912** | |



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**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-002
**Client Sample ID:** CR-10-12
**Collection Date:** 11/30/2010 1730h
**Received Date:** 12/2/2010 1040h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 12/3/2010 1111h | 12/6/2010 1556h | SW6010C | 1.00 | **86.7** | |
| Manganese | mg/L | 12/3/2010 1111h | 12/3/2010 2352h | SW6020A | 0.00120 | **1.37** | |

Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer



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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-003
**Client Sample ID:** Mud Creek
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 12/3/2010 1111h | 12/6/2010 1600h | SW6010C | 0.100 | **0.406** | |
| Manganese | mg/L | 12/3/2010 1111h | 12/3/2010 2358h | SW6020A | 0.00120 | **0.0301** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-004
**Client Sample ID:** Sulfur Spring
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

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Jose Rocha
QA Officer

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 12/3/2010 1111h | 12/6/2010 1603h | SW6010C | 0.100 | < 0.100 | |
| Manganese | mg/L | 12/3/2010 1111h | 12/4/2010 0004h | SW6020A | 0.00120 | **0.0318** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-005
**Client Sample ID:** Miller Outlet
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

## TOTAL METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Iron | mg/L | 12/3/2010 1111h | 12/6/2010 1607h | SW6010C | 0.100 | **1.11** | |
| Manganese | mg/L | 12/3/2010 1111h | 12/4/2010 0009h | SW6020A | 0.00120 | **0.0722** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-001
**Client Sample ID:** CR-10-11
**Collection Date:** 11/30/2010 1645h
**Received Date:** 12/2/2010 1040h

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 12/3/2010 1109h | 12/4/2010 1650h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 12/3/2010 1109h | 12/3/2010 2140h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 12/3/2010 1109h | 12/4/2010 1650h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 12/3/2010 1109h | 12/3/2010 2140h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 12/3/2010 1109h | 12/4/2010 1603h | SW6010C | 10.0 | **82.2** | |
| Copper | mg/L | 12/3/2010 1109h | 12/3/2010 2140h | SW6020A | 0.000800 | **0.000928** | |
| Iron | mg/L | 12/3/2010 1109h | 12/4/2010 1650h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 12/3/2010 1109h | 12/3/2010 2140h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 12/3/2010 1109h | 12/4/2010 1650h | SW6010C | 1.00 | **12.3** | |
| Manganese | mg/L | 12/3/2010 1109h | 12/3/2010 2140h | SW6020A | 0.00120 | **0.00168** | |
| Molybdenum | mg/L | 12/3/2010 1109h | 12/4/2010 1650h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 12/3/2010 1109h | 12/4/2010 1650h | SW6010C | 1.00 | **1.47** | |
| Selenium | mg/L | 12/3/2010 1109h | 12/3/2010 2140h | SW6020A | 0.000800 | **0.00134** | |
| Sodium | mg/L | 12/3/2010 1109h | 12/4/2010 1650h | SW6010C | 1.00 | **11.2** | |
| Zinc | mg/L | 12/3/2010 1109h | 12/3/2010 2140h | SW6020A | 0.00500 | **0.0383** | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-002
**Client Sample ID:** CR-10-12
**Collection Date:** 11/30/2010 1730h
**Received Date:** 12/2/2010 1040h

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Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 12/3/2010 1109h | 12/4/2010 1707h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 12/3/2010 1109h | 12/3/2010 2228h | SW6020A | 0.000600 | **0.000637** | |
| Boron | mg/L | 12/3/2010 1109h | 12/4/2010 1707h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 12/3/2010 1109h | 12/3/2010 2228h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 12/3/2010 1109h | 12/4/2010 1616h | SW6010C | 10.0 | **69.1** | |
| Copper | mg/L | 12/3/2010 1109h | 12/3/2010 2228h | SW6020A | 0.000800 | **0.00146** | |
| Iron | mg/L | 12/3/2010 1109h | 12/4/2010 1707h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 12/3/2010 1109h | 12/3/2010 2228h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 12/3/2010 1109h | 12/4/2010 1707h | SW6010C | 1.00 | **6.48** | |
| Manganese | mg/L | 12/3/2010 1109h | 12/3/2010 2228h | SW6020A | 0.00120 | **0.00236** | |
| Molybdenum | mg/L | 12/3/2010 1109h | 12/4/2010 1707h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 12/3/2010 1109h | 12/4/2010 1707h | SW6010C | 1.00 | **1.01** | |
| Selenium | mg/L | 12/3/2010 1109h | 12/3/2010 2228h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 12/3/2010 1109h | 12/4/2010 1707h | SW6010C | 1.00 | **25.5** | |
| Zinc | mg/L | 12/3/2010 1109h | 12/3/2010 2228h | SW6020A | 0.00500 | **0.117** | |

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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-003
**Client Sample ID:** Mud Creek
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 12/3/2010 1109h | 12/4/2010 1710h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 12/3/2010 1109h | 12/3/2010 2233h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 12/3/2010 1109h | 12/4/2010 1710h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 12/3/2010 1109h | 12/3/2010 2233h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 12/3/2010 1109h | 12/4/2010 1621h | SW6010C | 10.0 | **62.7** | |
| Copper | mg/L | 12/3/2010 1109h | 12/3/2010 2233h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 12/3/2010 1109h | 12/4/2010 1710h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 12/3/2010 1109h | 12/3/2010 2233h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 12/3/2010 1109h | 12/4/2010 1710h | SW6010C | 1.00 | **33.9** | |
| Manganese | mg/L | 12/3/2010 1109h | 12/3/2010 2233h | SW6020A | 0.00120 | **0.0135** | |
| Molybdenum | mg/L | 12/3/2010 1109h | 12/4/2010 1710h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 12/3/2010 1109h | 12/4/2010 1710h | SW6010C | 1.00 | **6.33** | |
| Selenium | mg/L | 12/3/2010 1109h | 12/3/2010 2233h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 12/3/2010 1109h | 12/4/2010 1621h | SW6010C | 10.0 | **41.1** | |
| Zinc | mg/L | 12/3/2010 1109h | 12/3/2010 2233h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-004
**Client Sample ID:** Sulfur Spring
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 12/3/2010 1109h | 12/4/2010 1714h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 12/3/2010 1109h | 12/3/2010 2239h | SW6020A | 0.000600 | < 0.000600 | |
| Boron | mg/L | 12/3/2010 1109h | 12/4/2010 1714h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 12/3/2010 1109h | 12/3/2010 2239h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 12/3/2010 1109h | 12/4/2010 1625h | SW6010C | 10.0 | **91.3** | |
| Copper | mg/L | 12/3/2010 1109h | 12/3/2010 2239h | SW6020A | 0.000800 | < 0.000800 | |
| Iron | mg/L | 12/3/2010 1109h | 12/4/2010 1714h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 12/3/2010 1109h | 12/3/2010 2239h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 12/3/2010 1109h | 12/4/2010 1714h | SW6010C | 1.00 | **37.5** | |
| Manganese | mg/L | 12/3/2010 1109h | 12/3/2010 2239h | SW6020A | 0.00120 | **0.0293** | |
| Molybdenum | mg/L | 12/3/2010 1109h | 12/4/2010 1714h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 12/3/2010 1109h | 12/4/2010 1714h | SW6010C | 1.00 | **5.05** | |
| Selenium | mg/L | 12/3/2010 1109h | 12/3/2010 2239h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 12/3/2010 1109h | 12/4/2010 1714h | SW6010C | 1.00 | **9.04** | |
| Zinc | mg/L | 12/3/2010 1109h | 12/3/2010 2239h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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Laboratory Director

Jose Rocha
QA Officer

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-005
**Client Sample ID:** Miller Outlet
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

## DISSOLVED METALS

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Aluminum | mg/L | 12/3/2010 1109h | 12/4/2010 1718h | SW6010C | 0.100 | < 0.100 | |
| Arsenic | mg/L | 12/3/2010 1109h | 12/3/2010 2245h | SW6020A | 0.000600 | **0.000756** | |
| Boron | mg/L | 12/3/2010 1109h | 12/4/2010 1718h | SW6010C | 0.500 | < 0.500 | |
| Cadmium | mg/L | 12/3/2010 1109h | 12/3/2010 2245h | SW6020A | 0.000180 | < 0.000180 | |
| Calcium | mg/L | 12/3/2010 1109h | 12/4/2010 1642h | SW6010C | 10.0 | **90.9** | |
| Copper | mg/L | 12/3/2010 1109h | 12/3/2010 2245h | SW6020A | 0.000800 | **0.00100** | |
| Iron | mg/L | 12/3/2010 1109h | 12/4/2010 1718h | SW6010C | 0.100 | < 0.100 | |
| Lead | mg/L | 12/3/2010 1109h | 12/3/2010 2245h | SW6020A | 0.000400 | < 0.000400 | |
| Magnesium | mg/L | 12/3/2010 1109h | 12/4/2010 1718h | SW6010C | 1.00 | **17.2** | |
| Manganese | mg/L | 12/3/2010 1109h | 12/3/2010 2245h | SW6020A | 0.00120 | **0.0144** | |
| Molybdenum | mg/L | 12/3/2010 1109h | 12/4/2010 1718h | SW6010C | 0.0200 | < 0.0200 | |
| Potassium | mg/L | 12/3/2010 1109h | 12/4/2010 1718h | SW6010C | 1.00 | **1.87** | |
| Selenium | mg/L | 12/3/2010 1109h | 12/3/2010 2245h | SW6020A | 0.000800 | < 0.000800 | |
| Sodium | mg/L | 12/3/2010 1109h | 12/4/2010 1718h | SW6010C | 1.00 | **6.41** | |
| Zinc | mg/L | 12/3/2010 1109h | 12/3/2010 2245h | SW6020A | 0.00500 | < 0.00500 | |

*Analysis performed on a portion of the sample filtered at the laboratory upon receipt.*



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-001
**Client Sample ID:** CR-10-11
**Collection Date:** 11/30/2010 1645h
**Received Date:** 12/2/2010 1040h

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QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 12/3/2010 0700h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **224** | |
| Ammonia (as N) | mg/L | 12/7/2010 1059h | 12/8/2010 1216h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **224** | |
| Carbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 12/2/2010 1816h | E300.0 | 1.00 | **14.3** | |
| Hardness (as CaCO3) | mg/L | | 12/4/2010 | A2340B | 10.0 | **256** | |
| Nitrate (as N) | mg/L | | 12/2/2010 1359h | E353.2 | 0.100 | **2.36** | |
| Nitrite (as N) | mg/L | | 12/2/2010 1358h | E353.2 | 0.0100 | **0.0126** | |
| Phosphate, Total Ortho (as P) | mg/L | | 12/2/2010 1252h | E365.1 | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 12/2/2010 1816h | E300.0 | 7.50 | **28.1** | |
| Total Dissolved Solids | mg/L | | 12/3/2010 1500h | A2540C | 20.0 | **312** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-002
**Client Sample ID:** CR-10-12
**Collection Date:** 11/30/2010 1730h
**Received Date:** 12/2/2010 1040h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 12/3/2010 0700h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **173** | |
| Ammonia (as N) | mg/L | 12/7/2010 1059h | 12/8/2010 1218h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **173** | |
| Carbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 12/2/2010 1620h | E300.0 | 1.00 | **19.0** | |
| Hardness (as CaCO3) | mg/L | | 12/4/2010 | A2340B | 10.0 | **199** | |
| Nitrate (as N) | mg/L | | 12/2/2010 1402h | E353.2 | 0.100 | **5.06** | |
| Nitrite (as N) | mg/L | | 12/2/2010 1400h | E353.2 | 0.0100 | **0.0195** | |
| Phosphate, Total Ortho (as P) | mg/L | | 12/2/2010 1255h | E365.1 | 0.0500 | < 0.0500 | |
| Sulfate | mg/L | | 12/2/2010 1620h | E300.0 | 7.50 | **36.7** | |
| Total Dissolved Solids | mg/L | | 12/3/2010 1500h | A2540C | 20.0 | **400** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-003
**Client Sample ID:** Mud Creek
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

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Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 12/3/2010 0700h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **254** | |
| Ammonia (as N) | mg/L | 12/7/2010 1059h | 12/8/2010 1219h | E350.1 | 0.0500 | < 0.0500 | |
| Bicarbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **240** | |
| Carbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 12/2/2010 1643h | E300.0 | 1.00 | **14.5** | |
| Hardness (as CaCO3) | mg/L | | 12/4/2010 | A2340B | 10.0 | **296** | |
| Nitrate (as N) | mg/L | | 12/2/2010 1344h | E353.2 | 0.0100 | **0.251** | |
| Nitrite (as N) | mg/L | | 12/2/2010 1344h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 12/3/2010 1220h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total Ortho (as P) | mg/L | | 12/2/2010 1256h | E365.1 | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 12/2/2010 1125h | A2540F | 0.100 | **0.100** | |
| Sulfate | mg/L | | 12/2/2010 1643h | E300.0 | 7.50 | **118** | |
| Total Dissolved Solids | mg/L | | 12/3/2010 1500h | A2540C | 20.0 | **400** | |
| Total Suspended Solids | mg/L | | 12/2/2010 1500h | A2540D | 3.00 | **30.0** | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-004
**Client Sample ID:** Sulfur Spring
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 12/3/2010 0700h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **338** | |
| Ammonia (as N) | mg/L | 12/7/2010 1059h | 12/8/2010 1225h | E350.1 | 0.0500 | **0.0571** | |
| Bicarbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **338** | |
| Carbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 12/2/2010 1533h | E300.0 | 1.00 | **6.53** | |
| Hardness (as CaCO3) | mg/L | | 12/4/2010 | A2340B | 10.0 | **382** | |
| Nitrate (as N) | mg/L | | 12/2/2010 1351h | E353.2 | 0.0100 | < 0.0100 | |
| Nitrite (as N) | mg/L | | 12/2/2010 1351h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 12/3/2010 1220h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total Ortho (as P) | mg/L | | 12/2/2010 1256h | E365.1 | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 12/2/2010 1125h | A2540F | 0.100 | < 0.100 | |
| Sulfate | mg/L | | 12/2/2010 1533h | E300.0 | 7.50 | **43.7** | |
| Total Dissolved Solids | mg/L | | 12/3/2010 1500h | A2540C | 20.0 | **384** | |
| Total Suspended Solids | mg/L | | 12/2/2010 1500h | A2540D | 3.00 | < 3.00 | |



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# INORGANIC ANALYTICAL REPORT

**Client:** Carbon Resources **Contact:** Brad Lindsay
**Project:** Scofield Baseline (Kinney)
**Lab Sample ID:** 1012038-005
**Client Sample ID:** Miller Outlet
**Collection Date:** 12/1/2010
**Received Date:** 12/2/2010 1040h

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Kyle F. Gross
Laboratory Director

Jose Rocha
QA Officer

| Analytical Results | Units | Date Prepared | Date Analyzed | Method Used | Reporting Limit | Analytical Result | Qual |
|---|---|---|---|---|---|---|---|
| Acidity | mg/L | | 12/3/2010 0700h | A2310B | 15.0 | < 15.0 | |
| Alkalinity (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **268** | |
| Ammonia (as N) | mg/L | 12/7/2010 1059h | 12/8/2010 1228h | E350.1 | 0.0500 | **0.0507** | |
| Bicarbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | **261** | |
| Carbonate (as CaCO3) | mg/L | | 12/3/2010 0800h | A2320B | 20.0 | < 20.0 | |
| Chloride | mg/L | | 12/2/2010 1556h | E300.0 | 1.00 | **9.50** | |
| Hardness (as CaCO3) | mg/L | | 12/4/2010 | A2340B | 10.0 | **298** | |
| Nitrate (as N) | mg/L | | 12/2/2010 1352h | E353.2 | 0.0100 | **0.645** | |
| Nitrite (as N) | mg/L | | 12/2/2010 1352h | E353.2 | 0.0100 | < 0.0100 | |
| Oil & Grease | mg/L | | 12/3/2010 1220h | E1664A | 3.00 | < 3.00 | |
| Phosphate, Total Ortho (as P) | mg/L | | 12/2/2010 1257h | E365.1 | 0.0500 | < 0.0500 | |
| Settleable Solids | mL/L | | 12/2/2010 1125h | A2540F | 0.100 | **0.100** | |
| Sulfate | mg/L | | 12/2/2010 1556h | E300.0 | 7.50 | **28.0** | |
| Total Dissolved Solids | mg/L | | 12/3/2010 1500h | A2540C | 20.0 | **340** | @ |
| Total Suspended Solids | mg/L | | 12/2/2010 1500h | A2540D | 3.00 | **48.0** | |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*



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Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-9687 | Aluminum | mg/L | SW6010C | 1.02 | 1.000 | 0 | 102 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9687 | Boron | mg/L | SW6010C | 1.09 | 1.000 | 0 | 109 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9687 | Calcium | mg/L | SW6010C | 10.3 | 10.00 | 0 | 103 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9687 | Iron | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9687 | Magnesium | mg/L | SW6010C | 10.5 | 10.00 | 0 | 105 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9687 | Molybdenum | mg/L | SW6010C | 0.212 | 0.2000 | 0 | 106 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9687 | Potassium | mg/L | SW6010C | 10.4 | 10.00 | 0 | 104 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9687 | Sodium | mg/L | SW6010C | 10.2 | 10.00 | 0 | 102 | 80-120 | | | | 12/4/2010 1600h |
| LCS-9688 | Iron | mg/L | SW6010C | 1.07 | 1.000 | 0 | 107 | 80-120 | | | | 12/6/2010 1519h |
| LCS-9687 | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 12/3/2010 2132h |
| LCS-9687 | Cadmium | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 12/3/2010 2132h |
| LCS-9687 | Copper | mg/L | SW6020A | 0.199 | 0.2000 | 0 | 99.7 | 85-115 | | | | 12/3/2010 2132h |
| LCS-9687 | Lead | mg/L | SW6020A | 0.201 | 0.2000 | 0 | 100 | 85-115 | | | | 12/3/2010 2132h |
| LCS-9687 | Manganese | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 101 | 85-115 | | | | 12/3/2010 2132h |
| LCS-9687 | Selenium | mg/L | SW6020A | 0.200 | 0.2000 | 0 | 100 | 85-115 | | | | 12/3/2010 2132h |
| LCS-9687 | Zinc | mg/L | SW6020A | 1.01 | 1.000 | 0 | 101 | 85-115 | | | | 12/3/2010 2132h |
| LCS-9688 | Manganese | mg/L | SW6020A | 0.205 | 0.2000 | 0 | 102 | 85-115 | | | | 12/3/2010 2256h |



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Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-9687 | Aluminum | mg/L | SW6010C | < 0.100 | | | | - | | | | 12/4/2010 1555h |
| MB-9687 | Boron | mg/L | SW6010C | < 0.500 | | | | - | | | | 12/4/2010 1555h |
| MB-9687 | Calcium | mg/L | SW6010C | < 1.00 | | | | - | | | | 12/4/2010 1555h |
| MB-9687 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 12/4/2010 1555h |
| MB-9687 | Magnesium | mg/L | SW6010C | < 1.00 | | | | - | | | | 12/4/2010 1555h |
| MB-9687 | Molybdenum | mg/L | SW6010C | < 0.0200 | | | | - | | | | 12/4/2010 1555h |
| MB-9687 | Potassium | mg/L | SW6010C | < 1.00 | | | | - | | | | 12/4/2010 1555h |
| MB-9687 | Sodium | mg/L | SW6010C | < 1.00 | | | | - | | | | 12/4/2010 1555h |
| MB-9688 | Iron | mg/L | SW6010C | < 0.100 | | | | - | | | | 12/6/2010 1515h |
| MB-9687 | Arsenic | mg/L | SW6020A | < 0.000600 | | | | - | | | | 12/3/2010 2126h |
| MB-9687 | Cadmium | mg/L | SW6020A | < 0.000180 | | | | - | | | | 12/3/2010 2126h |
| MB-9687 | Copper | mg/L | SW6020A | < 0.000800 | | | | - | | | | 12/3/2010 2126h |
| MB-9687 | Lead | mg/L | SW6020A | < 0.000400 | | | | - | | | | 12/3/2010 2126h |
| MB-9687 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 12/3/2010 2126h |
| MB-9687 | Selenium | mg/L | SW6020A | < 0.000800 | | | | - | | | | 12/3/2010 2126h |
| MB-9687 | Zinc | mg/L | SW6020A | < 0.00500 | | | | - | | | | 12/3/2010 2126h |
| MB-9688 | Manganese | mg/L | SW6020A | < 0.00120 | | | | - | | | | 12/3/2010 2251h |



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Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1012038-001DMS | Aluminum | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 75-125 | | | | 12/4/2010 1659h |
| 1012038-001DMS | Boron | mg/L | SW6010C | 1.17 | 1.000 | 0.02380 | 115 | 75-125 | | | | 12/4/2010 1659h |
| 1012038-001DMS | Calcium | mg/L | SW6010C | 92.0 | 10.00 | 82.20 | 98.4 | 75-125 | | | | 12/4/2010 1608h |
| 1012038-001DMS | Iron | mg/L | SW6010C | 1.04 | 1.000 | 0 | 104 | 75-125 | | | | 12/4/2010 1659h |
| 1012038-001DMS | Magnesium | mg/L | SW6010C | 22.9 | 10.00 | 12.34 | 105 | 75-125 | | | | 12/4/2010 1659h |
| 1012038-001DMS | Molybdenum | mg/L | SW6010C | 0.210 | 0.2000 | 0 | 105 | 75-125 | | | | 12/4/2010 1659h |
| 1012038-001DMS | Potassium | mg/L | SW6010C | 12.2 | 10.00 | 1.468 | 107 | 75-125 | | | | 12/4/2010 1659h |
| 1012038-001DMS | Sodium | mg/L | SW6010C | 21.6 | 10.00 | 11.17 | 105 | 75-125 | | | | 12/4/2010 1659h |
| 1012038-001EMS | Iron | mg/L | SW6010C | 6.65 | 1.000 | 5.760 | 89.0 | 75-125 | | | | 12/6/2010 1548h |
| 1012038-001DMS | Arsenic | mg/L | SW6020A | 0.201 | 0.2000 | 0.0005760 | 100 | 75-125 | | | | 12/3/2010 2157h |
| 1012038-001DMS | Cadmium | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 101 | 75-125 | | | | 12/3/2010 2157h |
| 1012038-001DMS | Copper | mg/L | SW6020A | 0.194 | 0.2000 | 0.0009280 | 96.8 | 75-125 | | | | 12/3/2010 2157h |
| 1012038-001DMS | Lead | mg/L | SW6020A | 0.203 | 0.2000 | 0.0001530 | 101 | 75-125 | | | | 12/3/2010 2157h |
| 1012038-001DMS | Manganese | mg/L | SW6020A | 0.203 | 0.2000 | 0.001679 | 101 | 75-125 | | | | 12/3/2010 2157h |
| 1012038-001DMS | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.001339 | 101 | 75-125 | | | | 12/3/2010 2157h |
| 1012038-001DMS | Zinc | mg/L | SW6020A | 1.04 | 1.000 | 0.03831 | 101 | 75-125 | | | | 12/3/2010 2157h |
| 1012038-001EMS | Manganese | mg/L | SW6020A | 0.291 | 0.2000 | 0.09125 | 100 | 75-125 | | | | 12/3/2010 2339h |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** ME
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1012038-001DMSD | Aluminum | mg/L | SW6010C | 1.05 | 1.000 | 0 | 105 | 75-125 | 0.0277 | 20 | | 12/4/2010 1703h |
| 1012038-001DMSD | Boron | mg/L | SW6010C | 1.18 | 1.000 | 0.02380 | 116 | 75-125 | 0.857 | 20 | | 12/4/2010 1703h |
| 1012038-001DMSD | Calcium | mg/L | SW6010C | 94.7 | 10.00 | 82.20 | 125 | 75-125 | 2.82 | 20 | | 12/4/2010 1612h |
| 1012038-001DMSD | Iron | mg/L | SW6010C | 1.04 | 1.000 | 0 | 104 | 75-125 | 0.800 | 20 | | 12/4/2010 1703h |
| 1012038-001DMSD | Magnesium | mg/L | SW6010C | 22.9 | 10.00 | 12.34 | 106 | 75-125 | 0.248 | 20 | | 12/4/2010 1703h |
| 1012038-001DMSD | Molybdenum | mg/L | SW6010C | 0.211 | 0.2000 | 0 | 106 | 75-125 | 0.368 | 20 | | 12/4/2010 1703h |
| 1012038-001DMSD | Potassium | mg/L | SW6010C | 12.0 | 10.00 | 1.468 | 105 | 75-125 | 1.40 | 20 | | 12/4/2010 1703h |
| 1012038-001DMSD | Sodium | mg/L | SW6010C | 21.5 | 10.00 | 11.17 | 103 | 75-125 | 0.623 | 20 | | 12/4/2010 1703h |
| 1012038-001EMSD | Iron | mg/L | SW6010C | 6.78 | 1.000 | 5.760 | 102 | 75-125 | 1.94 | 20 | | 12/6/2010 1552h |
| 1012038-001DMSD | Arsenic | mg/L | SW6020A | 0.202 | 0.2000 | 0.0005760 | 101 | 75-125 | 0.532 | 20 | | 12/3/2010 2220h |
| 1012038-001DMSD | Cadmium | mg/L | SW6020A | 0.203 | 0.2000 | 0 | 102 | 75-125 | 0.227 | 20 | | 12/3/2010 2220h |
| 1012038-001DMSD | Copper | mg/L | SW6020A | 0.194 | 0.2000 | 0.0009280 | 96.7 | 75-125 | 0.0833 | 20 | | 12/3/2010 2220h |
| 1012038-001DMSD | Lead | mg/L | SW6020A | 0.200 | 0.2000 | 0.0001530 | 100 | 75-125 | 1.27 | 20 | | 12/3/2010 2220h |
| 1012038-001DMSD | Manganese | mg/L | SW6020A | 0.204 | 0.2000 | 0.001679 | 101 | 75-125 | 0.0418 | 20 | | 12/3/2010 2220h |
| 1012038-001DMSD | Selenium | mg/L | SW6020A | 0.202 | 0.2000 | 0.001339 | 100 | 75-125 | 0.0845 | 20 | | 12/3/2010 2220h |
| 1012038-001DMSD | Zinc | mg/L | SW6020A | 1.05 | 1.000 | 0.03831 | 101 | 75-125 | 0.401 | 20 | | 12/3/2010 2220h |
| 1012038-001EMSD | Manganese | mg/L | SW6020A | 0.289 | 0.2000 | 0.09125 | 98.9 | 75-125 | 0.742 | 20 | | 12/3/2010 2344h |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** DUP

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1012038-005ADUP | Total Dissolved Solids | mg/L | A2540C | 308 | | 340.0 | | - | 9.88 | 5 | @ | 12/3/2010 1500h |
| 1012019-002ADUP | Total Suspended Solids | mg/L | A2540D | 32.0 | | 32.00 | | - | 0 | 5 | | 12/2/2010 1500h |
| 1012026-001ADUP | Total Suspended Solids | mg/L | A2540D | 640 | | 680.0 | | - | 6.06 | 5 | @ | 12/2/2010 1500h |
| 1012038-005ADUP | Total Suspended Solids | mg/L | A2540D | 48.0 | | 48.00 | | - | 0 | 5 | | 12/2/2010 1500h |

*@ - High RPD due to suspected sample non-homogeneity or matrix interference.*



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Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** LCS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LCS-R21085 | Chloride | mg/L | E300.0 | 4.64 | 5.000 | 0 | 92.9 | 90-110 | | | | 12/2/2010 1400h |
| LCS-R21085 | Sulfate | mg/L | E300.0 | 4.98 | 5.000 | 0 | 99.6 | 90-110 | | | | 12/2/2010 1400h |
| LCS-R21080 | Acidity | mg/L | A2310B | 54.0 | 50.00 | 0 | 108 | 80-120 | | | | 12/3/2010 0700h |
| LCS-R21081 | Alkalinity (as CaCO3) | mg/L | A2320B | 54,200 | 50,000 | 0 | 108 | 90-110 | | | | 12/3/2010 0800h |
| LCS-9746 | Ammonia (as N) | mg/L | E350.1 | 0.963 | 1.000 | 0 | 96.3 | 90-110 | | | | 12/8/2010 1209h |
| LCS-R21045 | Nitrite (as N) | mg/L | E353.2 | 1.00 | 1.000 | 0 | 100 | 90-110 | | | | 12/2/2010 1341h |
| LCS-R21046 | Nitrate (as N) | mg/L | E353.2 | 1.04 | 1.000 | 0 | 104 | 90-110 | | | | 12/2/2010 1343h |
| LCS-R21123 | Oil & Grease | mg/L | E1664A | 37.6 | 40.00 | 0 | 94.0 | 78-114 | | | | 12/3/2010 1220h |
| LCS-R21039 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.03 | 1.000 | 0.003000 | 102 | 90-110 | | | | 12/2/2010 1251h |
| LCS-R21209 | Total Dissolved Solids | mg/L | A2540C | 204 | 205.0 | 0 | 99.5 | 80-120 | | | | 12/3/2010 1500h |
| LCS-R21083 | Total Suspended Solids | mg/L | A2540D | 89.0 | 100.0 | 0 | 89.0 | 80-120 | | | | 12/2/2010 1500h |



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Kyle F. Gross
Laboratory Director
Jose Rocha
QA Officer

# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MBLK

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MB-R21085 | Chloride | mg/L | E300.0 | < 0.100 | | | | - | | | | 12/2/2010 1336h |
| MB-R21085 | Sulfate | mg/L | E300.0 | < 0.750 | | | | - | | | | 12/2/2010 1336h |
| MB-R21080 | Acidity | mg/L | A2310B | < 15.0 | | | | - | | | | 12/3/2010 0700h |
| MB-R21081 | Alkalinity (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 12/3/2010 0800h |
| MB-R21081 | Bicarbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 12/3/2010 0800h |
| MB-R21081 | Carbonate (as CaCO3) | mg/L | A2320B | < 10.0 | | | | - | | | | 12/3/2010 0800h |
| MB-9746 | Ammonia (as N) | mg/L | E350.1 | < 0.0500 | | | | - | | | | 12/8/2010 1208h |
| MB-R21045 | Nitrite (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 12/2/2010 1340h |
| MB-R21046 | Nitrate (as N) | mg/L | E353.2 | < 0.0100 | | | | - | | | | 12/2/2010 1340h |
| MB-R21123 | Oil & Grease | mg/L | E1664A | < 3.00 | | | | - | | | | 12/3/2010 1220h |
| MB-R21039 | Phosphate, Total Ortho (as P) | mg/L | E365.1 | < 0.0500 | | | | - | | | | 12/2/2010 1250h |
| MB-R21209 | Total Dissolved Solids | mg/L | A2540C | < 10.0 | | | | - | | | | 12/3/2010 1500h |
| MB-R21083 | Total Suspended Solids | mg/L | A2540D | < 3.00 | | | | - | | | | 12/2/2010 1500h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MS

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1011472-004CMS | Sulfate | mg/L | E300.0 | 129 | 50.00 | 78.53 | 102 | 90-110 | | | | 12/2/2010 1447h |
| 1012038-001BMS | Chloride | mg/L | E300.0 | 61.2 | 50.00 | 14.30 | 93.8 | 90-110 | | | | 12/2/2010 1839h |
| 1012038-001BMS | Sulfate | mg/L | E300.0 | 77.4 | 50.00 | 28.11 | 98.6 | 90-110 | | | | 12/2/2010 1839h |
| 1012038-001BMS | Acidity | mg/L | A2310B | 48.0 | 50.00 | 0 | 96.0 | 80-120 | | | | 12/3/2010 0700h |
| 1012038-001BMS | Alkalinity (as CaCO3) | mg/L | A2320B | 322 | 100.0 | 224.0 | 98.0 | 80-120 | | | | 12/3/2010 0800h |
| 1012038-004DMS | Ammonia (as N) | mg/L | E350.1 | 1.07 | 1.000 | 0.05710 | 101 | 90-110 | | | | 12/8/2010 1226h |
| 1012103-003AMS | Ammonia (as N) | mg/L | E350.1 | 1.28 | 1.000 | 0.2428 | 104 | 90-110 | | | | 12/8/2010 1212h |
| 1012038-003BMS | Nitrite (as N) | mg/L | E353.2 | 1.04 | 1.000 | 0.004500 | 104 | 90-110 | | | | 12/2/2010 1345h |
| 1012038-003BMS | Nitrate (as N) | mg/L | E353.2 | 1.30 | 1.000 | 0.2508 | 105 | 90-110 | | | | 12/2/2010 1348h |
| 1012038-001BMS | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.06 | 1.000 | 0.03770 | 103 | 90-110 | | | | 12/2/2010 1253h |



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# QC SUMMARY REPORT

**Client:** Carbon Resources
**Lab Set ID:** 1012038
**Project:** Scofield Baseline (Kinney)

**Contact:** Brad Lindsay
**Dept:** WC
**QC Type:** MSD

| Sample ID | Analyte | Units | Method | Result | Amount Spiked | Original Amount | %REC | Limits | %RPD | RPD Limi | Qual | Date Analyzed |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1011472-004CMSD | Sulfate | mg/L | E300.0 | 129 | 50.00 | 78.53 | 102 | 90-110 | 0.111 | 20 | | 12/2/2010 1510h |
| 1012038-001BMSD | Chloride | mg/L | E300.0 | 61.8 | 50.00 | 14.30 | 95.1 | 90-110 | 1.04 | 20 | | 12/2/2010 1903h |
| 1012038-001BMSD | Sulfate | mg/L | E300.0 | 77.7 | 50.00 | 28.11 | 99.1 | 90-110 | 0.349 | 20 | | 12/2/2010 1903h |
| 1012038-001BMSD | Acidity | mg/L | A2310B | 48.0 | 50.00 | 0 | 96.0 | 80-120 | 0 | 0 | | 12/3/2010 0700h |
| 1012038-001BMSD | Alkalinity (as CaCO3) | mg/L | A2320B | 326 | 100.0 | 224.0 | 102 | 80-120 | 1.23 | 10 | | 12/3/2010 0800h |
| 1012038-004DMSD | Ammonia (as N) | mg/L | E350.1 | 1.05 | 1.000 | 0.05710 | 99.0 | 90-110 | 1.76 | 10 | | 12/8/2010 1227h |
| 1012103-003AMSD | Ammonia (as N) | mg/L | E350.1 | 1.22 | 1.000 | 0.2428 | 98.2 | 90-110 | 4.72 | 10 | | 12/8/2010 1213h |
| 1012038-003BMSD | Nitrite (as N) | mg/L | E353.2 | 1.01 | 1.000 | 0.004500 | 101 | 90-110 | 2.75 | 10 | | 12/2/2010 1347h |
| 1012038-003BMSD | Nitrate (as N) | mg/L | E353.2 | 1.24 | 1.000 | 0.2508 | 99.3 | 90-110 | 4.62 | 10 | | 12/2/2010 1350h |
| 1012038-001BMSD | Phosphate, Total Ortho (as P) | mg/L | E365.1 | 1.06 | 1.000 | 0.03770 | 103 | 90-110 | 0.0657 | 10 | | 12/2/2010 1254h |



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# American West Analytical Laboratories

## WORK ORDER Summary

**Work Order:** 1012038



**Client:** Carbon Resources

**Client ID:** CAR300 **Contact:** Brad Lindsay 12/2/2010

**Project:** Scofield Baseline (Kinney) **QC Level:** LEVEL II+ **WO Type:** Project

**Comments:** No Hard Copies. QC 2+, EDD. Watch hold times on NO2, NO3 and Ortho-phos and SS.;

HOLDS

DB

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1012038-001A | CR-10-11 | 11/30/2010 4:45:00 PM | 12/2/2010 10:40:00 AM | 12/16/2010 | Aqueous | TDS-W-2540C | ☐ | ww - tds | 1 |
| 1012038-001B | | | | 12/16/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 12/16/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 12/16/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 12/16/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1012038-001C | | | | 12/16/2010 | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | 12/16/2010 | | NH3-W-PR | ☐ | df - nh3 | |
| 1012038-001D | | | | 12/16/2010 | | 3005A-DIS-PR | ☐ | df - diss. Met. | 2 |
| | | | | 12/16/2010 | | 6010C-DIS | ☑ | df - diss. Met. | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 12/16/2010 | | 6020-DIS | ☑ | df - diss. Met. | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 12/16/2010 | | HARD-2340B | ☐ | df - diss. Met. | |
| 1012038-001E | | | | 12/16/2010 | | 3005A-ICPMS-PR | ☐ | df - total metals | 1 |
| | | | | 12/16/2010 | | 6010C-W | ☑ | df - total metals | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 12/16/2010 | | 6020-W | ☑ | df - total metals | |
| | SEL Analytes: MN | | | | | | | | |
| 1012038-002A | CR-10-12 | 11/30/2010 5:30:00 PM | | 12/16/2010 | | TDS-W-2540C | ☐ | ww - tds | |
| 1012038-002B | | | | 12/16/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |

# WORK ORDER Summary

Work Order: **1012038**



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Carbon Resources | | | | 12/2/2010 |
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay | | |
| **Project:** | Scofield Baseline (Kinney) | **QC Level:** | LEVEL II+ | **WO Type:** | Project |
| **Comments:** | No Hard Copies. QC 2+, EDD. Watch hold times on NO2, NO3 and Ortho-phos and SS.; | | | | |

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1012038-002B | CR-10-12 | 11/30/2010 5:30:00 PM | 12/2/2010 10:40:00 AM | 12/16/2010 | Aqueous | ACIDITY-W-2310B | ☐ | DF - wc | 1 |
| | | | | 12/16/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 12/16/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1012038-002C | | | | 12/16/2010 | | NH3-W-350.1 | ☐ | df - nh3 | |
| | | | | 12/16/2010 | | NH3-W-PR | ☐ | df - nh3 | |
| 1012038-002D | | | | 12/16/2010 | | 3005A-DIS-PR | ☐ | df - diss. Met. | 2 |
| | | | | 12/16/2010 | | 6010C-DIS | ☑ | df - diss. Met. | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 12/16/2010 | | 6020-DIS | ☑ | df - diss. Met. | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 12/16/2010 | | HARD-2340B | ☐ | df - diss. Met. | |
| 1012038-002E | | | | 12/16/2010 | | 3005A-ICPMS-PR | ☐ | df - total metals | 1 |
| | | | | 12/16/2010 | | 6010C-W | ☑ | df - total metals | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 12/16/2010 | | 6020-W | ☑ | df - total metals | |
| | SEL Analytes: MN | | | | | | | | |
| 1012038-003A | Mud Creek | 12/1/2010 | | 12/16/2010 | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | 12/16/2010 | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | 12/16/2010 | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1012038-003B | | | | 12/16/2010 | | 300.0-W | ☑ | DF - wc | 2 |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 12/16/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 12/16/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |

# WORK ORDER Summary

Work Order: **1012038**



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Carbon Resources | | | | 12/2/2010 |
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay | | |
| **Project:** | Scofield Baseline (Kinney) | **QC Level:** | LEVEL II+ | **WO Type:** | Project |
| **Comments:** | No Hard Copies. QC 2+, EDD. Watch hold times on NO2, NO3 and Ortho-phos and SS.; | | | | |

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1012038-003B | Mud Creek | 12/1/2010 | 12/2/2010 10:40:00 AM | 12/16/2010 | Aqueous | NO2-W-353.2 | ☐ | DF - wc | 2 |
| | | | | 12/16/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1012038-003C | | | | 12/16/2010 | | OGB-W-1664A | ☐ | ogb | 1 |
| 1012038-003D | | | | 12/16/2010 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 12/16/2010 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1012038-003E | | | | 12/16/2010 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 12/16/2010 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | 12/16/2010 | | 6020-DIS | ☑ | DF - dis met | |
| 1012038-003F | SEL Analytes: AS CD CU PB MN SE ZN | | | 12/16/2010 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 12/16/2010 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | 12/16/2010 | | 6020-W | ☑ | DF - total met | |
| | SEL Analytes: MN | | | 12/16/2010 | | HARD-2340B | ☐ | DF - total met | |
| 1012038-004A | Sulfur Spring | | | 12/16/2010 | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | 12/16/2010 | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | 12/16/2010 | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1012038-004B | | | | 12/16/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | 12/16/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 12/16/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | 12/16/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1012038-004C | | | | 12/16/2010 | | OGB-W-1664A | ☐ | ogb | |

# WORK ORDER Summary

Work Order: **1012038**



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Carbon Resources | | | | 12/2/2010 |
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay | | |
| **Project:** | Scofield Baseline (Kinney) | **QC Level:** | LEVEL II+ | **WO Type:** | Project |
| **Comments:** | No Hard Copies. QC 2+, EDD. Watch hold times on NO2, NO3 and Ortho-phos and SS.; | | | | |

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1012038-004D | Sulfur Spring | 12/1/2010 | 12/2/2010 10:40:00 AM | 12/16/2010 | Aqueous | NH3-W-350.1 | ☐ | DF - nh3 | 1 |
| | | | | 12/16/2010 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1012038-004E | | | | 12/16/2010 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 12/16/2010 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |
| | | | | 12/16/2010 | | 6020-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 12/16/2010 | | HARD-2340B | ☐ | DF - dis met | |
| 1012038-004F | | | | 12/16/2010 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 12/16/2010 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 12/16/2010 | | 6020-W | ☑ | DF - total met | |
| | SEL Analytes: MN | | | | | | | | |
| 1012038-005A | Miller Outlet | | | 12/16/2010 | | SS-W-2540F | ☐ | ww - ss/tss | |
| | | | | 12/16/2010 | | TDS-W-2540C | ☐ | ww - ss/tss | |
| | | | | 12/16/2010 | | TSS-W-2540D | ☐ | ww - ss/tss | |
| 1012038-005B | | | | 12/16/2010 | | 300.0-W | ☑ | DF - wc | |
| | SEL Analytes: CL SO4 | | | | | | | | |
| | | | | 12/16/2010 | | ACIDITY-W-2310B | ☐ | DF - wc | |
| | | | | 12/16/2010 | | ALK-W-2320B | ☑ | DF - wc | |
| | SEL Analytes: ALK ALKB ALKC | | | | | | | | |
| | | | | 12/16/2010 | | NO2-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | NO3-W-353.2 | ☐ | DF - wc | |
| | | | | 12/16/2010 | | PO4-O-365.1 | ☐ | DF - wc | |
| 1012038-005C | | | | 12/16/2010 | | OGB-W-1664A | ☐ | ogb | |
| 1012038-005D | | | | 12/16/2010 | | NH3-W-350.1 | ☐ | DF - nh3 | |
| | | | | 12/16/2010 | | NH3-W-PR | ☐ | DF - nh3 | |
| 1012038-005E | | | | 12/16/2010 | | 3005A-DIS-PR | ☐ | DF - dis met | 2 |
| | | | | 12/16/2010 | | 6010C-DIS | ☑ | DF - dis met | |
| | SEL Analytes: AL B CA FE MG MO K NA | | | | | | | | |

# WORK ORDER Summary

Work Order: **1012038**



| | | | | | |
|---|---|---|---|---|---|
| **Client:** | Carbon Resources | | | | 12/2/2010 |
| **Client ID:** | CAR300 | **Contact:** | Brad Lindsay | | |
| **Project:** | Scofield Baseline (Kinney) | **QC Level:** | LEVEL II+ | **WO Type:** | Project |
| **Comments:** | No Hard Copies. QC 2+, EDD. Watch hold times on NO2, NO3 and Ortho-phos and SS.; | | | | |

| Sample ID | Client Sample ID | Collected Date | Received Date | Date Due | Matrix | Test Code | Sel | Storage | |
|---|---|---|---|---|---|---|---|---|---|
| 1012038-005E | Miller Outlet | 12/1/2010 | 12/2/2010 10:40:00 AM | 12/16/2010 | Aqueous | 6020-DIS | ☑ | DF - dis met | 2 |
| | SEL Analytes: AS CD CU PB MN SE ZN | | | | | | | | |
| | | | | 12/16/2010 | | HARD-2340B | ☐ | DF - dis met | |
| 1012038-005F | | | | 12/16/2010 | | 3005A-ICPMS-PR | ☐ | DF - total met | 1 |
| | | | | 12/16/2010 | | 6010C-W | ☑ | DF - total met | |
| | SEL Analytes: FE | | | | | | | | |
| | | | | 12/16/2010 | | 6020-W | ☑ | DF - total met | |
| | SEL Analytes: MN | | | | | | | | |

Client Carbon Resources c/o RockLogic

Address P.O. Box 544

Cedaredge, CO 81413
City State Zip

Phone 435 851-9041 Fax

Contact Brad Lindsay

E-mail rocklogicconsulting@gmail.com

Project Name Seofield Baseline (Kinney)

Project Number/P.O.#

Sampler Name Greg Hunt


AMERICAN WEST ANALYTICAL LABORATORIES
463 West 3600 South
Salt Lake City, Utah 84115
(801) 263-8686
(888) 263-8686
Fax (801) 263-8687
Email:awal@awal-labs.com


# CHAIN OF CUSTODY

Lab Sample Set # 1012038

Page 1 of 1

**Turn Around Time (Circle One)**

1 day 2 day 3 day 4 day 5 day Standard

| Sample ID | Date/Time Collected | Matrix | Number of Containers (Total) | Table 4 | Table 3 | QC LEVEL 1 2 2+ 3 3+ 4 COMMENTS |
|---|---|---|---|---|---|---|
| CR-10-11 | 11-30-10 / 16:45 | GW | 5 | ✓ | | |
| CR-10-12 | 11 11 / 17:30 (per bottle) | | 5 | ✓ | | |
| Mud Creek | 12-1-10 / | | 6 | | ✓ | 1 unpreserved bottle ~~leaking~~ - DB 12/2/10 |
| Sulfur Spring | 11 11 / | | 6 | | ✓ | |
| Miller Outlet | 11 11 / | | 6 | | ✓ | |

**LABORATORY USE ONLY**

SAMPLES WERE:

1 Shipped or hand delivered
Notes: UPS

2 Ambient or Chilled
Notes:

3 Temperature 1.2°

4 Received Broken/Leaking (Improperly Sealed)
Y N
Notes:

5 Properly Preserved
Y N
Notes:

6 Received Within Holding Times
Y N
Notes: DB 12/2/10
yes

COC Tape Was:

1 Present on Outer Package
Y N NA

2 Unbroken on Outer Package
Y N NA

3 Present on Sample
Y N NA

4 Unbroken on Sample
Y N NA
Notes:

Discrepancies Between Sample Labels and COC Record?
Y N
Notes:

| Relinquished By: Signature | Date | Received By: Signature |
|---|---|---|
| PRINT NAME Greg Hunt | Time 16:00 | PRINT NAME UPS |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date | Received By: Signature |
| PRINT NAME | Time | PRINT NAME |
| Relinquished By: Signature | Date 12/2/10 | Received By: Signature Denise Bruun |
| PRINT NAME | Time 10:40 | PRINT NAME Denise Bruun |

Special Instructions:

PLEASE FILTER

TABLE 4

1 L HDPE
1 L HDPE
250 mL HDPE
500 mL HNO3
250 mL H2SO4

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Temperature | °C |

LABORATORY MEASUREMENTS

| | | | |
|---|---|---|---|
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphate (Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

[1] These parameters should be analyzed in the baseline for all sites and included as operational at waste rock sites only.
\- Indicates parameters recommended for Baseline monitoring.
* Indicates parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

TABLE 3

½ gallon HDPE
1 L HDPE
1 L HDPE
1 500 mL HNO3
1 250 mL H2SO4
1 amber L HCL

Utah Division of Oil, Gas & Mining
Surface Water Monitoring Recommendations
Baseline, Operational and Post-mining

| | | FIELD MEASUREMENTS | REPORTED AS |
|---|---|---|---|
| * | - | Water level or Flow | Depth, Flow |
| * | - | pH | Standard units |
| * | - | Specific Conductivity | umhos/cm @ 25° C |
| * | - | Dissolved Oxygen | mg/l |
| * | - | Temperature | °C |
| | | **LABORATORY MEASUREMENTS** | |
| * | - | Total Dissolved Solids | mg/l |
| * | - | Total Settleable Solids | (UPDES) |
| * | - | Total Suspended Solids | mg/l |
| * | - | Total Hardness ($CaCO_3$) | mg/l |
| * | - | Total Alkalinity | mg/l |
| | - | Acidity | mg/l |
| | - | Aluminum (Dissolved) | mg/l |
| | - | Arsenic (Dissolved) | mg/l |
| | - | Boron (Dissolved)[1] | mg/l |
| * | - | Carbonate | mg/l |
| * | - | Bicarbonate | mg/l |
| | - | Cadmium (Dissolved) | mg/l |
| * | - | Calcium (Dissolved) | mg/l |
| * | - | Chloride | mg/l |
| | - | Copper (Dissolved) | mg/l |
| * | - | Iron (Dissolved) | mg/l |
| * | - | Iron (Total) | mg/l |
| | - | Lead (Dissolved) | mg/l |
| * | - | Magnesium (Dissolved) | mg/l |
| * | - | Manganese (Dissolved) | mg/l |
| * | - | Manganese (Total) | mg/l |
| | - | Molybdenum (Dissolved) | mg/l |
| | - | Ammonia | mg/l |
| | - | Nitrates | mg/l |
| | - | Nitrites | mg/l |
| * | - | Potassium (Dissolved) | mg/l |
| | - | Phosphates(Ortho) | mg/l |
| | - | Selenium[1] (Dissolved) | mg/l |
| * | - | Sodium (Dissolved) | mg/l |
| * | - | Sulfate | mg/l |
| | - | Zinc (Dissolved) | mg/l |
| * | - | Oil & Grease[2] | mg/l |
| * | - | Cations | meq/l |
| * | - | Anions | meq/l |

[1] Parameters should be analyzed for baseline at all sites and included as operational at waste rock sites.
[2] O&G to be collected above and below mine sites.
\- Parameters recommended for Baseline monitoring.
* Parameters recommended for Operational and Post-mining monitoring unless amended as per section 5E above.

½ gallon HDPE

Sample Set: 1012038

## Preservation Check Sheet

### Sample Set Extension and pH

| Bottle Type | Preservative | All OK | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except | Except |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ammonia | pH <2 $H_2SO_4$ | ✓ | | | | | | | | | | | | | | | |
| COD | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Cyanide | PH >12 NaOH | | | | | | | | | | | | | | | | |
| Metals | pH <2 $HNO_3$ | ✓ | | | | | | | | | | | | | | | |
| $NO_2$ & $NO_3$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Nutrients | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| O & G | pH <2 HCL | ✓ | | | | | | | | | | | | | | | |
| Phenols | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| Sulfide | pH > 9NaOH, Zn Acetate | | | | | | | | | | | | | | | | |
| TKN | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TOC | pH <2 $H_3PO_4$ | | | | | | | | | | | | | | | | |
| TOX | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| T $PO_4$ | pH <2 $H_2SO_4$ | | | | | | | | | | | | | | | | |
| TPH | pH <2 HCL | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

Procedure:
1) Pour a small amount of sample in the sample lid
2) Pour sample from Lid gently over wide range pH paper
3) **Do Not** dip the pH paper in the sample bottle or lid
4) If sample is not preserved properly list its extension and receiving pH in the appropriate column above
5) Flag COC, notify client if requested
6) Place client conversation on COC
7) Samples may be adjusted

Frequency: All samples requiring preservation

SGS

# Analysis Report

April 01, 2019

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-8 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Sep 15, 2013 | Sample Taken At: | WNR-2012-8 |
| Date Received: | Sep 16, 2013 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1215 |
| | | Time Received: | 0825 |
| | | Mine: | 42 |
| | | Field - pH: | 8.7 pH Units |
| | | Field - Conductivity: | 680 umhos/cm |
| | | Field - Temperature: | 9.0 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1321075-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | ANALYZED TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 146 | mg/L | SM2340-B | 1 | 2013-09-23 | 11:48:52 | |
| Anions | 4.96 | meq/L | SM1030E | 0 | 2013-09-23 | 11:48:52 | |
| Balance | -0.81 | % | SM1030E | -10 | 2013-09-23 | 11:48:52 | |
| Cations | 4.88 | meq/L | SM1030E | 0 | 2013-09-23 | 11:48:52 | |
| Acidity | <5 | mg/L | D1067 | 5 | 2013-09-23 | 11:15:00 | |
| Alkalinity, mg CaCO3/L (pH 4.5) | 184 | mg/L | SM2320-B | 5 | 2013-09-18 | 08:00:00 | |
| Bicarbonate Alkalinity as CaCO3 | 184 | mg/L | SM2320-B | 5 | 2013-09-18 | 08:00:00 | |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2013-09-18 | 08:00:00 | |
| Nitrogen, Ammonia | 0.1 | mg/L | SM4500-B-D | 0.1 | 2013-09-20 | 07:30:00 | |
| Total Dissolved Solids | 277 | mg/L | USGS I-1750-85 | 30 | 2013-09-17 | 14:10:00 | |
| Nitrate | 0.27 | mg/L | EPA 300.0 | 0.05 | 2013-09-16 | 16:51:00 | |
| Nitrite | 0.37 | mg/L | EPA 300.0 | 0.05 | 2013-09-16 | 16:51:00 | |
| Chloride, Cl | 15 | mg/L | EPA 300.0 | 1 | 2013-09-16 | 16:51:00 | |
| Sulfate, SO4 | 42 | mg/L | EPA 300.0 | 1 | 2013-09-16 | 16:51:00 | |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2013-09-16 | 16:51:00 | |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2013-09-16 | 15:56:00 | |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2013-09-16 | 15:56:00 | |
| Boron, B - Dissolved | 0.07 | mg/L | EPA 200.7 | 0.01 | 2013-09-16 | 15:56:00 | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2013-09-16 | 15:56:00 | |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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SGS

## Analysis Report

April 01, 2019

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-8 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Sep 15, 2013 | Sample Taken At: | WNR-2012-8 |
| Date Received: | Sep 16, 2013 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1215 |
| | | Time Received: | 0825 |
| | | Mine: | 42 |
| | | Field - pH: | 8.7 pH Units |
| | | Field - Conductivity: | 680 umhos/cm |
| | | Field - Temperature: | 9.0 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1321075-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Calcium, Ca - Dissolved | 22.90 | mg/L | EPA 200.7 | 0.03 | 2013-09-16 | 15:56:00 | |
| Copper, Cu - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2013-09-16 | 15:56:00 | |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2013-09-16 | 15:56:00 | |
| Iron, Fe - Total | 1.89 | mg/L | EPA 200.7 | 0.05 | 2013-09-19 | 17:05:00 | |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2013-09-16 | 15:56:00 | |
| Magnesium, Mg - Dissolved | 21.58 | mg/L | EPA 200.7 | 0.01 | 2013-09-16 | 15:56:00 | |
| Manganese, Mn - Dissolved | 0.005 | mg/L | EPA 200.7 | 0.002 | 2013-09-16 | 15:56:00 | |
| Manganese, Mn - Total | 0.049 | mg/L | EPA 200.7 | 0.002 | 2013-09-19 | 17:05:00 | |
| Molybdenum, Mo - Dissolved | 0.018 | mg/L | EPA 200.7 | 0.005 | 2013-09-16 | 15:56:00 | |
| Potassium, K - Dissolved | 47.41 | mg/L | EPA 200.7 | 0.14 | 2013-09-16 | 15:56:00 | |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2013-09-16 | 15:56:00 | |
| Sodium, Na - Dissolved | 17.23 | mg/L | EPA 200.7 | 0.09 | 2013-09-16 | 15:56:00 | |
| Zinc, Zn - Dissolved | 1.289 | mg/L | EPA 200.7 | 0.004 | 2013-09-16 | 15:56:00 | |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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SGS

# Analysis Report

April 01, 2019

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-5 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Sep 15, 2013 | Sample Taken At: | WNR-2012-5 |
| Date Received: | Sep 16, 2013 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1345 |
| | | Time Received: | 0825 |
| | | Mine: | 42 |
| | | Field - pH: | 8.3 pH Units |
| | | Field - Conductivity: | 990 umhos/cm |
| | | Field - Temperature: | 8.4 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1321075-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 351 | mg/L | SM2340-B | 1 | 2013-09-23 | 11:48:52 | |
| Anions | 11.46 | meq/L | SM1030E | 0 | 2013-09-23 | 11:48:52 | |
| Balance | -1.90 | % | SM1030E | -10 | 2013-09-23 | 11:48:52 | |
| Cations | 11.03 | meq/L | SM1030E | 0 | 2013-09-23 | 11:48:52 | |
| Acidity | <5 | mg/L | D1067 | 5 | 2013-09-23 | 11:15:00 | |
| Alkalinity, mg CaCO3/L (pH 4.5) | 423 | mg/L | SM2320-B | 5 | 2013-09-18 | 08:00:00 | |
| Bicarbonate Alkalinity as CaCO3 | 408 | mg/L | SM2320-B | 5 | 2013-09-18 | 08:00:00 | |
| Carbonate Alkalinity as CaCO3 | 15 | mg/L | SM2320-B | 5 | 2013-09-18 | 08:00:00 | |
| Nitrogen, Ammonia | 0.1 | mg/L | SM4500-B-D | 0.1 | 2013-09-20 | 07:30:00 | |
| Total Dissolved Solids | 640 | mg/L | USGS I-1750-85 | 30 | 2013-09-17 | 14:10:00 | |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2013-09-16 | 16:51:00 | |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2013-09-16 | 16:51:00 | |
| Chloride, Cl | 23 | mg/L | EPA 300.0 | 1 | 2013-09-16 | 16:51:00 | |
| Sulfate, SO4 | 113 | mg/L | EPA 300.0 | 1 | 2013-09-16 | 16:51:00 | |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2013-09-16 | 16:51:00 | |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2013-09-16 | 15:56:00 | |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2013-09-16 | 15:56:00 | |
| Boron, B - Dissolved | 0.06 | mg/L | EPA 200.7 | 0.01 | 2013-09-16 | 15:56:00 | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2013-09-16 | 15:56:00 | |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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## Analysis Report

April 01, 2019

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-5 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Sep 15, 2013 | Sample Taken At: | WNR-2012-5 |
| Date Received: | Sep 16, 2013 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1345 |
| | | Time Received: | 0825 |
| | | Mine: | 42 |
| | | Field - pH: | 8.3 pH Units |
| | | Field - Conductivity: | 990 umhos/cm |
| | | Field - Temperature: | 8.4 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1321075-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Calcium, Ca - Dissolved | 35.04 | mg/L | EPA 200.7 | 0.03 | 2013-09-16 | 15:56:00 | |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2013-09-16 | 15:56:00 | |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2013-09-16 | 15:56:00 | |
| Iron, Fe - Total | 0.50 | mg/L | EPA 200.7 | 0.05 | 2013-09-19 | 17:05:00 | |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2013-09-16 | 15:56:00 | |
| Magnesium, Mg - Dissolved | 64.10 | mg/L | EPA 200.7 | 0.01 | 2013-09-16 | 15:56:00 | |
| Manganese, Mn - Dissolved | 0.005 | mg/L | EPA 200.7 | 0.002 | 2013-09-16 | 15:56:00 | |
| Manganese, Mn - Total | 0.011 | mg/L | EPA 200.7 | 0.002 | 2013-09-19 | 17:05:00 | |
| Molybdenum, Mo - Dissolved | 0.009 | mg/L | EPA 200.7 | 0.005 | 2013-09-16 | 15:56:00 | |
| Potassium, K - Dissolved | 110.66 | mg/L | EPA 200.7 | 0.14 | 2013-09-16 | 15:56:00 | |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2013-09-16 | 15:56:00 | |
| Sodium, Na - Dissolved | 27.15 | mg/L | EPA 200.7 | 0.09 | 2013-09-16 | 15:56:00 | |
| Zinc, Zn - Dissolved | 0.353 | mg/L | EPA 200.7 | 0.004 | 2013-09-16 | 15:56:00 | |

Lab Supervisor

Domenic Ibanez
Lab Supervisor

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

Member of the SGS Group (Société Générale de Surveillance)

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# Analysis Report

April 01, 2019

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MUD CREEK | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Mar 30, 2015 | Sample Taken At: | MUD CREEK |
| Date Received: | Mar 31, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1135 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Site: | 3 |
| | | Field - pH: | 8.0 pH Units |
| | | Field - Flow: | 11.5 cfm |
| | | Field - Conductivity: | 610 umhos/cm |
| | | Field - Temperature: | 5.6 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1528784-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | ANALYZED TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 264 | mg/L | SM2340-B | 1 | 2015-04-29 | 13:56:00 | |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2015-04-13 | 07:00:00 | HF |
| Anions | 6.71 | meq/L | SM1030E | 0 | 2015-04-29 | 13:56:00 | |
| Balance | -0.52 | % | SM1030E | -10 | 2015-04-29 | 13:56:00 | |
| Cations | 6.64 | meq/L | SM1030E | 0 | 2015-04-29 | 13:56:00 | |
| Acidity | <5 | mg/L | D1067 | 5 | 2015-04-07 | 14:45:00 | |
| Alkalinity, mg CaCO3/L (pH 4.5) | 223 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Bicarbonate Alkalinity as CaCO3 | 223 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2015-04-08 | 09:00:00 | HF |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2015-03-31 | 07:35:00 | |
| Total Dissolved Solids | 378 | mg/L | USGS I-1750-85 | 30 | 2015-04-01 | 13:20:00 | |
| Total Suspended Solids | 16 | mg/L | USGS I-3765-85 | 5 | 2015-04-01 | 13:20:00 | |
| Nitrate | 0.25 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |
| Chloride, Cl | 28 | mg/L | EPA 300.0 | 1 | 2015-04-01 | 04:30:00 | |
| Sulfate, SO4 | 70 | mg/L | EPA 300.0 | 1 | 2015-04-01 | 04:30:00 | |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |

Lab Supervisor

Domenic Ibanez
Lab Supervisor

SGS North America Inc. | Minerals Services Division
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# Analysis Report

April 01, 2019

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MUD CREEK | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Mar 30, 2015 | Sample Taken At: | MUD CREEK |
| Date Received: | Mar 31, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1135 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Site: | 3 |
| | | Field - pH: | 8.0 pH Units |
| | | Field - Flow: | 11.5 cfm |
| | | Field - Conductivity: | 610 umhos/cm |
| | | Field - Temperature: | 5.6 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1528784-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | ANALYZED TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | |
| Boron, B - Dissolved | 0.10 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2015-04-09 | 17:16:00 | |
| Calcium, Ca - Dissolved | 58.39 | mg/L | EPA 200.7 | 0.03 | 2015-04-13 | 16:06:00 | |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | |
| Iron, Fe - Total | 0.34 | mg/L | EPA 200.7 | 0.05 | 2015-04-28 | 17:02:00 | |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | |
| Magnesium, Mg - Dissolved | 28.59 | mg/L | EPA 200.7 | 0.01 | 2015-04-13 | 16:06:00 | |
| Manganese, Mn - Dissolved | 0.023 | mg/L | EPA 200.7 | 0.002 | 2015-04-09 | 17:16:00 | |
| Manganese, Mn - Total | 0.041 | mg/L | EPA 200.7 | 0.002 | 2015-04-28 | 17:02:00 | |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2015-04-09 | 17:16:00 | |
| Potassium, K - Dissolved | 3.94 | mg/L | EPA 200.7 | 0.14 | 2015-04-13 | 16:06:00 | |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2015-04-09 | 17:16:00 | |
| Sodium, Na - Dissolved | 29.33 | mg/L | EPA 200.7 | 0.09 | 2015-04-13 | 16:06:00 | |
| Zinc, Zn - Dissolved | 0.007 | mg/L | EPA 200.7 | 0.004 | 2015-04-09 | 17:16:00 | |

Lab Supervisor

Domenic Ibanez
Lab Supervisor

SGS North America Inc. | Minerals Services Division
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# Analysis Report

April 01, 2019

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MILLER OUTLET | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Mar 30, 2015 | Sample Taken At: | MILLER OUTLET |
| Date Received: | Mar 31, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1230 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Site: | 3 |
| | | Field - pH: | 8.1 pH Units |
| | | Field - Flow: | 0.45 cfm |
| | | Field - Conductivity: | 550 umhos/cm |
| | | Field - Temperature: | 5.3 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1528784-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 271 | mg/L | SM2340-B | 1 | 2015-04-29 | 13:56:00 | |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2015-04-13 | 07:00:00 | HF |
| Anions | 5.84 | meq/L | SM1030E | 0 | 2015-04-29 | 13:56:00 | |
| Balance | -0.68 | % | SM1030E | -10 | 2015-04-29 | 13:56:00 | |
| Cations | 5.76 | meq/L | SM1030E | 0 | 2015-04-29 | 13:56:00 | |
| Acidity | 5 | mg/L | D1067 | 5 | 2015-04-07 | 14:45:00 | |
| Alkalinity, mg CaCO3/L (pH 4.5) | 242 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Bicarbonate Alkalinity as CaCO3 | 242 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Nitrogen, Ammonia | 0.2 | mg/L | SM4500-B-D | 0.1 | 2015-04-08 | 09:00:00 | HF |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2015-03-31 | 07:35:00 | |
| Total Dissolved Solids | 330 | mg/L | USGS I-1750-85 | 30 | 2015-04-01 | 13:20:00 | |
| Total Suspended Solids | 8 | mg/L | USGS I-3765-85 | 5 | 2015-04-01 | 13:20:00 | |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |
| Chloride, Cl | 11 | mg/L | EPA 300.0 | 1 | 2015-04-01 | 04:30:00 | |
| Sulfate, SO4 | 34 | mg/L | EPA 300.0 | 1 | 2015-04-01 | 04:30:00 | |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

April 01, 2019

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MILLER OUTLET | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Mar 30, 2015 | Sample Taken At: | MILLER OUTLET |
| Date Received: | Mar 31, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1230 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Site: | 3 |
| | | Field - pH: | 8.1 pH Units |
| | | Field - Flow: | 0.45 cfm |
| | | Field - Conductivity: | 550 umhos/cm |
| | | Field - Temperature: | 5.3 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1528784-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | HF |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2015-04-09 | 17:16:00 | HF |
| Calcium, Ca - Dissolved | 80.05 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | HF |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | HF |
| Iron, Fe - Total | 0.24 | mg/L | EPA 200.7 | 0.05 | 2015-04-28 | 17:02:00 | HF |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Magnesium, Mg - Dissolved | 17.24 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2015-04-09 | 17:16:00 | HF |
| Manganese, Mn - Total | 0.040 | mg/L | EPA 200.7 | 0.002 | 2015-04-28 | 17:02:00 | HF |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2015-04-09 | 17:16:00 | HF |
| Potassium, K - Dissolved | 1.81 | mg/L | EPA 200.7 | 0.14 | 2015-04-09 | 17:16:00 | HF |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2015-04-09 | 17:16:00 | HF |
| Sodium, Na - Dissolved | 7.01 | mg/L | EPA 200.7 | 0.09 | 2015-04-09 | 17:16:00 | HF |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2015-04-09 | 17:16:00 | HF |

Lab Supervisor

Domenic Ibanez
Lab Supervisor

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

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# Analysis Report

April 01, 2019

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | RES-1 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Mar 30, 2015 | Sample Taken At: | RES-1 |
| Date Received: | Mar 31, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1300 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Site: | 3 |
| | | Field - pH: | 8.0 pH Units |
| | | Field - Conductivity: | 540 umhos/cm |
| | | Field - Temperature: | 9.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1528784-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 220 | mg/L | SM2340-B | 1 | 2015-04-29 | 13:56:00 | |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2015-04-13 | 07:00:00 | HF |
| Anions | 4.91 | meq/L | SM1030E | 0 | 2015-04-29 | 13:56:00 | |
| Balance | 1.63 | % | SM1030E | -10 | 2015-04-29 | 13:56:00 | |
| Cations | 5.08 | meq/L | SM1030E | 0 | 2015-04-29 | 13:56:00 | |
| Acidity | <5 | mg/L | D1067 | 5 | 2015-04-07 | 14:45:00 | |
| Alkalinity, mg CaCO3/L (pH 4.5) | 174 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Bicarbonate Alkalinity as CaCO3 | 174 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Nitrogen, Ammonia | 0.1 | mg/L | SM4500-B-D | 0.1 | 2015-04-08 | 09:00:00 | HF |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2015-03-31 | 07:35:00 | |
| Total Dissolved Solids | 292 | mg/L | USGS I-1750-85 | 30 | 2015-04-01 | 13:20:00 | |
| Total Suspended Solids | <5 | mg/L | USGS I-3765-85 | 5 | 2015-04-01 | 13:20:00 | |
| Nitrate | 0.09 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |
| Chloride, Cl | 13 | mg/L | EPA 300.0 | 1 | 2015-04-01 | 04:30:00 | |
| Sulfate, SO4 | 50 | mg/L | EPA 300.0 | 1 | 2015-04-01 | 04:30:00 | |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |

**METALS BY ICP**

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

April 01, 2019

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | RES-1 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Mar 30, 2015 | Sample Taken At: | RES-1 |
| Date Received: | Mar 31, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1300 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Site: | 3 |
| | | Field - pH: | 8.0 pH Units |
| | | Field - Conductivity: | 540 umhos/cm |
| | | Field - Temperature: | 9.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1528784-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | HF |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Boron, B - Dissolved | 0.05 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2015-04-09 | 17:16:00 | HF |
| Calcium, Ca - Dissolved | 52.20 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | HF |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | HF |
| Iron, Fe - Total | 0.19 | mg/L | EPA 200.7 | 0.05 | 2015-04-28 | 17:02:00 | HF |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Magnesium, Mg - Dissolved | 21.77 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2015-04-09 | 17:16:00 | HF |
| Manganese, Mn - Total | 0.022 | mg/L | EPA 200.7 | 0.002 | 2015-04-28 | 17:02:00 | HF |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2015-04-09 | 17:16:00 | HF |
| Potassium, K - Dissolved | 2.47 | mg/L | EPA 200.7 | 0.14 | 2015-04-09 | 17:16:00 | HF |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2015-04-09 | 17:16:00 | HF |
| Sodium, Na - Dissolved | 14.19 | mg/L | EPA 200.7 | 0.09 | 2015-04-09 | 17:16:00 | HF |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2015-04-09 | 17:16:00 | HF |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

April 01, 2019

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-12 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Mar 30, 2015 | Sample Taken At: | CR-10-12 |
| Date Received: | Mar 31, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1030 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Site: | 2 |
| | | Field - pH: | 7.3 pH Units |
| | | Depth: | 55.3 ft |
| | | Field - Conductivity: | 511 umhos/cm |
| | | Field - Temperature: | 9.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1528784-004**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 225 | mg/L | SM2340-B | 1 | 2015-04-29 | 13:56:00 | |
| Anions | 4.92 | meq/L | SM1030E | 0 | 2015-04-29 | 13:56:00 | |
| Balance | 2.05 | % | SM1030E | -10 | 2015-04-29 | 13:56:00 | |
| Cations | 5.12 | meq/L | SM1030E | 0 | 2015-04-29 | 13:56:00 | |
| Acidity | 6 | mg/L | D1067 | 5 | 2015-04-07 | 14:45:00 | |
| Alkalinity, mg CaCO3/L (pH 4.5) | 170 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Bicarbonate Alkalinity as CaCO3 | 170 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2015-04-08 | 09:00:00 | HF |
| Total Dissolved Solids | 360 | mg/L | USGS I-1750-85 | 30 | 2015-04-01 | 13:20:00 | |
| Nitrate | 4.56 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |
| Chloride, Cl | 20 | mg/L | EPA 300.0 | 1 | 2015-04-01 | 04:30:00 | |
| Sulfate, SO4 | 46 | mg/L | EPA 300.0 | 1 | 2015-04-01 | 04:30:00 | |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | 1.45 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | HF |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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## Analysis Report

April 01, 2019

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-12 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Mar 30, 2015 | Sample Taken At: | CR-10-12 |
| Date Received: | Mar 31, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1030 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Site: | 2 |
| | | Field - pH: | 7.3 pH Units |
| | | Depth: | 55.3 ft |
| | | Field - Conductivity: | 511 umhos/cm |
| | | Field - Temperature: | 9.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1528784-004**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Boron, B - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2015-04-09 | 17:16:00 | HF |
| Calcium, Ca - Dissolved | 78.62 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | HF |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Iron, Fe - Dissolved | 0.62 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | HF |
| Iron, Fe - Total | 1.29 | mg/L | EPA 200.7 | 0.05 | 2015-04-28 | 17:02:00 | HF |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Magnesium, Mg - Dissolved | 6.97 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Manganese, Mn - Dissolved | 0.007 | mg/L | EPA 200.7 | 0.002 | 2015-04-09 | 17:16:00 | HF |
| Manganese, Mn - Total | 0.079 | mg/L | EPA 200.7 | 0.002 | 2015-04-28 | 17:02:00 | HF |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2015-04-09 | 17:16:00 | HF |
| Potassium, K - Dissolved | 1.04 | mg/L | EPA 200.7 | 0.14 | 2015-04-09 | 17:16:00 | HF |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2015-04-09 | 17:16:00 | HF |
| Sodium, Na - Dissolved | 13.78 | mg/L | EPA 200.7 | 0.09 | 2015-04-09 | 17:16:00 | HF |
| Zinc, Zn - Dissolved | 0.007 | mg/L | EPA 200.7 | 0.004 | 2015-04-09 | 17:16:00 | HF |

Lab Supervisor

Domenic Ibanez
Lab Supervisor

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

Member of the SGS Group (Société Générale de Surveillance)

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# Analysis Report

April 01, 2019

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-11 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Mar 30, 2015 | Sample Taken At: | CR-10-11 |
| Date Received: | Mar 31, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1100 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Site: | 2 |
| | | Field - pH: | 7.3 pH Units |
| | | Depth: | 9.5 ft |
| | | Field - Conductivity: | 660 umhos/cm |
| | | Field - Temperature: | 9.0 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1528784-005**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 238 | mg/L | SM2340-B | 1 | 2015-04-29 | 13:56:00 | |
| Anions | 5.74 | meq/L | SM1030E | 0 | 2015-04-29 | 13:56:00 | |
| Balance | -0.49 | % | SM1030E | -10 | 2015-04-29 | 13:56:00 | |
| Cations | 5.68 | meq/L | SM1030E | 0 | 2015-04-29 | 13:56:00 | |
| Acidity | 6 | mg/L | D1067 | 5 | 2015-04-07 | 14:45:00 | |
| Alkalinity, mg CaCO3/L (pH 4.5) | 209 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Bicarbonate Alkalinity as CaCO3 | 209 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Nitrogen, Ammonia | 0.1 | mg/L | SM4500-B-D | 0.1 | 2015-04-08 | 09:00:00 | HF |
| Total Dissolved Solids | 354 | mg/L | USGS I-1750-85 | 30 | 2015-04-01 | 13:20:00 | |
| Nitrate | 2.59 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |
| Chloride, Cl | 35 | mg/L | EPA 300.0 | 1 | 2015-04-01 | 04:30:00 | |
| Sulfate, SO4 | 28 | mg/L | EPA 300.0 | 1 | 2015-04-01 | 04:30:00 | |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | 0.04 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | HF |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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## Analysis Report

April 01, 2019

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-11 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Mar 30, 2015 | Sample Taken At: | CR-10-11 |
| Date Received: | Mar 31, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1100 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Site: | 2 |
| | | Field - pH: | 7.3 pH Units |
| | | Depth: | 9.5 ft |
| | | Field - Conductivity: | 660 umhos/cm |
| | | Field - Temperature: | 9.0 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1528784-005**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2015-04-09 | 17:16:00 | HF |
| Calcium, Ca - Dissolved | 76.78 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | HF |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | HF |
| Iron, Fe - Total | 0.10 | mg/L | EPA 200.7 | 0.05 | 2015-04-28 | 17:02:00 | HF |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Magnesium, Mg - Dissolved | 11.25 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2015-04-09 | 17:16:00 | HF |
| Manganese, Mn - Total | 0.005 | mg/L | EPA 200.7 | 0.002 | 2015-04-28 | 17:02:00 | HF |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2015-04-09 | 17:16:00 | HF |
| Potassium, K - Dissolved | 15.39 | mg/L | EPA 200.7 | 0.14 | 2015-05-08 | 11:56:00 | HF |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2015-04-09 | 17:16:00 | HF |
| Sodium, Na - Dissolved | 10.18 | mg/L | EPA 200.7 | 0.09 | 2015-04-09 | 17:16:00 | HF |
| Zinc, Zn - Dissolved | 0.016 | mg/L | EPA 200.7 | 0.004 | 2015-04-09 | 17:16:00 | HF |

Lab Supervisor

Domenic Ibanez
Lab Supervisor

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

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# Analysis Report

April 01, 2019

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | SULFUR SPRINGS | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Mar 30, 2015 | Sample Taken At: | SULFUR SPRINGS |
| Date Received: | Mar 31, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1155 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Site: | 3 |
| | | Field - pH: | 7.2 pH Units |
| | | Field - Flow: | 1.0 cfm |
| | | Field - Conductivity: | 690 umhos/cm |
| | | Field - Temperature: | 14.0 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1528784-006**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 353 | mg/L | SM2340-B | 1 | 2015-04-29 | 13:56:00 | |
| Anions | 7.77 | meq/L | SM1030E | 0 | 2015-04-29 | 13:56:00 | |
| Balance | -1.57 | % | SM1030E | -10 | 2015-04-29 | 13:56:00 | |
| Cations | 7.53 | meq/L | SM1030E | 0 | 2015-04-29 | 13:56:00 | |
| Acidity | 28 | mg/L | D1067 | 5 | 2015-04-07 | 14:45:00 | |
| Alkalinity, mg CaCO3/L (pH 4.5) | 329 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Bicarbonate Alkalinity as CaCO3 | 329 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2015-04-02 | 10:55:00 | |
| Nitrogen, Ammonia | 0.2 | mg/L | SM4500-B-D | 0.1 | 2015-04-08 | 09:00:00 | HF |
| Total Dissolved Solids | 393 | mg/L | USGS I-1750-85 | 30 | 2015-04-01 | 13:20:00 | |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |
| Chloride, Cl | 7 | mg/L | EPA 300.0 | 1 | 2015-04-01 | 04:30:00 | |
| Sulfate, SO4 | 48 | mg/L | EPA 300.0 | 1 | 2015-04-01 | 04:30:00 | |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2015-04-01 | 04:30:00 | |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | HF |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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## Analysis Report

April 01, 2019

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | SULFUR SPRINGS | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Mar 30, 2015 | Sample Taken At: | SULFUR SPRINGS |
| Date Received: | Mar 31, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1155 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Site: | 3 |
| | | Field - pH: | 7.2 pH Units |
| | | Field - Flow: | 1.0 cfm |
| | | Field - Conductivity: | 690 umhos/cm |
| | | Field - Temperature: | 14.0 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1528784-006**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Boron, B - Dissolved | 0.05 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2015-04-09 | 17:16:00 | HF |
| Calcium, Ca - Dissolved | 84.89 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | HF |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2015-04-09 | 17:16:00 | HF |
| Iron, Fe - Total | <0.05 | mg/L | EPA 200.7 | 0.05 | 2015-04-28 | 17:02:00 | HF |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Magnesium, Mg - Dissolved | 34.19 | mg/L | EPA 200.7 | 0.01 | 2015-04-09 | 17:16:00 | HF |
| Manganese, Mn - Dissolved | 0.026 | mg/L | EPA 200.7 | 0.002 | 2015-04-09 | 17:16:00 | HF |
| Manganese, Mn - Total | 0.028 | mg/L | EPA 200.7 | 0.002 | 2015-04-28 | 17:02:00 | HF |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2015-04-09 | 17:16:00 | HF |
| Potassium, K - Dissolved | 4.34 | mg/L | EPA 200.7 | 0.14 | 2015-04-09 | 17:16:00 | HF |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2015-04-09 | 17:16:00 | HF |
| Sodium, Na - Dissolved | 8.55 | mg/L | EPA 200.7 | 0.09 | 2015-04-09 | 17:16:00 | HF |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2015-04-09 | 17:16:00 | HF |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

October 19, 2015

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-12 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Sep 28, 2015 | Sample Taken At: | CR-10-12 |
| Date Received: | Sep 29, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1600 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Site: | 010 |
| | | Field - pH: | 7.3 Units |
| | | Depth: | 56 ft |
| | | Field - Conductivity: | 560 umhos/cm |
| | | Field - Temperature: | 9.3Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1530839-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | 269 | mg/L | SM2540-C | 30 | 2015-09-29 | 17:00:00 | MS |
| **METALS BY ICP** | | | | | | | |
| Iron, Fe - Total | 3.63 | mg/L | EPA 200.7 | 0.05 | 2015-10-02 | 10:30:00 | HF |
| Manganese, Mn - Total | 0.346 | mg/L | EPA 200.7 | 0.002 | 2015-10-02 | 10:30:00 | HF |

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# Analysis Report

October 19, 2015

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-11 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Sep 28, 2015 | Sample Taken At: | CR-10-11 |
| Date Received: | Sep 29, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1645 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Site: | 009 |
| | | Field - pH: | 7.4 Units |
| | | Depth: | 11.3 ft |
| | | Field - Conductivity: | 430 umhos/cm |
| | | Field - Temperature: | 10.0 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1530839-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | 341 | mg/L | SM2540-C | 30 | 2015-09-29 | 17:00:00 | MS |
| **METALS BY ICP** | | | | | | | |
| Iron, Fe - Total | <0.05 | mg/L | EPA 200.7 | 0.05 | 2015-10-02 | 10:30:00 | HF |
| Manganese, Mn - Total | 0.002 | mg/L | EPA 200.7 | 0.002 | 2015-10-02 | 10:30:00 | HF |

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# Analysis Report

October 19, 2015

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-8 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Sep 28, 2015 | Sample Taken At: | WNR-2012-8 |
| Date Received: | Sep 29, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1100 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Field - pH: | 8.1 Units |
| | | Depth: | 872 ft |
| | | Field - Conductivity: | 470 umhos/cm |
| | | Field - Temperature: | 9.7 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1530839-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | 292 | mg/L | SM2540-C | 30 | 2015-09-29 | 17:00:00 | MS |
| **METALS BY ICP** | | | | | | | |
| Iron, Fe - Total | 0.73 | mg/L | EPA 200.7 | 0.05 | 2015-10-02 | 10:30:00 | HF |
| Manganese, Mn - Total | 0.014 | mg/L | EPA 200.7 | 0.002 | 2015-10-02 | 10:30:00 | HF |

Lab Supervisor

Domenic Ibanez
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SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

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# Analysis Report

October 19, 2015

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-5 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Sep 28, 2015 | Sample Taken At: | WNR-2012-5 |
| Date Received: | Sep 29, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1315 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Field - pH: | 7.7 Units |
| | | Depth: | 522 ft |
| | | Field - Conductivity: | 1030 umhos/cm |
| | | Field - Temperature: | 8.9 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1530839-004**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | 586 | mg/L | SM2540-C | 30 | 2015-09-29 | 17:00:00 | MS |
| **METALS BY ICP** | | | | | | | |
| Iron, Fe - Total | 0.40 | mg/L | EPA 200.7 | 0.05 | 2015-10-02 | 10:30:00 | HF |
| Manganese, Mn - Total | 0.008 | mg/L | EPA 200.7 | 0.002 | 2015-10-02 | 10:30:00 | HF |

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# Analysis Report

October 19, 2015

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | SULFUR SPRING | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Sep 28, 2015 | Sample Taken At: | SULFUR SPRING |
| Date Received: | Sep 29, 2015 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1745 |
| | | Time Received: | 0630 |
| | | Mine: | 42 |
| | | Site: | 020 |
| | | Field - pH: | 7.2 Units |
| | | Field - Flow: | 1 cfs |
| | | Field - Conductivity: | 740 umhos/cm |
| | | Field - Temperature: | 14.3 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1530839-005**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Total Dissolved Solids | 430 | mg/L | SM2540-C | 30 | 2015-09-29 | 17:00:00 | MS |
| **METALS BY ICP** | | | | | | | |
| Iron, Fe - Total | <0.05 | mg/L | EPA 200.7 | 0.05 | 2015-10-02 | 10:30:00 | HF |
| Manganese, Mn - Total | 0.027 | mg/L | EPA 200.7 | 0.002 | 2015-10-02 | 10:30:00 | HF |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-11 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | CR-10-11 |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1520 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 9 |
| | | Field - pH: | 7.5 pH |
| | | Depth: | 20 ft |
| | | Field - Conductivity: | 500 umhos/cm |
| | | Field - Temperature: | 9.1 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1749569-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 263 | mg/L | SM2340-B | 1 | 2017-07-28 | 11:08:36 | Cv |
| Anions | 5.31 | meq/L | SM1030E | 0 | 2017-07-28 | 11:08:36 | Cv |
| Balance | 4.03 | % | SM1030E | -10 | 2017-07-28 | 11:08:36 | Cv |
| Cations | 5.75 | meq/L | SM1030E | 0 | 2017-07-28 | 11:08:36 | Cv |
| Acidity | -216 | meq/L | D1067 | -999 | 2017-07-12 | 06:30:00 | CH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 215 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Bicarbonate Alkalinity as CaCO3 | 215 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-07-26 | 07:06:00 | SM |
| Total Dissolved Solids | 301 | mg/L | SM2540-C | 30 | 2017-07-14 | 12:50:00 | TI |
| Nitrate | 2.19 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 21:21:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 21:21:00 | CH |
| Nitrate + Nitrite as Nitrogen | 3.17 | mg/L | EPA 300.0 | 0.05 | 2017-07-17 | 20:35:00 | CH |
| Chloride, Cl | 16 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 21:21:00 | CH |
| Sulfate, SO4 | 27 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 21:21:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 21:21:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:48 | SM |

Coco van den Bergh
Branch Manager

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 t (435) 653-2311 f (435)-653-2436 www.sgs.com/minerals

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-11 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | CR-10-11 |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1520 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 9 |
| | | Field - pH: | 7.5 pH |
| | | Depth: | 20 ft |
| | | Field - Conductivity: | 500 umhos/cm |
| | | Field - Temperature: | 9.1 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1749569-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:48 | SM |
| Boron, B - Dissolved | 0.04 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:48 | SM |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-07-18 | 14:46:48 | SM |
| Calcium, Ca - Dissolved | 84.59 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:48 | SM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:48 | SM |
| Iron, Fe - Total | 0.13 | mg/L | EPA 200.7 | 0.05 | 2017-07-14 | 14:46:12 | SM |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:48 | SM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:48 | SM |
| Magnesium, Mg - Dissolved | 12.49 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:48 | SM |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2017-07-18 | 14:46:48 | SM |
| Manganese, Mn - Total | 0.002 | mg/L | EPA 200.7 | 0.002 | 2017-07-14 | 14:46:12 | SM |
| Molybdenum, Mo - Dissolved | 0.010 | mg/L | EPA 200.7 | 0.005 | 2017-07-18 | 14:46:48 | SM |
| Potassium, K - Dissolved | 1.46 | mg/L | EPA 200.7 | 0.14 | 2017-07-18 | 14:46:48 | SM |
| Selenium, Se - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.02 | 2017-07-18 | 14:46:48 | SM |
| Sodium, Na - Dissolved | 10.71 | mg/L | EPA 200.7 | 0.09 | 2017-07-18 | 14:46:48 | SM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-07-18 | 14:46:48 | SM |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-12 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | CR-10-12 |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1445 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 10 |
| | | Field - pH: | 6.5 pH |
| | | Depth: | 60 ft |
| | | Field - Conductivity: | 510 umhos/cm |
| | | Field - Temperature: | 9.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1749569-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 262 | mg/L | SM2340-B | 1 | 2017-07-28 | 11:09:16 | Cv |
| Anions | 5.83 | meq/L | SM1030E | 0 | 2017-07-28 | 11:09:16 | Cv |
| Balance | 1.26 | % | SM1030E | -10 | 2017-07-28 | 11:09:16 | Cv |
| Cations | 5.98 | meq/L | SM1030E | 0 | 2017-07-28 | 11:09:16 | Cv |
| Acidity | -178 | meq/L | D1067 | -999 | 2017-07-12 | 06:30:00 | CH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 211 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Bicarbonate Alkalinity as CaCO3 | 211 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-07-27 | 13:55:08 | SM |
| Total Dissolved Solids | 323 | mg/L | SM2540-C | 30 | 2017-07-14 | 12:50:00 | TI |
| Nitrate | 4.66 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 21:41:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 21:41:00 | CH |
| Nitrate + Nitrite as Nitrogen | 0.09 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 21:41:00 | CH |
| Chloride, Cl | 20 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 21:41:00 | CH |
| Sulfate, SO4 | 51 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 21:41:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 21:41:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:49 | SM |

Coco van den Bergh
Branch Manager



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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-12 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | CR-10-12 |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1445 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 10 |
| | | Field - pH: | 6.5 pH |
| | | Depth: | 60 ft |
| | | Field - Conductivity: | 510 umhos/cm |
| | | Field - Temperature: | 9.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1749569-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:49 | SM |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:49 | SM |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-07-18 | 14:46:49 | SM |
| Calcium, Ca - Dissolved | 92.06 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:49 | SM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:49 | SM |
| Iron, Fe - Total | 17.93 | mg/L | EPA 200.7 | 0.05 | 2017-07-17 | 14:20:00 | SM |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:49 | SM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:49 | SM |
| Magnesium, Mg - Dissolved | 7.69 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:49 | SM |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2017-07-18 | 14:46:49 | SM |
| Manganese, Mn - Total | 0.283 | mg/L | EPA 200.7 | 0.002 | 2017-07-14 | 14:46:13 | SM |
| Molybdenum, Mo - Dissolved | 0.011 | mg/L | EPA 200.7 | 0.005 | 2017-07-18 | 14:46:49 | SM |
| Potassium, K - Dissolved | 1.19 | mg/L | EPA 200.7 | 0.14 | 2017-07-18 | 14:46:49 | SM |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2017-07-18 | 14:46:49 | SM |
| Sodium, Na - Dissolved | 16.64 | mg/L | EPA 200.7 | 0.09 | 2017-07-18 | 14:46:49 | SM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-07-18 | 14:46:49 | SM |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-5 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | WNR-2012-5 |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1230 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Field - pH: | 6.2 pH |
| | | Depth: | 550 ft |
| | | Field - Conductivity: | 950 umhos/cm |
| | | Field - Temperature: | 9.0 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1749569-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 339 | mg/L | SM2340-B | 1 | 2017-07-28 | 11:08:36 | Cv |
| Anions | 10.85 | meq/L | SM1030E | 0 | 2017-07-28 | 11:08:36 | Cv |
| Balance | -3.03 | % | SM1030E | -10 | 2017-07-28 | 11:08:36 | Cv |
| Cations | 10.84 | meq/L | SM1030E | 0 | 2017-07-28 | 11:08:36 | Cv |
| Acidity | -418 | meq/L | D1067 | -999 | 2017-07-12 | 06:30:00 | CH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 414 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Bicarbonate Alkalinity as CaCO3 | 414 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-07-27 | 13:55:08 | SM |
| Total Dissolved Solids | 584 | mg/L | SM2540-C | 30 | 2017-07-14 | 12:50:00 | TI |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 22:00:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 22:00:00 | CH |
| Nitrate + Nitrite as Nitrogen | 0.56 | mg/L | EPA 300.0 | 0.05 | 2017-07-17 | 21:54:00 | CH |
| Chloride, Cl | 15 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 22:00:00 | CH |
| Sulfate, SO4 | 104 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 22:00:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 22:00:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:50 | SM |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:50 | SM |

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## Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-5 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | WNR-2012-5 |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1230 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Field - pH: | 6.2 pH |
| | | Depth: | 550 ft |
| | | Field - Conductivity: | 950 umhos/cm |
| | | Field - Temperature: | 9.0 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1749569-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Boron, B - Dissolved | 0.08 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:50 | SM |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-07-18 | 14:46:50 | SM |
| Calcium, Ca - Dissolved | 26.53 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:50 | SM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:50 | SM |
| Iron, Fe - Total | 0.17 | mg/L | EPA 200.7 | 0.05 | 2017-07-14 | 14:46:14 | SM |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:50 | SM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:50 | SM |
| Magnesium, Mg - Dissolved | 66.19 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:50 | SM |
| Manganese, Mn - Dissolved | 0.002 | mg/L | EPA 200.7 | 0.002 | 2017-07-18 | 14:46:50 | SM |
| Manganese, Mn - Total | 0.004 | mg/L | EPA 200.7 | 0.002 | 2017-07-14 | 14:46:14 | SM |
| Molybdenum, Mo - Dissolved | 0.010 | mg/L | EPA 200.7 | 0.005 | 2017-07-18 | 14:46:50 | SM |
| Potassium, K - Dissolved | 111.60 | mg/L | EPA 200.7 | 0.14 | 2017-07-18 | 14:46:50 | SM |
| Selenium, Se - Dissolved | 0.04 | mg/L | EPA 200.7 | 0.02 | 2017-07-18 | 14:46:50 | SM |
| Sodium, Na - Dissolved | 28.00 | mg/L | EPA 200.7 | 0.09 | 2017-07-18 | 14:46:50 | SM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-07-18 | 14:46:50 | SM |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-8 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | WNR-2012-8 |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 930 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Field - pH: | 5.9 pH |
| | | Depth: | 900 ft |
| | | Field - Conductivity: | 430 umhos/cm |
| | | Field - Temperature: | 8.5 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1749569-004**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 141 | mg/L | SM2340-B | 1 | 2017-07-28 | 11:08:36 | Cv |
| Anions | 4.82 | meq/L | SM1030E | 0 | 2017-07-28 | 11:08:36 | Cv |
| Balance | 1.21 | % | SM1030E | -10 | 2017-07-28 | 11:08:36 | Cv |
| Cations | 4.93 | meq/L | SM1030E | 0 | 2017-07-28 | 11:08:36 | Cv |
| Acidity | -390 | meq/L | D1067 | -999 | 2017-07-12 | 06:30:00 | CH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 191 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Bicarbonate Alkalinity as CaCO3 | 181 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Carbonate Alkalinity as CaCO3 | 10 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-07-27 | 13:55:08 | SM |
| Total Dissolved Solids | 261 | mg/L | SM2540-C | 30 | 2017-07-14 | 12:50:00 | TI |
| Nitrate | 0.46 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 22:20:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 22:20:00 | CH |
| Nitrate + Nitrite as Nitrogen | 1.17 | mg/L | EPA 300.0 | 0.05 | 2017-07-17 | 22:34:00 | CH |
| Chloride, Cl | 5 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 22:20:00 | CH |
| Sulfate, SO4 | 41 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 22:20:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 22:20:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:51 | SM |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:51 | SM |

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## Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-8 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | WNR-2012-8 |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 930 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Field - pH: | 5.9 pH |
| | | Depth: | 900 ft |
| | | Field - Conductivity: | 430 umhos/cm |
| | | Field - Temperature: | 8.5 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1749569-004**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Boron, B - Dissolved | 0.07 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:51 | SM |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-07-18 | 14:46:51 | SM |
| Calcium, Ca - Dissolved | 18.43 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:51 | SM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:51 | SM |
| Iron, Fe - Total | 0.92 | mg/L | EPA 200.7 | 0.05 | 2017-07-14 | 14:46:14 | SM |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:51 | SM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:51 | SM |
| Magnesium, Mg - Dissolved | 23.09 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:51 | SM |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2017-07-18 | 14:46:51 | SM |
| Manganese, Mn - Total | 0.018 | mg/L | EPA 200.7 | 0.002 | 2017-07-14 | 14:46:14 | SM |
| Molybdenum, Mo - Dissolved | 0.024 | mg/L | EPA 200.7 | 0.005 | 2017-07-18 | 14:46:51 | SM |
| Potassium, K - Dissolved | 43.13 | mg/L | EPA 200.7 | 0.14 | 2017-07-18 | 14:46:51 | SM |
| Selenium, Se - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.02 | 2017-07-18 | 14:46:51 | SM |
| Sodium, Na - Dissolved | 23.28 | mg/L | EPA 200.7 | 0.09 | 2017-07-18 | 14:46:51 | SM |
| Zinc, Zn - Dissolved | 0.120 | mg/L | EPA 200.7 | 0.004 | 2017-07-18 | 14:46:51 | SM |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | SULFER SPRING | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | SULFER SRPING |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1715 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 20 |
| | | Field - pH: | 6.0 pH |
| | | Field - Flow: | 1 cfs |
| | | Field - Conductivity: | 660 umhos/cm |
| | | Field - Temperature: | 14.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1749569-005**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 369 | mg/L | SM2340-B | 1 | 2017-07-28 | 11:08:36 | Cv |
| Anions | 7.71 | meq/L | SM1030E | 0 | 2017-07-28 | 11:08:36 | Cv |
| Balance | 1.08 | % | SM1030E | -10 | 2017-07-28 | 11:08:36 | Cv |
| Cations | 7.88 | meq/L | SM1030E | 0 | 2017-07-28 | 11:08:36 | Cv |
| Acidity | -336 | meq/L | D1067 | -999 | 2017-07-12 | 06:30:00 | CH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 326 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Bicarbonate Alkalinity as CaCO3 | 326 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Nitrogen, Ammonia | 0.1 | mg/L | SM4500-B-D | 0.1 | 2017-07-27 | 13:55:08 | SM |
| Total Dissolved Solids | 410 | mg/L | SM2540-C | 30 | 2017-07-14 | 12:50:00 | TI |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 23:20:00 | CH |
| Nitrite | 0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 23:20:00 | CH |
| Nitrate + Nitrite as Nitrogen | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-17 | 23:14:00 | CH |
| Chloride, Cl | 6 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 23:20:00 | CH |
| Sulfate, SO4 | 49 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 23:20:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 23:20:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:52 | SM |

Coco van den Bergh
Branch Manager



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## Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | SULFER SPRING | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | SULFER SRPING |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1715 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 20 |
| | | Field - pH: | 6.0 pH |
| | | Field - Flow: | 1 cfs |
| | | Field - Conductivity: | 660 umhos/cm |
| | | Field - Temperature: | 14.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1749569-005**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:52 | SM |
| Boron, B - Dissolved | 0.06 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:52 | SM |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-07-18 | 14:46:52 | SM |
| Calcium, Ca - Dissolved | 90.09 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:52 | SM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:52 | SM |
| Iron, Fe - Total | 0.43 | mg/L | EPA 200.7 | 0.05 | 2017-07-14 | 14:46:15 | SM |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:52 | SM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:52 | SM |
| Magnesium, Mg - Dissolved | 35.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:52 | SM |
| Manganese, Mn - Dissolved | 0.031 | mg/L | EPA 200.7 | 0.002 | 2017-07-18 | 14:46:52 | SM |
| Manganese, Mn - Total | 0.041 | mg/L | EPA 200.7 | 0.002 | 2017-07-14 | 14:46:15 | SM |
| Molybdenum, Mo - Dissolved | 0.010 | mg/L | EPA 200.7 | 0.005 | 2017-07-18 | 14:46:52 | SM |
| Potassium, K - Dissolved | 5.63 | mg/L | EPA 200.7 | 0.14 | 2017-07-18 | 14:46:52 | SM |
| Selenium, Se - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.02 | 2017-07-18 | 14:46:52 | SM |
| Sodium, Na - Dissolved | 8.32 | mg/L | EPA 200.7 | 0.09 | 2017-07-18 | 14:46:52 | SM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-07-18 | 14:46:52 | SM |

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# Analysis Report

December 29, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-8 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Dec 10, 2017 | Sample Taken At: | WNR-2012-8 |
| Date Received: | Dec 11, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1245 |
| | | Time Received: | 800 |
| | | Mine: | 42 |
| | | Field - pH: | 6.2 pH |
| | | Depth: | 880 ft |
| | | Field - Conductivity: | 670 umhos/cm |
| | | Field - Temperature: | 6.8 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1755275-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 142 | mg/L | SM2340-B | 1 | 2017-12-26 | 12:22:43 | Cv |
| Anions | 4.78 | meq/L | SM1030E | 0 | 2017-12-29 | 14:26:00 | KN |
| Balance | -1.97 | % | SM1030E | -10 | 2017-12-29 | 14:26:00 | KN |
| Cations | 4.59 | meq/L | SM1030E | 0 | 2017-12-29 | 14:26:00 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2017-12-14 | 13:00:00 | AH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 188 | mg/L | SM2320-B | 5 | 2017-12-19 | 08:21:00 | AH |
| Bicarbonate Alkalinity as CaCO3 | 188 | mg/L | SM2320-B | 5 | 2017-12-19 | 08:21:00 | AH |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-12-19 | 08:21:00 | AH |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-12-13 | 09:00:00 | AH |
| Total Dissolved Solids | 258 | mg/L | SM2540-C | 30 | 2017-12-14 | 12:30:00 | AH |
| Nitrate | 0.64 | mg/L | EPA 300.0 | 0.05 | 2017-12-11 | 23:38:00 | AH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-11 | 23:38:00 | AH |
| Chloride, Cl | 6 | mg/L | EPA 300.0 | 1 | 2017-12-11 | 23:38:00 | AH |
| Sulfate, SO4 | 41 | mg/L | EPA 300.0 | 1 | 2017-12-11 | 23:38:00 | AH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-11 | 23:38:00 | AH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-13 | 13:37:00 | KN |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-13 | 13:37:00 | KN |
| Boron, B - Dissolved | 0.08 | mg/L | EPA 200.7 | 0.01 | 2017-12-13 | 13:37:00 | KN |

Coco van den Bergh
Branch Manager



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# Analysis Report

December 29, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-8 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Dec 10, 2017 | Sample Taken At: | WNR-2012-8 |
| Date Received: | Dec 11, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1245 |
| | | Time Received: | 800 |
| | | Mine: | 42 |
| | | Field - pH: | 6.2 pH |
| | | Depth: | 880 ft |
| | | Field - Conductivity: | 670 umhos/cm |
| | | Field - Temperature: | 6.8 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1755275-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-12-13 | 13:37:00 | KN |
| Calcium, Ca - Dissolved | 19.64 | mg/L | EPA 200.7 | 0.03 | 2017-12-13 | 13:37:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-13 | 13:37:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-13 | 13:37:00 | KN |
| Iron, Fe - Total | 0.55 | mg/L | EPA 200.7 | 0.05 | 2017-12-29 | 12:42:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-13 | 13:37:00 | KN |
| Magnesium, Mg - Dissolved | 22.46 | mg/L | EPA 200.7 | 0.01 | 2017-12-13 | 13:37:00 | KN |
| Manganese, Mn - Dissolved | 0.003 | mg/L | EPA 200.7 | 0.002 | 2017-12-13 | 13:37:00 | KN |
| Manganese, Mn - Total | 0.012 | mg/L | EPA 200.7 | 0.002 | 2017-12-29 | 12:42:00 | KN |
| Molybdenum, Mo - Dissolved | 0.028 | mg/L | EPA 200.7 | 0.005 | 2017-12-13 | 13:37:00 | KN |
| Potassium, K - Dissolved | 31.43 | mg/L | EPA 200.7 | 0.14 | 2017-12-29 | 12:42:00 | KN |
| Selenium, Se - Dissolved | 0.09 | mg/L | EPA 200.7 | 0.02 | 2017-12-13 | 13:37:00 | KN |
| Sodium, Na - Dissolved | 22.09 | mg/L | EPA 200.7 | 0.09 | 2017-12-13 | 13:37:00 | KN |
| Zinc, Zn - Dissolved | 0.271 | mg/L | EPA 200.7 | 0.004 | 2017-12-13 | 13:37:00 | KN |

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# Analysis Report

December 29, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-5 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Dec 10, 2017 | Sample Taken At: | WNR-2012-5 |
| Date Received: | Dec 11, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1400 |
| | | Time Received: | 800 |
| | | Mine: | 42 |
| | | Field - pH: | 6.4 pH |
| | | Depth: | 560 ft |
| | | Field - Conductivity: | 670 umhos/cm |
| | | Field - Temperature: | 7.1 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1755275-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 328 | mg/L | SM2340-B | 1 | 2017-12-26 | 12:22:43 | Cv |
| Anions | 10.71 | meq/L | SM1030E | 0 | 2017-12-29 | 14:26:00 | KN |
| Balance | -2.40 | % | SM1030E | -10 | 2017-12-29 | 14:26:00 | KN |
| Cations | 10.21 | meq/L | SM1030E | 0 | 2017-12-29 | 14:26:00 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2017-12-14 | 13:00:00 | AH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 412 | mg/L | SM2320-B | 5 | 2017-12-19 | 08:21:00 | AH |
| Bicarbonate Alkalinity as CaCO3 | 412 | mg/L | SM2320-B | 5 | 2017-12-19 | 08:21:00 | AH |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-12-19 | 08:21:00 | AH |
| Nitrogen, Ammonia | 0.4 | mg/L | SM4500-B-D | 0.1 | 2017-12-13 | 09:00:00 | AH |
| Total Dissolved Solids | 554 | mg/L | SM2540-C | 30 | 2017-12-14 | 12:30:00 | AH |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-11 | 23:58:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-11 | 23:58:00 | CH |
| Chloride, Cl | 13 | mg/L | EPA 300.0 | 1 | 2017-12-11 | 23:58:00 | CH |
| Sulfate, SO4 | 101 | mg/L | EPA 300.0 | 1 | 2017-12-11 | 23:58:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-11 | 23:58:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-13 | 13:37:00 | KN |
| Arsenic, As - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.01 | 2017-12-13 | 13:37:00 | KN |
| Boron, B - Dissolved | 0.09 | mg/L | EPA 200.7 | 0.01 | 2017-12-13 | 13:37:00 | KN |

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# Analysis Report

December 29, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-5 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Dec 10, 2017 | Sample Taken At: | WNR-2012-5 |
| Date Received: | Dec 11, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1400 |
| | | Time Received: | 800 |
| | | Mine: | 42 |
| | | Field - pH: | 6.4 pH |
| | | Depth: | 560 ft |
| | | Field - Conductivity: | 670 umhos/cm |
| | | Field - Temperature: | 7.1 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1755275-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-12-13 | 13:37:00 | KN |
| Calcium, Ca - Dissolved | 25.51 | mg/L | EPA 200.7 | 0.03 | 2017-12-13 | 13:37:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-13 | 13:37:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-13 | 13:37:00 | KN |
| Iron, Fe - Total | 0.69 | mg/L | EPA 200.7 | 0.05 | 2017-12-29 | 12:42:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-13 | 13:37:00 | KN |
| Magnesium, Mg - Dissolved | 64.14 | mg/L | EPA 200.7 | 0.01 | 2017-12-13 | 13:37:00 | KN |
| Manganese, Mn - Dissolved | 0.012 | mg/L | EPA 200.7 | 0.002 | 2017-12-13 | 13:37:00 | KN |
| Manganese, Mn - Total | 0.017 | mg/L | EPA 200.7 | 0.002 | 2017-12-29 | 12:42:00 | KN |
| Molybdenum, Mo - Dissolved | 0.013 | mg/L | EPA 200.7 | 0.005 | 2017-12-13 | 13:37:00 | KN |
| Potassium, K - Dissolved | 94.39 | mg/L | EPA 200.7 | 0.14 | 2017-12-29 | 12:42:00 | KN |
| Selenium, Se - Dissolved | 0.14 | mg/L | EPA 200.7 | 0.02 | 2017-12-13 | 13:37:00 | KN |
| Sodium, Na - Dissolved | 28.68 | mg/L | EPA 200.7 | 0.09 | 2017-12-13 | 13:37:00 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-12-13 | 13:37:00 | KN |

Coco van den Bergh
Branch Manager



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# Analysis Report

December 15, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008

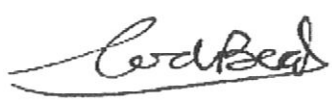


| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-12 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | CR-10-12 |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1350 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Field - pH: | 6.0 pH Units |
| | | Depth: | 45 ft |
| | | Field - Conductivity: | 530 umhos/cm |
| | | Field - Temperature: | 8.3 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754958-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 232 | mg/L | SM2340-B | 1 | 2017-12-15 | 10:00:00 | KN |
| Anions | 5.52 | meq/L | SM1030E | 0 | 2017-12-15 | 10:00:00 | KN |
| Balance | -1.69 | % | SM1030E | -10 | 2017-12-15 | 10:00:00 | KN |
| Cations | 5.34 | meq/L | SM1030E | 0 | 2017-12-15 | 10:00:00 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2017-12-05 | 08:20:00 | CH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 194 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Bicarbonate Alkalinity as CaCO3 | 194 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-12-13 | 09:00:00 | AH |
| Total Dissolved Solids | 350 | mg/L | SM2540-C | 30 | 2017-12-04 | 14:44:29 | KN |
| Nitrate | 0.23 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 19:52:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 19:52:00 | CH |
| Chloride, Cl | 20 | mg/L | EPA 300.0 | 1 | 2017-12-14 | 15:31:00 | CH |
| Sulfate, SO4 | 53 | mg/L | EPA 300.0 | 1 | 2017-12-14 | 15:31:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 19:52:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:27:00 | KN |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:27:00 | KN |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:27:00 | KN |



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# Analysis Report

December 15, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-12 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | CR-10-12 |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1350 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Field - pH: | 6.0 pH Units |
| | | Depth: | 45 ft |
| | | Field - Conductivity: | 530 umhos/cm |
| | | Field - Temperature: | 8.3 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754958-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-12-07 | 10:27:00 | KN |
| Calcium, Ca - Dissolved | 81.83 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:27:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:27:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:27:00 | KN |
| Iron, Fe - Total | 24.89 | mg/L | EPA 200.7 | 0.05 | 2017-12-13 | 13:46:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:27:00 | KN |
| Magnesium, Mg - Dissolved | 6.82 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:27:00 | KN |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:27:00 | KN |
| Manganese, Mn - Total | 0.772 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:27:00 | KN |
| Molybdenum, Mo - Dissolved | 0.008 | mg/L | EPA 200.7 | 0.005 | 2017-12-07 | 10:27:00 | KN |
| Potassium, K - Dissolved | 1.18 | mg/L | EPA 200.7 | 0.14 | 2017-12-07 | 10:27:00 | KN |
| Selenium, Se - Dissolved | 0.04 | mg/L | EPA 200.7 | 0.02 | 2017-12-07 | 10:27:00 | KN |
| Sodium, Na - Dissolved | 15.22 | mg/L | EPA 200.7 | 0.09 | 2017-12-07 | 10:27:00 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-12-07 | 10:27:00 | KN |

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Branch Manager



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# Analysis Report

December 15, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-11 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | CR-10-11 |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1430 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Field - pH: | 7.4 pH Units |
| | | Depth: | 25 ft |
| | | Field - Conductivity: | 490 umhos/cm |
| | | Field - Temperature: | 9.6 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754958-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 247 | mg/L | SM2340-B | 1 | 2017-12-15 | 10:00:00 | KN |
| Anions | 5.31 | meq/L | SM1030E | 0 | 2017-12-15 | 10:00:00 | KN |
| Balance | 1.24 | % | SM1030E | -10 | 2017-12-15 | 10:00:00 | KN |
| Cations | 5.45 | meq/L | SM1030E | 0 | 2017-12-15 | 10:00:00 | KN |
| Acidity | 10 | mg/L | D1067 | 5 | 2017-12-05 | 08:20:00 | CH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 215 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Bicarbonate Alkalinity as CaCO3 | 215 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-12-13 | 09:00:00 | AH |
| Total Dissolved Solids | 284 | mg/L | SM2540-C | 30 | 2017-12-04 | 14:44:29 | KN |
| Nitrate | 0.08 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 20:11:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 20:11:00 | CH |
| Chloride, Cl | 16 | mg/L | EPA 300.0 | 1 | 2017-12-14 | 19:01:00 | CH |
| Sulfate, SO4 | 27 | mg/L | EPA 300.0 | 1 | 2017-12-14 | 19:01:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 20:11:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:27:00 | KN |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:27:00 | KN |
| Boron, B - Dissolved | 0.04 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:27:00 | KN |

Coco van den Bergh
Branch Manager



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## Analysis Report

December 15, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-11 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | CR-10-11 |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1430 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Field - pH: | 7.4 pH Units |
| | | Depth: | 25 ft |
| | | Field - Conductivity: | 490 umhos/cm |
| | | Field - Temperature: | 9.6 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754958-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-12-07 | 10:27:00 | KN |
| Calcium, Ca - Dissolved | 80.18 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:27:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:27:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:27:00 | KN |
| Iron, Fe - Total | 0.40 | mg/L | EPA 200.7 | 0.05 | 2017-12-07 | 10:27:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:27:00 | KN |
| Magnesium, Mg - Dissolved | 11.47 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:27:00 | KN |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:27:00 | KN |
| Manganese, Mn - Total | 0.006 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:27:00 | KN |
| Molybdenum, Mo - Dissolved | 0.009 | mg/L | EPA 200.7 | 0.005 | 2017-12-07 | 10:27:00 | KN |
| Potassium, K - Dissolved | 1.93 | mg/L | EPA 200.7 | 0.14 | 2017-12-07 | 10:27:00 | KN |
| Selenium, Se - Dissolved | 0.06 | mg/L | EPA 200.7 | 0.02 | 2017-12-07 | 10:27:00 | KN |
| Sodium, Na - Dissolved | 10.44 | mg/L | EPA 200.7 | 0.09 | 2017-12-07 | 10:27:00 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-12-07 | 10:27:00 | KN |

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# Analysis Report

December 15, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Sulfur Spring | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | Sulfur Spring |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1235 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Field - pH: | 6.0 pH Units |
| | | Field - Flow: | 0.96 cfs |
| | | Field - Conductivity: | 890 umhos/cm |
| | | Field - Temperature: | 2.3 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754958-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 375 | mg/L | SM2340-B | 1 | 2017-12-15 | 10:00:00 | KN |
| Anions | 8.75 | meq/L | SM1030E | 0 | 2017-12-15 | 10:00:00 | KN |
| Balance | -4.36 | % | SM1030E | -10 | 2017-12-15 | 10:00:00 | KN |
| Cations | 8.02 | meq/L | SM1030E | 0 | 2017-12-15 | 10:00:00 | KN |
| Acidity | 33 | mg/L | D1067 | 5 | 2017-12-05 | 08:20:00 | CH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 328 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Bicarbonate Alkalinity as CaCO3 | 328 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-12-13 | 09:00:00 | AH |
| Total Dissolved Solids | 343 | mg/L | SM2540-C | 30 | 2017-12-04 | 14:44:29 | KN |
| Nitrate | 0.06 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 20:30:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 20:30:00 | CH |
| Chloride, Cl | 11 | mg/L | EPA 300.0 | 1 | 2017-12-01 | 20:30:00 | CH |
| Sulfate, SO4 | 91 | mg/L | EPA 300.0 | 1 | 2017-12-01 | 20:30:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 20:30:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:27:00 | KN |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:27:00 | KN |
| Boron, B - Dissolved | 0.06 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:27:00 | KN |

Coco van den Bergh
Branch Manager



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## Analysis Report

December 15, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Sulfur Spring | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | Sulfur Spring |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1235 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Field - pH: | 6.0 pH Units |
| | | Field - Flow: | 0.96 cfs |
| | | Field - Conductivity: | 890 umhos/cm |
| | | Field - Temperature: | 2.3 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754958-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-12-07 | 10:27:00 | KN |
| Calcium, Ca - Dissolved | 91.15 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:27:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:27:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:27:00 | KN |
| Iron, Fe - Total | <0.05 | mg/L | EPA 200.7 | 0.05 | 2017-12-07 | 10:27:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:27:00 | KN |
| Magnesium, Mg - Dissolved | 35.80 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:27:00 | KN |
| Manganese, Mn - Dissolved | 0.025 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:27:00 | KN |
| Manganese, Mn - Total | 0.025 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:27:00 | KN |
| Molybdenum, Mo - Dissolved | 0.007 | mg/L | EPA 200.7 | 0.005 | 2017-12-07 | 10:27:00 | KN |
| Potassium, K - Dissolved | 5.92 | mg/L | EPA 200.7 | 0.14 | 2017-12-07 | 10:27:00 | KN |
| Selenium, Se - Dissolved | 0.09 | mg/L | EPA 200.7 | 0.02 | 2017-12-07 | 10:27:00 | KN |
| Sodium, Na - Dissolved | 8.65 | mg/L | EPA 200.7 | 0.09 | 2017-12-07 | 10:27:00 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-12-07 | 10:27:00 | KN |

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# Analysis Report

December 15, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Miller Outlet | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | Miller Outlet |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1200 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Field - pH: | 6.9 pH Units |
| | | Field - Flow: | 23 gpm |
| | | Field - Conductivity: | 600 umhos/cm |
| | | Field - Temperature: | 0.4 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754954-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 331 | mg/L | SM2340-B | 1 | 2017-12-15 | 10:01:00 | KN |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2017-12-08 | 12:30:00 | CH |
| Anions | 6.86 | meq/L | SM1030E | 0 | 2017-12-15 | 10:01:00 | KN |
| Balance | 1.41 | % | SM1030E | -10 | 2017-12-15 | 10:01:00 | KN |
| Cations | 7.06 | meq/L | SM1030E | 0 | 2017-12-15 | 10:01:00 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2017-12-05 | 08:20:00 | CH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 293 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Bicarbonate Alkalinity as CaCO3 | 293 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-12-13 | 09:00:00 | AH |
| Total Dissolved Solids | 355 | mg/L | SM2540-C | 30 | 2017-12-04 | 14:44:29 | KN |
| Total Suspended Solids | 13 | mg/L | SM2540-D | 5 | 2017-12-04 | 15:11:00 | KN |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2017-12-01 | 10:00:00 | KN |
| Nitrate | 0.24 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 18:16:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 18:16:00 | CH |
| Chloride, Cl | 33 | mg/L | EPA 300.0 | 1 | 2017-12-14 | 15:12:00 | CH |
| Sulfate, SO4 | 11 | mg/L | EPA 300.0 | 1 | 2017-12-14 | 15:12:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 18:16:00 | CH |

**METALS BY ICP**

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# Analysis Report

December 15, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Miller Outlet | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | Miller Outlet |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1200 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Field - pH: | 6.9 pH Units |
| | | Field - Flow: | 23 gpm |
| | | Field - Conductivity: | 600 umhos/cm |
| | | Field - Temperature: | 0.4 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754954-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-12-07 | 10:10:00 | KN |
| Calcium, Ca - Dissolved | 100.10 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Iron, Fe - Total | 0.25 | mg/L | EPA 200.7 | 0.05 | 2017-12-07 | 10:10:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Magnesium, Mg - Dissolved | 19.80 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Manganese, Mn - Dissolved | 0.005 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:10:00 | KN |
| Manganese, Mn - Total | 0.026 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:10:00 | KN |
| Molybdenum, Mo - Dissolved | 0.009 | mg/L | EPA 200.7 | 0.005 | 2017-12-07 | 10:10:00 | KN |
| Potassium, K - Dissolved | 3.16 | mg/L | EPA 200.7 | 0.14 | 2017-12-07 | 10:10:00 | KN |
| Selenium, Se - Dissolved | 0.08 | mg/L | EPA 200.7 | 0.02 | 2017-12-07 | 10:10:00 | KN |
| Sodium, Na - Dissolved | 8.12 | mg/L | EPA 200.7 | 0.09 | 2017-12-07 | 10:10:00 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-12-07 | 10:10:00 | KN |

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# Analysis Report

December 15, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Mud Creek | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | Mud Creek |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1315 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Field - pH: | 7.1 pH Units |
| | | Field - Conductivity: | 890 umhos/cm |
| | | Field - Temperature: | 2.3 Deg.C |
| | | Labname: | Other |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754954-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 293 | mg/L | SM2340-B | 1 | 2017-12-15 | 10:01:00 | KN |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2017-12-08 | 12:30:00 | CH |
| Anions | 10.21 | meq/L | SM1030E | 0 | 2017-12-15 | 10:01:00 | KN |
| Balance | -1.39 | % | SM1030E | -10 | 2017-12-15 | 10:01:00 | KN |
| Cations | 9.93 | meq/L | SM1030E | 0 | 2017-12-15 | 10:01:00 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2017-12-05 | 08:20:00 | CH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 288 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Bicarbonate Alkalinity as CaCO3 | 276 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Carbonate Alkalinity as CaCO3 | 12 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-12-13 | 09:00:00 | AH |
| Total Dissolved Solids | 558 | mg/L | SM2540-C | 30 | 2017-12-04 | 14:44:29 | KN |
| Total Suspended Solids | <5 | mg/L | SM2540-D | 5 | 2017-12-04 | 15:11:00 | KN |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2017-12-01 | 10:00:00 | KN |
| Nitrate | 2.17 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 19:14:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 19:14:00 | CH |
| Chloride, Cl | 16 | mg/L | EPA 300.0 | 1 | 2017-12-14 | 18:42:00 | CH |
| Sulfate, SO4 | 193 | mg/L | EPA 300.0 | 1 | 2017-12-14 | 18:42:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 19:14:00 | CH |

**METALS BY ICP**

Coco van den Bergh
Branch Manager



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# Analysis Report

December 15, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Mud Creek | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | Mud Creek |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1315 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Field - pH: | 7.1 pH Units |
| | | Field - Conductivity: | 890 umhos/cm |
| | | Field - Temperature: | 2.3 Deg.C |
| | | Labname: | Other |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754954-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Boron, B - Dissolved | 0.19 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-12-07 | 10:10:00 | KN |
| Calcium, Ca - Dissolved | 63.44 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Iron, Fe - Total | 0.16 | mg/L | EPA 200.7 | 0.05 | 2017-12-07 | 10:10:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Magnesium, Mg - Dissolved | 32.65 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Manganese, Mn - Dissolved | 0.003 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:10:00 | KN |
| Manganese, Mn - Total | 0.013 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:10:00 | KN |
| Molybdenum, Mo - Dissolved | 0.008 | mg/L | EPA 200.7 | 0.005 | 2017-12-07 | 10:10:00 | KN |
| Potassium, K - Dissolved | 9.19 | mg/L | EPA 200.7 | 0.14 | 2017-12-07 | 10:10:00 | KN |
| Selenium, Se - Dissolved | 0.10 | mg/L | EPA 200.7 | 0.02 | 2017-12-07 | 10:10:00 | KN |
| Sodium, Na - Dissolved | 88.28 | mg/L | EPA 200.7 | 0.09 | 2017-12-07 | 10:10:00 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-12-07 | 10:10:00 | KN |

Coco van den Bergh
Branch Manager

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

Member of the SGS Group (Société Générale de Surveillance)

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# Analysis Report

December 15, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Res 1 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | Res 1 |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1530 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Field - pH: | 7.9 pH Units |
| | | Field - Conductivity: | 420 umhos/cm |
| | | Field - Temperature: | 4.2 Deg.C |
| | | Labname: | Other |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754954-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 206 | mg/L | SM2340-B | 1 | 2017-12-15 | 10:01:00 | KN |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2017-12-08 | 12:30:00 | CH |
| Anions | 5.03 | meq/L | SM1030E | 0 | 2017-12-15 | 10:01:00 | KN |
| Balance | -0.11 | % | SM1030E | -10 | 2017-12-15 | 10:01:00 | KN |
| Cations | 5.02 | meq/L | SM1030E | 0 | 2017-12-15 | 10:01:00 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2017-12-05 | 08:20:00 | CH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 192 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Bicarbonate Alkalinity as CaCO3 | 186 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Carbonate Alkalinity as CaCO3 | 6 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-12-13 | 09:00:00 | AH |
| Total Dissolved Solids | 250 | mg/L | SM2540-C | 30 | 2017-12-04 | 14:44:29 | KN |
| Total Suspended Solids | 7 | mg/L | SM2540-D | 5 | 2017-12-04 | 15:11:00 | KN |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2017-12-01 | 10:00:00 | KN |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 19:33:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 19:33:00 | CH |
| Chloride, Cl | 7 | mg/L | EPA 300.0 | 1 | 2017-12-01 | 19:33:00 | CH |
| Sulfate, SO4 | 48 | mg/L | EPA 300.0 | 1 | 2017-12-01 | 19:33:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 19:33:00 | CH |

**METALS BY ICP**

Coco van den Bergh
Branch Manager



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# Analysis Report

December 15, 2017

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Res 1 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | Res 1 |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1530 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Field - pH: | 7.9 pH Units |
| | | Field - Conductivity: | 420 umhos/cm |
| | | Field - Temperature: | 4.2 Deg.C |
| | | Labname: | Other |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754954-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Boron, B - Dissolved | 0.05 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-12-07 | 10:10:00 | KN |
| Calcium, Ca - Dissolved | 54.06 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Iron, Fe - Total | <0.05 | mg/L | EPA 200.7 | 0.05 | 2017-12-07 | 10:10:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Magnesium, Mg - Dissolved | 17.16 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:10:00 | KN |
| Manganese, Mn - Total | 0.009 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:10:00 | KN |
| Molybdenum, Mo - Dissolved | 0.008 | mg/L | EPA 200.7 | 0.005 | 2017-12-07 | 10:10:00 | KN |
| Potassium, K - Dissolved | 2.74 | mg/L | EPA 200.7 | 0.14 | 2017-12-07 | 10:10:00 | KN |
| Selenium, Se - Dissolved | 0.07 | mg/L | EPA 200.7 | 0.02 | 2017-12-07 | 10:10:00 | KN |
| Sodium, Na - Dissolved | 19.25 | mg/L | EPA 200.7 | 0.09 | 2017-12-07 | 10:10:00 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-12-07 | 10:10:00 | KN |

Coco van den Bergh
Branch Manager



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# Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-5 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 8, 2018 | Sample Taken At: | WNR-2012-5 |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1738 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Field - pH: | 6.5 pH |
| | | Field - Conductivity: | 0.64 umhos/cm |
| | | Field - Temperature: | 12.8 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 363 | mg/L | SM2340-B | 1 | 2018-06-29 | 13:20:51 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2018-06-13 | 12:10:00 | CH |
| Cations | 10.19 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Anions | 11.60 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Balance | -6.48 | % | SM1030E | -10 | 2018-06-29 | 13:20:51 | KN |
| Alkalinity, mg CaCO3/L (pH 4.5) | 447 | mg/L | SM2320-B | 5 | 2018-06-15 | 09:00:00 | HL |
| Bicarbonate Alkalinity as CaCO3 | 447 | mg/L | SM2320-B | 5 | 2018-06-15 | 09:00:00 | HL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2018-06-15 | 09:00:00 | HL |
| Nitrogen, Ammonia | 0.5 | mg/L | SM4500-B-D | 0.1 | 2018-06-20 | 09:45:00 | CH |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2018-06-12 | 13:00:00 | KN |
| Total Suspended Solids | 12 | mg/L | SM2540-D | 5 | 2018-06-14 | 11:00:00 | CH |
| Total Dissolved Solids | 592 | mg/L | SM2540-C | 30 | 2018-06-14 | 11:00:23 | CH |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 17:16:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 17:16:00 | CH |
| Chloride, Cl | 15 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Sulfate, SO4 | 107 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 17:16:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | KN |

Kaitlyn Natelli
Lead Lab Tech



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# Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-5 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 8, 2018 | Sample Taken At: | WNR-2012-5 |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1738 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Field - pH: | 6.5 pH |
| | | Field - Conductivity: | 0.64 umhos/cm |
| | | Field - Temperature: | 12.8 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Arsenic, As - Dissolved | 0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | KN |
| Boron, B - Dissolved | 0.09 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | KN |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2018-06-20 | 13:19:02 | KN |
| Calcium, Ca - Dissolved | 39.87 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | KN |
| Iron, Fe - Total | 0.68 | mg/L | EPA 200.7 | 0.05 | 2018-06-19 | 17:50:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | KN |
| Magnesium, Mg - Dissolved | 63.88 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | KN |
| Manganese, Mn - Total | 0.017 | mg/L | EPA 200.7 | 0.002 | 2018-06-19 | 17:50:00 | KN |
| Manganese, Mn - Dissolved | 0.015 | mg/L | EPA 200.7 | 0.002 | 2018-06-20 | 13:19:02 | KN |
| Molybdenum, Mo - Dissolved | 0.009 | mg/L | EPA 200.7 | 0.005 | 2018-06-20 | 13:19:02 | KN |
| Potassium, K - Dissolved | 68.77 | mg/L | EPA 200.7 | 0.14 | 2018-06-20 | 13:19:02 | KN |
| Selenium, Se - Dissolved | 0.19 | mg/L | EPA 200.7 | 0.02 | 2018-06-20 | 13:19:02 | KN |
| Sodium, Na - Dissolved | 27.22 | mg/L | EPA 200.7 | 0.09 | 2018-06-20 | 13:19:02 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2018-06-20 | 13:19:02 | KN |

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Lead Lab Tech



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# Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-8 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 8, 2018 | Sample Taken At: | WNR-2012-8 |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1420 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Field - pH: | 6.5 pH |
| | | Field - Conductivity: | 0.68 umhos/cm |
| | | Field - Temperature: | 11.9 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 133 | mg/L | SM2340-B | 1 | 2018-06-29 | 13:20:51 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2018-06-13 | 12:10:00 | CH |
| Cations | 4.57 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Anions | 5.04 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Balance | -4.84 | % | SM1030E | -10 | 2018-06-29 | 13:20:51 | KN |
| Alkalinity, mg CaCO3/L (pH 4.5) | 199 | mg/L | SM2320-B | 5 | 2018-06-15 | 09:00:00 | HL |
| Bicarbonate Alkalinity as CaCO3 | 199 | mg/L | SM2320-B | 5 | 2018-06-15 | 09:00:00 | HL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2018-06-15 | 09:00:00 | HL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2018-06-20 | 09:45:00 | CH |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2018-06-12 | 13:00:00 | KN |
| Total Suspended Solids | 14 | mg/L | SM2540-D | 5 | 2018-06-14 | 11:00:00 | CH |
| Total Dissolved Solids | 262 | mg/L | SM2540-C | 30 | 2018-06-14 | 11:00:23 | CH |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 18:14:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 18:14:00 | CH |
| Chloride, Cl | 5 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Sulfate, SO4 | 43 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 18:14:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | KN |

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# Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-8 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 8, 2018 | Sample Taken At: | WNR-2012-8 |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1420 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Field - pH: | 6.5 pH |
| | | Field - Conductivity: | 0.68 umhos/cm |
| | | Field - Temperature: | 11.9 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | KN |
| Boron, B - Dissolved | 0.07 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | KN |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2018-06-20 | 13:19:02 | KN |
| Calcium, Ca - Dissolved | 18.21 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | KN |
| Copper, Cu - Dissolved | 0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | KN |
| Iron, Fe - Total | 0.20 | mg/L | EPA 200.7 | 0.05 | 2018-06-19 | 17:50:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | KN |
| Magnesium, Mg - Dissolved | 21.21 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | KN |
| Manganese, Mn - Total | 0.010 | mg/L | EPA 200.7 | 0.002 | 2018-06-19 | 17:50:00 | KN |
| Manganese, Mn - Dissolved | 0.008 | mg/L | EPA 200.7 | 0.002 | 2018-06-20 | 13:19:02 | KN |
| Molybdenum, Mo - Dissolved | 0.027 | mg/L | EPA 200.7 | 0.005 | 2018-06-20 | 13:19:02 | KN |
| Potassium, K - Dissolved | 38.58 | mg/L | EPA 200.7 | 0.14 | 2018-06-22 | 10:12:00 | KN |
| Selenium, Se - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.02 | 2018-06-20 | 13:19:02 | KN |
| Sodium, Na - Dissolved | 21.42 | mg/L | EPA 200.7 | 0.09 | 2018-06-20 | 13:19:02 | KN |
| Zinc, Zn - Dissolved | 0.203 | mg/L | EPA 200.7 | 0.004 | 2018-06-20 | 13:19:02 | KN |

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# Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Sulfur Spring | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 9, 2018 | Sample Taken At: | Sulfur Spring |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1141 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Site: | 20 |
| | | Field - pH: | 2.0 pH |
| | | Field - Conductivity: | 0.86 umhos/cm |
| | | Field - Temperature: | 14.7 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 368 | mg/L | SM2340-B | 1 | 2018-06-29 | 13:20:51 | KN |
| Acidity | 39 | mg/L | D1067 | 5 | 2018-06-13 | 12:10:00 | CH |
| Cations | 7.83 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Anions | 8.18 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Balance | -2.18 | % | SM1030E | -10 | 2018-06-29 | 13:20:51 | KN |
| Alkalinity, mg CaCO3/L (pH 4.5) | 348 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Bicarbonate Alkalinity as CaCO3 | 348 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Nitrogen, Ammonia | 0.1 | mg/L | SM4500-B-D | 0.1 | 2018-06-20 | 09:45:00 | CH |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2018-06-12 | 13:00:00 | KN |
| Total Suspended Solids | <5 | mg/L | SM2540-D | 5 | 2018-06-14 | 11:00:00 | CH |
| Total Dissolved Solids | 403 | mg/L | SM2540-C | 30 | 2018-06-14 | 11:00:23 | CH |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 08:33:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 08:33:00 | CH |
| Chloride, Cl | 7 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Sulfate, SO4 | 49 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 08:33:00 | CH |

**METALS BY ICP**

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# Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Sulfur Spring | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 9, 2018 | Sample Taken At: | Sulfur Spring |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1141 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Site: | 20 |
| | | Field - pH: | 2.0 pH |
| | | Field - Conductivity: | 0.86 umhos/cm |
| | | Field - Temperature: | 14.7 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Boron, B - Dissolved | 0.05 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2018-06-20 | 13:19:02 | BP |
| Calcium, Ca - Dissolved | 89.61 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Iron, Fe - Total | 0.06 | mg/L | EPA 200.7 | 0.05 | 2018-06-19 | 17:50:00 | BP |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Magnesium, Mg - Dissolved | 34.94 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Manganese, Mn - Total | 0.033 | mg/L | EPA 200.7 | 0.002 | 2018-06-19 | 17:50:00 | BP |
| Manganese, Mn - Dissolved | 0.028 | mg/L | EPA 200.7 | 0.002 | 2018-06-20 | 13:19:02 | BP |
| Molybdenum, Mo - Dissolved | 0.009 | mg/L | EPA 200.7 | 0.005 | 2018-06-20 | 13:19:02 | BP |
| Potassium, K - Dissolved | 5.74 | mg/L | EPA 200.7 | 0.14 | 2018-06-20 | 13:19:02 | BP |
| Selenium, Se - Dissolved | 0.10 | mg/L | EPA 200.7 | 0.02 | 2018-06-20 | 13:19:02 | BP |
| Sodium, Na - Dissolved | 7.69 | mg/L | EPA 200.7 | 0.09 | 2018-06-20 | 13:19:02 | BP |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2018-06-20 | 13:19:02 | BP |

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# Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Miller Outlet | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 9, 2018 | Sample Taken At: | Miller Outlet |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1120 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Site: | 17 |
| | | Field - pH: | 6.9 pH |
| | | Field - Conductivity: | 0.57 umhos/cm |
| | | Field - Temperature: | 11.9 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-004**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 278 | mg/L | SM2340-B | 1 | 2018-06-29 | 13:20:51 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2018-06-13 | 12:10:00 | CH |
| Cations | 5.86 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Anions | 7.07 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Balance | -9.34 | % | SM1030E | -10 | 2018-06-29 | 13:20:51 | KN |
| Alkalinity, mg CaCO3/L (pH 4.5) | 309 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Bicarbonate Alkalinity as CaCO3 | 309 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Nitrogen, Ammonia | 0.1 | mg/L | SM4500-B-D | 0.1 | 2018-06-20 | 09:45:00 | CH |
| Settleable Solids | 0.9 | mL/L | SM2540-F a | 0.1 | 2018-06-12 | 14:10:00 | KN |
| Total Suspended Solids | 326 | mg/L | SM2540-D | 5 | 2018-06-14 | 11:00:00 | CH |
| Total Dissolved Solids | 326 | mg/L | SM2540-C | 30 | 2018-06-14 | 11:00:23 | CH |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 18:52:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 18:52:00 | CH |
| Chloride, Cl | 11 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Sulfate, SO4 | 28 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 18:52:00 | CH |

**METALS BY ICP**

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# Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Miller Outlet | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 9, 2018 | Sample Taken At: | Miller Outlet |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1120 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Site: | 17 |
| | | Field - pH: | 6.9 pH |
| | | Field - Conductivity: | 0.57 umhos/cm |
| | | Field - Temperature: | 11.9 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-004**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2018-06-20 | 13:19:02 | BP |
| Calcium, Ca - Dissolved | 81.33 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Iron, Fe - Total | 10.26 | mg/L | EPA 200.7 | 0.05 | 2018-07-03 | 20:14:00 | BP |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Magnesium, Mg - Dissolved | 18.14 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Manganese, Mn - Total | 0.575 | mg/L | EPA 200.7 | 0.002 | 2018-06-19 | 17:50:00 | BP |
| Manganese, Mn - Dissolved | 0.002 | mg/L | EPA 200.7 | 0.002 | 2018-06-20 | 13:19:02 | BP |
| Molybdenum, Mo - Dissolved | 0.011 | mg/L | EPA 200.7 | 0.005 | 2018-06-20 | 13:19:02 | BP |
| Potassium, K - Dissolved | 2.06 | mg/L | EPA 200.7 | 0.14 | 2018-06-20 | 13:19:02 | BP |
| Selenium, Se - Dissolved | 0.08 | mg/L | EPA 200.7 | 0.02 | 2018-06-20 | 13:19:02 | BP |
| Sodium, Na - Dissolved | 5.98 | mg/L | EPA 200.7 | 0.09 | 2018-06-20 | 13:19:02 | BP |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2018-06-20 | 13:19:02 | BP |

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# Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Mud Creek | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 9, 2018 | Sample Taken At: | Mud Creek |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1157 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Site: | 18 |
| | | Field - pH: | 6.6 pH |
| | | Field - Conductivity: | 0.68 umhos/cm |
| | | Field - Temperature: | 13.9 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-005**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 256 | mg/L | SM2340-B | 1 | 2018-06-29 | 13:20:51 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2018-06-13 | 12:10:00 | CH |
| Cations | 5.91 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Anions | 6.37 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Balance | -3.75 | % | SM1030E | -10 | 2018-06-29 | 13:20:51 | KN |
| Alkalinity, mg CaCO3/L (pH 4.5) | 242 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Bicarbonate Alkalinity as CaCO3 | 242 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2018-06-20 | 09:45:00 | CH |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2018-06-12 | 13:00:00 | KN |
| Total Suspended Solids | 8 | mg/L | SM2540-D | 5 | 2018-06-14 | 11:00:00 | CH |
| Total Dissolved Solids | 325 | mg/L | SM2540-C | 30 | 2018-06-14 | 11:00:23 | CH |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 19:11:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 19:11:00 | CH |
| Chloride, Cl | 17 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Sulfate, SO4 | 51 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 19:11:00 | CH |

**METALS BY ICP**

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# Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Mud Creek | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 9, 2018 | Sample Taken At: | Mud Creek |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1157 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Site: | 18 |
| | | Field - pH: | 6.6 pH |
| | | Field - Conductivity: | 0.68 umhos/cm |
| | | Field - Temperature: | 13.9 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-005**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Boron, B - Dissolved | 0.09 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2018-06-20 | 13:19:02 | BP |
| Calcium, Ca - Dissolved | 60.70 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Iron, Fe - Total | 0.30 | mg/L | EPA 200.7 | 0.05 | 2018-06-19 | 17:50:00 | BP |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Magnesium, Mg - Dissolved | 25.24 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Manganese, Mn - Total | 0.026 | mg/L | EPA 200.7 | 0.002 | 2018-06-19 | 17:50:00 | BP |
| Manganese, Mn - Dissolved | 0.004 | mg/L | EPA 200.7 | 0.002 | 2018-06-20 | 13:19:02 | BP |
| Molybdenum, Mo - Dissolved | 0.009 | mg/L | EPA 200.7 | 0.005 | 2018-06-20 | 13:19:02 | BP |
| Potassium, K - Dissolved | 5.11 | mg/L | EPA 200.7 | 0.14 | 2018-06-20 | 13:19:02 | BP |
| Selenium, Se - Dissolved | 0.11 | mg/L | EPA 200.7 | 0.02 | 2018-06-20 | 13:19:02 | BP |
| Sodium, Na - Dissolved | 15.51 | mg/L | EPA 200.7 | 0.09 | 2018-06-20 | 13:19:02 | BP |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2018-06-20 | 13:19:02 | BP |

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# Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Res 1 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 9, 2018 | Sample Taken At: | Res 1 |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1055 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Site: | 19 |
| | | Field - pH: | 7.3 pH |
| | | Field - Conductivity: | 0.61 umhos/cm |
| | | Field - Temperature: | 17.5 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-006**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 203 | mg/L | SM2340-B | 1 | 2018-06-29 | 13:20:51 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2018-06-13 | 12:10:00 | CH |
| Cations | 4.91 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Anions | 5.38 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Balance | -4.52 | % | SM1030E | -10 | 2018-06-29 | 13:20:51 | KN |
| Alkalinity, mg CaCO3/L (pH 4.5) | 209 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Bicarbonate Alkalinity as CaCO3 | 209 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2018-06-20 | 09:45:00 | CH |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2018-06-12 | 13:00:00 | KN |
| Total Suspended Solids | <5 | mg/L | SM2540-D | 5 | 2018-06-14 | 11:00:00 | CH |
| Total Dissolved Solids | 265 | mg/L | SM2540-C | 30 | 2018-06-14 | 11:00:23 | CH |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 19:30:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 19:30:00 | CH |
| Chloride, Cl | 10 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Sulfate, SO4 | 44 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 19:30:00 | CH |

**METALS BY ICP**

Kaitlyn Natelli
Lead Lab Tech



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SGS

# Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Res 1 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 9, 2018 | Sample Taken At: | Res 1 |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1055 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Site: | 19 |
| | | Field - pH: | 7.3 pH |
| | | Field - Conductivity: | 0.61 umhos/cm |
| | | Field - Temperature: | 17.5 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-006**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Boron, B - Dissolved | 0.05 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2018-06-20 | 13:19:02 | BP |
| Calcium, Ca - Dissolved | 53.05 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Iron, Fe - Total | 0.06 | mg/L | EPA 200.7 | 0.05 | 2018-06-19 | 17:50:00 | BP |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Magnesium, Mg - Dissolved | 17.17 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Manganese, Mn - Total | 0.015 | mg/L | EPA 200.7 | 0.002 | 2018-06-19 | 17:50:00 | BP |
| Manganese, Mn - Dissolved | 0.002 | mg/L | EPA 200.7 | 0.002 | 2018-06-20 | 13:19:02 | BP |
| Molybdenum, Mo - Dissolved | 0.007 | mg/L | EPA 200.7 | 0.005 | 2018-06-20 | 13:19:02 | BP |
| Potassium, K - Dissolved | 2.78 | mg/L | EPA 200.7 | 0.14 | 2018-06-20 | 13:19:02 | BP |
| Selenium, Se - Dissolved | 0.07 | mg/L | EPA 200.7 | 0.02 | 2018-06-20 | 13:19:02 | BP |
| Sodium, Na - Dissolved | 17.96 | mg/L | EPA 200.7 | 0.09 | 2018-06-20 | 13:19:02 | BP |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2018-06-20 | 13:19:02 | BP |

Kaitlyn Natelli
Lead Lab Tech



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# Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-11 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 9, 2018 | Sample Taken At: | CR-10-11 |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 933 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Site: | 9 |
| | | Field - pH: | 6.1 pH |
| | | Field - Conductivity: | 0.67 umhos/cm |
| | | Field - Temperature: | 8.4 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-007**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 242 | mg/L | SM2340-B | 1 | 2018-06-29 | 13:20:51 | KN |
| Acidity | 6 | mg/L | D1067 | 5 | 2018-06-13 | 12:10:00 | CH |
| Cations | 5.26 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Anions | 5.60 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Balance | -3.11 | % | SM1030E | -10 | 2018-06-29 | 13:20:51 | KN |
| Alkalinity, mg CaCO3/L (pH 4.5) | 228 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Bicarbonate Alkalinity as CaCO3 | 228 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2018-06-20 | 09:45:00 | CH |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2018-06-12 | 13:00:00 | KN |
| Total Suspended Solids | 14 | mg/L | SM2540-D | 5 | 2018-06-14 | 11:00:00 | CH |
| Total Dissolved Solids | 310 | mg/L | SM2540-C | 30 | 2018-06-14 | 11:00:23 | CH |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 19:49:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 19:49:00 | CH |
| Chloride, Cl | 17 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Sulfate, SO4 | 28 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-12 | 19:49:00 | CH |

**METALS BY ICP**

Kaitlyn Natelli
Lead Lab Tech



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## Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-11 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 9, 2018 | Sample Taken At: | CR-10-11 |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 933 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Site: | 9 |
| | | Field - pH: | 6.1 pH |
| | | Field - Conductivity: | 0.67 umhos/cm |
| | | Field - Temperature: | 8.4 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-007**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2018-06-20 | 13:19:02 | BP |
| Calcium, Ca - Dissolved | 78.51 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Iron, Fe - Total | 0.10 | mg/L | EPA 200.7 | 0.05 | 2018-06-19 | 17:50:00 | BP |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Magnesium, Mg - Dissolved | 11.21 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Manganese, Mn - Total | 0.004 | mg/L | EPA 200.7 | 0.002 | 2018-06-19 | 17:50:00 | BP |
| Manganese, Mn - Dissolved | 0.002 | mg/L | EPA 200.7 | 0.002 | 2018-06-20 | 13:19:02 | BP |
| Molybdenum, Mo - Dissolved | 0.011 | mg/L | EPA 200.7 | 0.005 | 2018-06-20 | 13:19:02 | BP |
| Potassium, K - Dissolved | 1.22 | mg/L | EPA 200.7 | 0.14 | 2018-06-20 | 13:19:02 | BP |
| Selenium, Se - Dissolved | 0.08 | mg/L | EPA 200.7 | 0.02 | 2018-06-20 | 13:19:02 | BP |
| Sodium, Na - Dissolved | 9.01 | mg/L | EPA 200.7 | 0.09 | 2018-06-20 | 13:19:02 | BP |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2018-06-20 | 13:19:02 | BP |

Kaitlyn Natelli
Lead Lab Tech

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

Member of the SGS Group (Société Générale de Surveillance)

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# Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-12 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 9, 2018 | Sample Taken At: | CR-10-12 |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1029 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Site: | 10 |
| | | Field - pH: | 5.8 pH |
| | | Field - Conductivity: | 0.65 umhos/cm |
| | | Field - Temperature: | 9.8 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-008**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 218 | mg/L | SM2340-B | 1 | 2018-06-29 | 13:20:51 | KN |
| Acidity | 7 | mg/L | D1067 | 5 | 2018-06-13 | 12:10:00 | CH |
| Cations | 4.95 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Anions | 5.62 | meq/L | SM1030E | 0 | 2018-06-29 | 13:20:51 | KN |
| Balance | -6.41 | % | SM1030E | -10 | 2018-06-29 | 13:20:51 | KN |
| Alkalinity, mg CaCO3/L (pH 4.5) | 202 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Bicarbonate Alkalinity as CaCO3 | 202 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2018-06-15 | 12:00:00 | HL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2018-06-20 | 09:45:00 | CH |
| Settleable Solids | 42.0 | mL/L | SM2540-F a | 0.1 | 2018-06-12 | 14:10:00 | KN |
| Total Suspended Solids | 6380 | mg/L | SM2540-D | 5 | 2018-06-14 | 11:00:00 | CH |
| Total Dissolved Solids | 370 | mg/L | SM2540-C | 30 | 2018-06-14 | 11:00:23 | CH |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-13 | 10:45:37 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-13 | 10:45:37 | CH |
| Chloride, Cl | 19 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Sulfate, SO4 | 51 | mg/L | EPA 300.0 | 1 | 2018-06-12 | 14:45:00 | CH |
| Ortho-Phosphate-P | 0.05 | mg/L | EPA 300.0 | 0.05 | 2018-06-13 | 10:45:37 | CH |

**METALS BY ICP**

Kaitlyn Natelli
Lead Lab Tech



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# Analysis Report

September 26, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-12 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Jun 9, 2018 | Sample Taken At: | CR-10-12 |
| Date Received: | Jun 12, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1029 |
| | | Time Received: | 1135 |
| | | Mine: | 42 |
| | | Site: | 10 |
| | | Field - pH: | 5.8 pH |
| | | Field - Conductivity: | 0.65 umhos/cm |
| | | Field - Temperature: | 9.8 Deg C |

Comments: Dissolved Metals Filtered at Lab; Settleable Solids, Nitrite, Nitrate and Ortho-Phosphate were expired when received.

**SGS Minerals Sample ID: 782-1805473-008**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Arsenic, As - Dissolved | 0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2018-06-20 | 13:19:02 | BP |
| Calcium, Ca - Dissolved | 77.08 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Iron, Fe - Total | 75.90 | mg/L | EPA 200.7 | 0.05 | 2018-06-19 | 17:50:00 | BP |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-06-20 | 13:19:02 | BP |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Magnesium, Mg - Dissolved | 6.30 | mg/L | EPA 200.7 | 0.01 | 2018-06-20 | 13:19:02 | BP |
| Manganese, Mn - Total | 1.064 | mg/L | EPA 200.7 | 0.002 | 2018-06-19 | 17:50:00 | BP |
| Manganese, Mn - Dissolved | 0.002 | mg/L | EPA 200.7 | 0.002 | 2018-06-20 | 13:19:02 | BP |
| Molybdenum, Mo - Dissolved | 0.009 | mg/L | EPA 200.7 | 0.005 | 2018-06-20 | 13:19:02 | BP |
| Potassium, K - Dissolved | 1.07 | mg/L | EPA 200.7 | 0.14 | 2018-06-20 | 13:19:02 | BP |
| Selenium, Se - Dissolved | 0.05 | mg/L | EPA 200.7 | 0.02 | 2018-06-20 | 13:19:02 | BP |
| Sodium, Na - Dissolved | 12.73 | mg/L | EPA 200.7 | 0.09 | 2018-06-20 | 13:19:02 | BP |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2018-06-20 | 13:19:02 | BP |

Kaitlyn Natelli
Lead Lab Tech



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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MUD CREEK | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | MUD CREEK |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1615 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 18 |
| | | Field - pH: | 7.9 pH |
| | | Field - Conductivity: | 610 umhos/cm |
| | | Field - Temperature: | 17.3 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 253 | mg/L | SM2340-B | 1 | 2017-07-25 | 14:27:06 | Cv |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2017-07-25 | 11:30:00 | CH |
| Acidity | -224 | meq/L | D1067 | -999 | 2017-07-12 | 06:30:00 | CH |
| Anions | 7.00 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Balance | 1.50 | % | SM1030E | -10 | 2017-07-25 | 14:27:06 | Cv |
| Cations | 7.21 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Alkalinity, mg CaCO3/L (pH 4.5) | 225 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Bicarbonate Alkalinity as CaCO3 | 216 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Carbonate Alkalinity as CaCO3 | 9 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-07-27 | 13:43:02 | SM |
| Total Dissolved Solids | 394 | mg/L | SM2540-C | 30 | 2017-07-14 | 12:50:00 | TI |
| Total Suspended Solids | 30 | mg/L | SM2540-D | 5 | 2017-07-14 | 12:14:00 | TI |
| Settleable Solids | 0.3 | mL/L | SM2540-F a | 0.1 | 2017-06-30 | 14:35:00 | TI |
| Nitrate | 0.18 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 19:41:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 19:41:00 | CH |
| Nitrate + Nitrite as Nitrogen | 1.08 | mg/L | EPA 300.0 | 0.05 | 2017-07-14 | 23:02:00 | CH |
| Chloride, Cl | 16 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 19:41:00 | CH |
| Sulfate, SO4 | 99 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 19:41:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 19:41:00 | CH |

Coco van den Bergh
Branch Manager



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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MUD CREEK | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | MUD CREEK |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1615 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 18 |
| | | Field - pH: | 7.9 pH |
| | | Field - Conductivity: | 610 umhos/cm |
| | | Field - Temperature: | 17.3 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:45 | JJ |
| Arsenic, As - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Boron, B - Dissolved | 0.11 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-07-18 | 14:46:45 | JJ |
| Calcium, Ca - Dissolved | 61.61 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:45 | JJ |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Iron, Fe - Total | 0.35 | mg/L | EPA 200.7 | 0.05 | 2017-07-14 | 14:46:09 | JJ |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:45 | JJ |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Magnesium, Mg - Total | 25.31 | mg/L | EPA 200.7 | 0.01 | 2017-07-14 | 14:46:09 | JJ |
| Magnesium, Mg - Dissolved | 24.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Manganese, Mn - Dissolved | 0.012 | mg/L | EPA 200.7 | 0.002 | 2017-07-18 | 14:46:45 | JJ |
| Manganese, Mn - Total | 0.034 | mg/L | EPA 200.7 | 0.002 | 2017-07-14 | 14:46:09 | JJ |
| Molybdenum, Mo - Dissolved | 0.009 | mg/L | EPA 200.7 | 0.005 | 2017-07-18 | 14:46:45 | JJ |
| Potassium, K - Dissolved | 4.82 | mg/L | EPA 200.7 | 0.14 | 2017-07-18 | 14:46:45 | JJ |
| Selenium, Se - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.02 | 2017-07-18 | 14:46:45 | JJ |
| Sodium, Na - Dissolved | 46.91 | mg/L | EPA 200.7 | 0.09 | 2017-07-18 | 14:46:45 | JJ |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-07-18 | 14:46:45 | JJ |

Coco van den Bergh
Branch Manager

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MILLER OUTLET | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | MILLER OUTLET |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1800 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 17 |
| | | Field - pH: | 7.0 pH |
| | | Field - Flow: | 42 gpm |
| | | Field - Conductivity: | 450 umhos/cm |
| | | Field - Temperature: | 17.8 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 264 | mg/L | SM2340-B | 1 | 2017-07-25 | 14:27:06 | Cv |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2017-07-25 | 11:30:00 | CH |
| Acidity | -226 | meq/L | D1067 | -999 | 2017-07-12 | 06:30:00 | CH |
| Anions | 5.19 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Balance | 3.81 | % | SM1030E | -10 | 2017-07-25 | 14:27:06 | Cv |
| Cations | 5.60 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Alkalinity, mg CaCO3/L (pH 4.5) | 223 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Bicarbonate Alkalinity as CaCO3 | 223 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-07-27 | 13:43:02 | SM |
| Total Dissolved Solids | 291 | mg/L | SM2540-C | 30 | 2017-07-14 | 12:50:00 | TI |
| Total Suspended Solids | 22 | mg/L | SM2540-D | 5 | 2017-07-14 | 12:14:00 | TI |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2017-06-30 | 14:35:00 | TI |
| Nitrate | 0.09 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 20:21:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 20:21:00 | CH |
| Nitrate + Nitrite as Nitrogen | 0.10 | mg/L | EPA 300.0 | 0.05 | 2017-07-14 | 23:41:00 | CH |
| Chloride, Cl | 8 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 20:21:00 | CH |
| Sulfate, SO4 | 24 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 20:21:00 | CH |

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Branch Manager



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## Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MILLER OUTLET | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | MILLER OUTLET |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1800 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 17 |
| | | Field - pH: | 7.0 pH |
| | | Field - Flow: | 42 gpm |
| | | Field - Conductivity: | 450 umhos/cm |
| | | Field - Temperature: | 17.8 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 20:21:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:45 | JJ |
| Arsenic, As - Dissolved | 0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Boron, B - Dissolved | 0.04 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-07-18 | 14:46:45 | JJ |
| Calcium, Ca - Dissolved | 77.81 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:45 | JJ |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Iron, Fe - Total | 0.60 | mg/L | EPA 200.7 | 0.05 | 2017-07-14 | 14:46:10 | JJ |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:45 | JJ |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Magnesium, Mg - Total | 17.19 | mg/L | EPA 200.7 | 0.01 | 2017-07-14 | 14:46:10 | JJ |
| Magnesium, Mg - Dissolved | 17.04 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2017-07-18 | 14:46:45 | JJ |
| Manganese, Mn - Total | 0.045 | mg/L | EPA 200.7 | 0.002 | 2017-07-14 | 14:46:10 | JJ |
| Molybdenum, Mo - Dissolved | 0.008 | mg/L | EPA 200.7 | 0.005 | 2017-07-18 | 14:46:45 | JJ |
| Potassium, K - Dissolved | 1.64 | mg/L | EPA 200.7 | 0.14 | 2017-07-18 | 14:46:45 | JJ |
| Selenium, Se - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.02 | 2017-07-18 | 14:46:45 | JJ |

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## Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MILLER OUTLET | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | MILLER OUTLET |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1800 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 17 |
| | | Field - pH: | 7.0 pH |
| | | Field - Flow: | 42 gpm |
| | | Field - Conductivity: | 450 umhos/cm |
| | | Field - Temperature: | 17.8 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Sodium, Na - Dissolved | 6.33 | mg/L | EPA 200.7 | 0.09 | 2017-07-18 | 14:46:45 | JJ |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-07-18 | 14:46:45 | JJ |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | RES-1 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | RES-1 |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1830 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 19 |
| | | Field - pH: | 8.0 pH |
| | | Field - Conductivity: | 420 umhos/cm |
| | | Field - Temperature: | 18.7 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 210 | mg/L | SM2340-B | 1 | 2017-07-25 | 14:27:06 | Cv |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2017-07-25 | 11:20:00 | CH |
| Acidity | -188 | meq/L | D1067 | -999 | 2017-07-12 | 06:30:00 | CH |
| Anions | 4.77 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Balance | 1.75 | % | SM1030E | -10 | 2017-07-25 | 14:27:06 | Cv |
| Cations | 4.94 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Alkalinity, mg CaCO3/L (pH 4.5) | 190 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Bicarbonate Alkalinity as CaCO3 | 190 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-07-27 | 13:43:02 | SM |
| Total Dissolved Solids | 265 | mg/L | SM2540-C | 30 | 2017-07-14 | 12:50:00 | TI |
| Total Suspended Solids | 15 | mg/L | SM2540-D | 5 | 2017-07-14 | 12:14:00 | TI |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2017-06-30 | 14:35:00 | TI |
| Nitrate | 0.13 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 20:41:00 | CH |
| Nitrite | 0.15 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 20:41:00 | CH |
| Nitrate + Nitrite as Nitrogen | 0.07 | mg/L | EPA 300.0 | 0.05 | 2017-07-15 | 00:21:00 | CH |
| Chloride, Cl | 8 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 20:41:00 | CH |
| Sulfate, SO4 | 35 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 20:41:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 20:41:00 | CH |

Coco van den Bergh
Branch Manager



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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | RES-1 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | RES-1 |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1830 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 19 |
| | | Field - pH: | 8.0 pH |
| | | Field - Conductivity: | 420 umhos/cm |
| | | Field - Temperature: | 18.7 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:46 | JJ |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:46 | JJ |
| Boron, B - Dissolved | 0.04 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:46 | JJ |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-07-18 | 14:46:46 | JJ |
| Calcium, Ca - Dissolved | 58.85 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:46 | JJ |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:46 | JJ |
| Iron, Fe - Total | 0.09 | mg/L | EPA 200.7 | 0.05 | 2017-07-14 | 14:46:10 | JJ |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:46 | JJ |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:46 | JJ |
| Magnesium, Mg - Total | 15.57 | mg/L | EPA 200.7 | 0.01 | 2017-07-14 | 14:46:10 | JJ |
| Magnesium, Mg - Dissolved | 15.42 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:46 | JJ |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2017-07-18 | 14:46:46 | JJ |
| Manganese, Mn - Total | 0.011 | mg/L | EPA 200.7 | 0.002 | 2017-07-14 | 14:46:10 | JJ |
| Molybdenum, Mo - Dissolved | 0.009 | mg/L | EPA 200.7 | 0.005 | 2017-07-18 | 14:46:46 | JJ |
| Potassium, K - Dissolved | 2.10 | mg/L | EPA 200.7 | 0.14 | 2017-07-18 | 14:46:46 | JJ |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2017-07-18 | 14:46:46 | JJ |
| Sodium, Na - Dissolved | 15.57 | mg/L | EPA 200.7 | 0.09 | 2017-07-18 | 14:46:46 | JJ |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-07-18 | 14:46:46 | JJ |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | ASPEN SPRING | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | ASPEN SPRING |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1340 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 12 |
| | | Field - pH: | 5.7 pH |
| | | Field - Flow: | 0.26 gpm |
| | | Field - Conductivity: | 500 umhos/cm |
| | | Field - Temperature: | 10.0 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-004**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 339 | mg/L | SM2340-B | 1 | 2017-07-25 | 14:27:06 | Cv |
| Acidity | -286 | meq/L | D1067 | -999 | 2017-07-12 | 06:30:00 | CH |
| Anions | 6.54 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Balance | 4.57 | % | SM1030E | -10 | 2017-07-25 | 14:27:06 | Cv |
| Cations | 7.16 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Alkalinity, mg CaCO3/L (pH 4.5) | 279 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Bicarbonate Alkalinity as CaCO3 | 279 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-07-27 | 13:43:02 | SM |
| Total Dissolved Solids | 368 | mg/L | SM2540-C | 30 | 2017-07-14 | 12:50:00 | TI |
| Total Suspended Solids | <5 | mg/L | SM2540-D | 5 | 2017-07-14 | 12:14:00 | TI |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2017-06-30 | 14:35:00 | TI |
| Nitrate | 3.15 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 21:01:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 21:01:00 | CH |
| Nitrate + Nitrite as Nitrogen | 4.17 | mg/L | EPA 300.0 | 0.05 | 2017-07-15 | 01:01:00 | CH |
| Chloride, Cl | 22 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 21:01:00 | CH |
| Sulfate, SO4 | 17 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 21:01:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 21:01:00 | CH |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | ASPEN SPRING | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | ASPEN SPRING |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1340 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 12 |
| | | Field - pH: | 5.7 pH |
| | | Field - Flow: | 0.26 gpm |
| | | Field - Conductivity: | 500 umhos/cm |
| | | Field - Temperature: | 10.0 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-004**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:47 | JJ |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:47 | JJ |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:47 | JJ |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-07-18 | 14:46:47 | JJ |
| Calcium, Ca - Dissolved | 113.80 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:47 | JJ |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:47 | JJ |
| Iron, Fe - Total | <0.05 | mg/L | EPA 200.7 | 0.05 | 2017-07-14 | 14:46:11 | JJ |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:47 | JJ |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:47 | JJ |
| Magnesium, Mg - Total | 13.23 | mg/L | EPA 200.7 | 0.01 | 2017-07-14 | 14:46:11 | JJ |
| Magnesium, Mg - Dissolved | 13.32 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:47 | JJ |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2017-07-18 | 14:46:47 | JJ |
| Manganese, Mn - Total | <0.002 | mg/L | EPA 200.7 | 0.002 | 2017-07-14 | 14:46:11 | JJ |
| Molybdenum, Mo - Dissolved | 0.009 | mg/L | EPA 200.7 | 0.005 | 2017-07-18 | 14:46:47 | JJ |
| Potassium, K - Dissolved | 2.12 | mg/L | EPA 200.7 | 0.14 | 2017-07-18 | 14:46:47 | JJ |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2017-07-18 | 14:46:47 | JJ |
| Sodium, Na - Dissolved | 7.73 | mg/L | EPA 200.7 | 0.09 | 2017-07-18 | 14:46:47 | JJ |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-07-18 | 14:46:47 | JJ |

Coco van den Bergh
Branch Manager

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-8 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Aug 25, 2018 | Sample Taken At: | WNR-2012-8 |
| Date Received: | Aug 27, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1640 |
| | | Time Received: | 625 |
| | | Mine: | 42 |
| | | Field - pH: | 6.7 pH |
| | | Field - Conductivity: | 680 umhos/cm |
| | | Field - Temperature: | 12.8 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1808118-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 161 | mg/L | SM2340-B | 1 | 2018-09-18 | 12:49:00 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2018-08-28 | 11:51:00 | CH |
| Cations | 4.99 | meq/L | SM1030E | 0 | 2018-09-18 | 12:49:00 | KN |
| Anions | 4.95 | meq/L | SM1030E | 0 | 2018-09-18 | 12:49:00 | KN |
| Balance | 0.38 | % | SM1030E | -10 | 2018-09-18 | 12:49:00 | KN |
| Alkalinity, mg CaCO3/L (pH 4.5) | 197 | mg/L | SM2320-B | 5 | 2018-08-27 | 13:25:00 | HL |
| Bicarbonate Alkalinity as CaCO3 | 193 | mg/L | SM2320-B | 5 | 2018-08-27 | 13:25:00 | HL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2018-08-27 | 13:25:00 | HL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2018-09-06 | 08:30:00 | HL |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2018-08-27 | 07:30:00 | CH |
| Total Dissolved Solids | 252 | mg/L | SM2540-C | 30 | 2018-08-27 | 11:00:00 | HL |
| Total Suspended Solids | 18 | mg/L | SM2540-D | 5 | 2018-08-27 | 11:00:00 | HL |
| Nitrate | 0.50 | mg/L | EPA 300.0 | 0.05 | 2018-08-27 | 10:17:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-08-27 | 10:17:00 | CH |
| Chloride, Cl | 5 | mg/L | EPA 300.0 | 1 | 2018-08-27 | 10:17:00 | CH |
| Sulfate, SO4 | 42 | mg/L | EPA 300.0 | 1 | 2018-08-27 | 10:17:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-08-27 | 10:17:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-09-06 | 19:29:00 | BP |
| Arsenic, As - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2018-09-06 | 19:29:00 | BP |

Kaitlyn Natelli
Lead Lab Tech



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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-8 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Aug 25, 2018 | Sample Taken At: | WNR-2012-8 |
| Date Received: | Aug 27, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1640 |
| | | Time Received: | 625 |
| | | Mine: | 42 |
| | | Field - pH: | 6.7 pH |
| | | Field - Conductivity: | 680 umhos/cm |
| | | Field - Temperature: | 12.8 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1808118-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Boron, B - Dissolved | 0.08 | mg/L | EPA 200.7 | 0.01 | 2018-09-06 | 19:29:00 | BP |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2018-09-06 | 19:29:00 | BP |
| Calcium, Ca - Dissolved | 23.38 | mg/L | EPA 200.7 | 0.03 | 2018-09-06 | 19:29:00 | BP |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-09-06 | 19:29:00 | BP |
| Iron, Fe - Total | 0.13 | mg/L | EPA 200.7 | 0.05 | 2018-09-05 | 11:45:00 | BP |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-09-06 | 19:29:00 | BP |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-09-06 | 19:29:00 | BP |
| Magnesium, Mg - Dissolved | 24.83 | mg/L | EPA 200.7 | 0.01 | 2018-09-06 | 19:29:00 | BP |
| Manganese, Mn - Total | 0.003 | mg/L | EPA 200.7 | 0.002 | 2018-09-05 | 11:45:00 | BP |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2018-09-06 | 19:29:00 | BP |
| Molybdenum, Mo - Dissolved | 0.029 | mg/L | EPA 200.7 | 0.005 | 2018-09-06 | 19:29:00 | BP |
| Potassium, K - Dissolved | 35.49 | mg/L | EPA 200.7 | 0.14 | 2018-09-06 | 19:29:00 | BP |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2018-09-11 | 20:19:00 | BP |
| Sodium, Na - Dissolved | 20.08 | mg/L | EPA 200.7 | 0.09 | 2018-09-06 | 19:29:00 | BP |
| Zinc, Zn - Dissolved | 0.359 | mg/L | EPA 200.7 | 0.004 | 2018-09-06 | 19:29:00 | BP |

Kaitlyn Natelli
Lead Lab Tech



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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-5 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Aug 25, 2018 | Sample Taken At: | WNR-2012-5 |
| Date Received: | Aug 27, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1935 |
| | | Time Received: | 625 |
| | | Mine: | 42 |
| | | Field - pH: | 8.8 pH |
| | | Field - Conductivity: | 890 umhos/cm |
| | | Field - Temperature: | 9.6 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1808118-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 496 | mg/L | SM2340-B | 1 | 2018-09-18 | 12:49:00 | KN |
| Acidity | 10 | mg/L | D1067 | 5 | 2018-08-28 | 11:51:00 | CH |
| Cations | 11.94 | meq/L | SM1030E | 0 | 2018-09-18 | 12:49:00 | KN |
| Anions | 12.46 | meq/L | SM1030E | 0 | 2018-09-18 | 12:49:00 | KN |
| Balance | -2.14 | % | SM1030E | -10 | 2018-09-18 | 12:49:00 | KN |
| Alkalinity, mg CaCO3/L (pH 4.5) | 487 | mg/L | SM2320-B | 5 | 2018-08-27 | 13:25:00 | HL |
| Bicarbonate Alkalinity as CaCO3 | 487 | mg/L | SM2320-B | 5 | 2018-08-27 | 13:25:00 | HL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2018-08-27 | 13:25:00 | HL |
| Nitrogen, Ammonia | 0.3 | mg/L | SM4500-B-D | 0.1 | 2018-09-06 | 08:30:00 | HL |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2018-08-27 | 07:30:00 | CH |
| Total Dissolved Solids | 623 | mg/L | SM2540-C | 30 | 2018-08-27 | 11:00:00 | HL |
| Total Suspended Solids | 20 | mg/L | SM2540-D | 5 | 2018-08-27 | 11:00:00 | HL |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-08-27 | 10:17:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-08-27 | 10:17:00 | CH |
| Chloride, Cl | 14 | mg/L | EPA 300.0 | 1 | 2018-08-27 | 10:17:00 | CH |
| Sulfate, SO4 | 112 | mg/L | EPA 300.0 | 1 | 2018-08-27 | 10:17:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-08-27 | 10:17:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-09-06 | 19:29:00 | BP |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-09-06 | 19:29:00 | BP |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | WNR-2012-5 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Aug 25, 2018 | Sample Taken At: | WNR-2012-5 |
| Date Received: | Aug 27, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1935 |
| | | Time Received: | 625 |
| | | Mine: | 42 |
| | | Field - pH: | 8.8 pH |
| | | Field - Conductivity: | 890 umhos/cm |
| | | Field - Temperature: | 9.6 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1808118-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Boron, B - Dissolved | 0.10 | mg/L | EPA 200.7 | 0.01 | 2018-09-06 | 19:29:00 | BP |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2018-09-06 | 19:29:00 | BP |
| Calcium, Ca - Dissolved | 86.44 | mg/L | EPA 200.7 | 0.03 | 2018-09-18 | 11:26:00 | BP |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-09-06 | 19:29:00 | BP |
| Iron, Fe - Total | 0.17 | mg/L | EPA 200.7 | 0.05 | 2018-09-05 | 11:45:00 | BP |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-09-06 | 19:29:00 | BP |
| Lead, Pb - Dissolved | 1.91 | mg/L | EPA 200.7 | 0.01 | 2018-09-06 | 19:29:00 | BP |
| Magnesium, Mg - Dissolved | 67.99 | mg/L | EPA 200.7 | 0.01 | 2018-09-18 | 11:26:00 | BP |
| Manganese, Mn - Total | 0.111 | mg/L | EPA 200.7 | 0.002 | 2018-09-05 | 11:45:00 | BP |
| Manganese, Mn - Dissolved | 2.050 | mg/L | EPA 200.7 | 0.002 | 2018-09-06 | 19:29:00 | BP |
| Molybdenum, Mo - Dissolved | 2.054 | mg/L | EPA 200.7 | 0.005 | 2018-09-06 | 19:29:00 | BP |
| Potassium, K - Dissolved | 41.23 | mg/L | EPA 200.7 | 0.14 | 2018-09-18 | 11:26:00 | BP |
| Selenium, Se - Dissolved | 0.04 | mg/L | EPA 200.7 | 0.02 | 2018-08-29 | 10:31:04 | BP |
| Sodium, Na - Dissolved | 22.46 | mg/L | EPA 200.7 | 0.09 | 2018-09-18 | 11:26:00 | BP |
| Zinc, Zn - Dissolved | 1.860 | mg/L | EPA 200.7 | 0.004 | 2018-09-06 | 19:29:00 | BP |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | RES-1 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Sep 22, 2018 | Sample Taken At: | RES-1 |
| Date Received: | Sep 25, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1323 |
| | | Time Received: | 750 |
| | | Mine: | 42 |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1809071-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 172 | mg/L | SM2340-B | 1 | 2018-10-15 | 12:03:16 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2018-09-25 | 12:45:00 | BP |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2018-09-26 | 10:45:00 | HL |
| Cations | 4.39 | meq/L | SM1030E | 0 | 2018-10-15 | 12:03:16 | KN |
| Anions | 4.52 | meq/L | SM1030E | 0 | 2018-10-15 | 12:03:16 | KN |
| Balance | -1.50 | % | SM1030E | -10 | 2018-10-15 | 12:03:16 | KN |
| Alkalinity, mg CaCO3/L (pH 4.5) | 166 | mg/L | SM2320-B | 5 | 2018-10-01 | 12:35:00 | BP |
| Bicarbonate Alkalinity as CaCO3 | 166 | mg/L | SM2320-B | 5 | 2018-10-01 | 12:35:00 | BP |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2018-10-01 | 12:35:00 | BP |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2018-10-02 | 09:46:00 | BP |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2018-09-25 | 11:07:00 | BP |
| Total Suspended Solids | 32 | mg/L | SM2540-D | 5 | 2018-09-27 | 13:00:00 | KN |
| Total Dissolved Solids | 216 | mg/L | SM2540-C | 30 | 2018-09-27 | 13:00:00 | KN |
| Nitrate | 0.08 | mg/L | EPA 300.0 | 0.05 | 2018-09-26 | 07:09:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-09-26 | 07:09:00 | CH |
| Chloride, Cl | 11 | mg/L | EPA 300.0 | 1 | 2018-09-26 | 07:09:00 | CH |
| Sulfate, SO4 | 42 | mg/L | EPA 300.0 | 1 | 2018-09-26 | 07:09:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-09-26 | 07:09:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-10-02 | 12:00:00 | KN |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Boron, B - Dissolved | 0.05 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2018-10-02 | 12:00:00 | KN |

Kaitlyn Natelli
Lead Lab Tech



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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | RES-1 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Sep 22, 2018 | Sample Taken At: | RES-1 |
| Date Received: | Sep 25, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1323 |
| | | Time Received: | 750 |
| | | Mine: | 42 |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1809071-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Calcium, Ca - Dissolved | 36.06 | mg/L | EPA 200.7 | 0.03 | 2018-10-02 | 12:00:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Iron, Fe - Total | 0.31 | mg/L | EPA 200.7 | 0.05 | 2018-10-02 | 12:00:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-10-02 | 12:00:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Magnesium, Mg - Dissolved | 19.80 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Manganese, Mn - Total | 0.064 | mg/L | EPA 200.7 | 0.002 | 2018-10-02 | 12:00:00 | KN |
| Manganese, Mn - Dissolved | 0.004 | mg/L | EPA 200.7 | 0.002 | 2018-10-02 | 12:00:00 | KN |
| Molybdenum, Mo - Dissolved | 0.005 | mg/L | EPA 200.7 | 0.005 | 2018-10-02 | 12:00:00 | KN |
| Potassium, K - Dissolved | 2.90 | mg/L | EPA 200.7 | 0.14 | 2018-10-02 | 12:00:00 | KN |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2018-10-02 | 12:00:00 | KN |
| Sodium, Na - Dissolved | 20.32 | mg/L | EPA 200.7 | 0.09 | 2018-10-02 | 12:00:00 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2018-10-02 | 12:00:00 | KN |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MUD CREEK | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Sep 22, 2018 | Sample Taken At: | MUD CREEK |
| Date Received: | Sep 25, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1145 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Field - pH: | 6.7 pH |
| | | Field - Conductivity: | 720 umhos/cm |
| | | Field - Temperature: | 9.5 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1809071-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 278 | mg/L | SM2340-B | 1 | 2018-10-15 | 12:03:16 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2018-09-25 | 12:45:00 | BP |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2018-09-26 | 10:45:00 | HL |
| Cations | 6.50 | meq/L | SM1030E | 0 | 2018-10-15 | 12:03:16 | KN |
| Anions | 6.35 | meq/L | SM1030E | 0 | 2018-10-15 | 12:03:16 | KN |
| Balance | 1.11 | % | SM1030E | -10 | 2018-10-15 | 12:03:16 | KN |
| Alkalinity, mg CaCO3/L (pH 4.5) | 229 | mg/L | SM2320-B | 5 | 2018-10-01 | 12:35:00 | BP |
| Bicarbonate Alkalinity as CaCO3 | 225 | mg/L | SM2320-B | 5 | 2018-10-01 | 12:35:00 | BP |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2018-10-01 | 12:35:00 | BP |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2018-10-02 | 09:46:00 | BP |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2018-09-25 | 11:07:00 | BP |
| Total Suspended Solids | 6 | mg/L | SM2540-D | 5 | 2018-09-27 | 13:00:00 | KN |
| Total Dissolved Solids | 320 | mg/L | SM2540-C | 30 | 2018-09-27 | 13:00:00 | KN |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-09-26 | 07:09:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-09-26 | 07:09:00 | CH |
| Chloride, Cl | 19 | mg/L | EPA 300.0 | 1 | 2018-09-26 | 07:09:00 | CH |
| Sulfate, SO4 | 59 | mg/L | EPA 300.0 | 1 | 2018-09-26 | 07:09:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-09-26 | 07:09:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | 0.04 | mg/L | EPA 200.7 | 0.03 | 2018-10-02 | 12:00:00 | KN |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MUD CREEK | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Sep 22, 2018 | Sample Taken At: | MUD CREEK |
| Date Received: | Sep 25, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1145 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Field - pH: | 6.7 pH |
| | | Field - Conductivity: | 720 umhos/cm |
| | | Field - Temperature: | 9.5 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1809071-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Arsenic, As - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Boron, B - Dissolved | 0.09 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2018-10-02 | 12:00:00 | KN |
| Calcium, Ca - Dissolved | 61.49 | mg/L | EPA 200.7 | 0.03 | 2018-10-02 | 12:00:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Iron, Fe - Total | 0.18 | mg/L | EPA 200.7 | 0.05 | 2018-10-02 | 12:00:00 | KN |
| Iron, Fe - Dissolved | 0.17 | mg/L | EPA 200.7 | 0.03 | 2018-10-02 | 12:00:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Magnesium, Mg - Dissolved | 30.31 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Manganese, Mn - Total | 0.017 | mg/L | EPA 200.7 | 0.002 | 2018-10-02 | 12:00:00 | KN |
| Manganese, Mn - Dissolved | 0.017 | mg/L | EPA 200.7 | 0.002 | 2018-10-02 | 12:00:00 | KN |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2018-10-02 | 12:00:00 | KN |
| Potassium, K - Dissolved | 5.18 | mg/L | EPA 200.7 | 0.14 | 2018-10-02 | 12:00:00 | KN |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2018-10-02 | 12:00:00 | KN |
| Sodium, Na - Dissolved | 18.42 | mg/L | EPA 200.7 | 0.09 | 2018-10-02 | 12:00:00 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2018-10-02 | 12:00:00 | KN |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-12 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Sep 22, 2018 | Sample Taken At: | CR-10-12 |
| Date Received: | Sep 25, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1115 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Field - pH: | 6.2 pH |
| | | Field - Conductivity: | 464 umhos/cm |
| | | Field - Temperature: | 8.9 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1809070-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 232 | mg/L | SM2340-B | 1 | 2018-10-15 | 12:03:16 | KN |
| Acidity | 6 | mg/L | D1067 | 5 | 2018-09-25 | 12:45:00 | BP |
| Cations | 5.25 | meq/L | SM1030E | 0 | 2018-10-15 | 12:03:16 | KN |
| Anions | 5.28 | meq/L | SM1030E | 0 | 2018-10-15 | 12:03:16 | KN |
| Balance | -0.32 | % | SM1030E | -10 | 2018-10-15 | 12:03:16 | KN |
| Alkalinity, mg CaCO3/L (pH 4.5) | 188 | mg/L | SM2320-B | 5 | 2018-10-01 | 12:28:00 | BP |
| Bicarbonate Alkalinity as CaCO3 | 188 | mg/L | SM2320-B | 5 | 2018-10-01 | 12:28:00 | BP |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2018-10-01 | 12:28:00 | BP |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2018-10-02 | 09:46:00 | BP |
| Settleable Solids | 28.0 | mL/L | SM2540-F a | 0.1 | 2018-09-25 | 11:07:00 | BP |
| Total Suspended Solids | 5130 | mg/L | SM2540-D | 5 | 2018-09-27 | 13:00:00 | KN |
| Total Dissolved Solids | 240 | mg/L | SM2540-C | 30 | 2018-09-27 | 13:00:00 | KN |
| Nitrate | 4.76 | mg/L | EPA 300.0 | 0.05 | 2018-09-26 | 07:09:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-09-26 | 07:09:00 | CH |
| Chloride, Cl | 18 | mg/L | EPA 300.0 | 1 | 2018-09-26 | 07:09:00 | CH |
| Sulfate, SO4 | 49 | mg/L | EPA 300.0 | 1 | 2018-09-26 | 07:09:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-09-26 | 07:09:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | 0.22 | mg/L | EPA 200.7 | 0.03 | 2018-10-02 | 12:00:00 | KN |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-12 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Sep 22, 2018 | Sample Taken At: | CR-10-12 |
| Date Received: | Sep 25, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1115 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Field - pH: | 6.2 pH |
| | | Field - Conductivity: | 464 umhos/cm |
| | | Field - Temperature: | 8.9 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1809070-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Boron, B - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2018-10-02 | 12:00:00 | KN |
| Calcium, Ca - Dissolved | 81.25 | mg/L | EPA 200.7 | 0.03 | 2018-10-02 | 12:00:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Iron, Fe - Total | 69.25 | mg/L | EPA 200.7 | 0.05 | 2018-10-02 | 12:00:00 | KN |
| Iron, Fe - Dissolved | 0.08 | mg/L | EPA 200.7 | 0.03 | 2018-10-02 | 12:00:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Magnesium, Mg - Dissolved | 7.07 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Manganese, Mn - Total | 0.979 | mg/L | EPA 200.7 | 0.002 | 2018-10-02 | 12:00:00 | KN |
| Manganese, Mn - Dissolved | 0.007 | mg/L | EPA 200.7 | 0.002 | 2018-10-02 | 12:00:00 | KN |
| Molybdenum, Mo - Dissolved | 0.005 | mg/L | EPA 200.7 | 0.005 | 2018-10-02 | 12:00:00 | KN |
| Potassium, K - Dissolved | 1.04 | mg/L | EPA 200.7 | 0.14 | 2018-10-02 | 12:00:00 | KN |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2018-10-02 | 12:00:00 | KN |
| Sodium, Na - Dissolved | 13.46 | mg/L | EPA 200.7 | 0.09 | 2018-10-02 | 12:00:00 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2018-10-02 | 12:00:00 | KN |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | SULFUR SPRING | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Sep 22, 2018 | Sample Taken At: | SULFUR SPRING |
| Date Received: | Sep 25, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1205 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Field - pH: | 6.3 pH |
| | | Field - Conductivity: | 660 umhos/cm |
| | | Field - Temperature: | 14 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1809070-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 381 | mg/L | SM2340-B | 1 | 2018-10-15 | 12:03:16 | KN |
| Acidity | 33 | mg/L | D1067 | 5 | 2018-09-25 | 12:45:00 | BP |
| Cations | 8.09 | meq/L | SM1030E | 0 | 2018-10-15 | 12:03:16 | KN |
| Anions | 8.55 | meq/L | SM1030E | 0 | 2018-10-15 | 12:03:16 | KN |
| Balance | -2.78 | % | SM1030E | -10 | 2018-10-15 | 12:03:16 | KN |
| Alkalinity, mg CaCO3/L (pH 4.5) | 337 | mg/L | SM2320-B | 5 | 2018-10-01 | 12:28:00 | BP |
| Bicarbonate Alkalinity as CaCO3 | 367 | mg/L | SM2320-B | 5 | 2018-10-01 | 12:28:00 | BP |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2018-10-01 | 12:28:00 | BP |
| Nitrogen, Ammonia | 0.2 | mg/L | SM4500-B-D | 0.1 | 2018-10-02 | 09:46:00 | BP |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2018-09-25 | 11:07:00 | BP |
| Total Suspended Solids | <5 | mg/L | SM2540-D | 5 | 2018-09-27 | 13:00:00 | KN |
| Total Dissolved Solids | 379 | mg/L | SM2540-C | 30 | 2018-09-27 | 13:00:00 | KN |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-09-26 | 07:09:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-09-26 | 07:09:00 | CH |
| Chloride, Cl | 7 | mg/L | EPA 300.0 | 1 | 2018-09-26 | 07:09:00 | CH |
| Sulfate, SO4 | 49 | mg/L | EPA 300.0 | 1 | 2018-09-26 | 07:09:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-09-26 | 07:09:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-10-02 | 12:00:00 | KN |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |

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## Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | SULFUR SPRING | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Sep 22, 2018 | Sample Taken At: | SULFUR SPRING |
| Date Received: | Sep 25, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1205 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Field - pH: | 6.3 pH |
| | | Field - Conductivity: | 660 umhos/cm |
| | | Field - Temperature: | 14 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1809070-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Boron, B - Dissolved | 0.05 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2018-10-02 | 12:00:00 | KN |
| Calcium, Ca - Dissolved | 90.50 | mg/L | EPA 200.7 | 0.03 | 2018-10-02 | 12:00:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Iron, Fe - Total | <0.05 | mg/L | EPA 200.7 | 0.05 | 2018-10-02 | 12:00:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-10-02 | 12:00:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Magnesium, Mg - Dissolved | 37.73 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Manganese, Mn - Total | 0.031 | mg/L | EPA 200.7 | 0.002 | 2018-10-02 | 12:00:00 | KN |
| Manganese, Mn - Dissolved | 0.028 | mg/L | EPA 200.7 | 0.002 | 2018-10-02 | 12:00:00 | KN |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2018-10-02 | 12:00:00 | KN |
| Potassium, K - Dissolved | 5.05 | mg/L | EPA 200.7 | 0.14 | 2018-10-02 | 12:00:00 | KN |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2018-10-02 | 12:00:00 | KN |
| Sodium, Na - Dissolved | 7.85 | mg/L | EPA 200.7 | 0.09 | 2018-10-02 | 12:00:00 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2018-10-02 | 12:00:00 | KN |

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SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

Member of the SGS Group (Société Générale de Surveillance)

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-11 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Sep 22, 2018 | Sample Taken At: | CR-10-11 |
| Date Received: | Sep 25, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1241 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Field - pH: | 6.9 pH |
| | | Field - Conductivity: | 660 umhos/cm |
| | | Field - Temperature: | 8.8 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1809070-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 255 | mg/L | SM2340-B | 1 | 2018-10-15 | 12:03:16 | KN |
| Acidity | 12 | mg/L | D1067 | 5 | 2018-09-25 | 12:45:00 | BP |
| Cations | 5.54 | meq/L | SM1030E | 0 | 2018-10-15 | 12:03:16 | KN |
| Anions | 5.40 | meq/L | SM1030E | 0 | 2018-10-15 | 12:03:16 | KN |
| Balance | 1.25 | % | SM1030E | -10 | 2018-10-15 | 12:03:16 | KN |
| Alkalinity, mg CaCO3/L (pH 4.5) | 217 | mg/L | SM2320-B | 5 | 2018-10-01 | 12:28:00 | BP |
| Bicarbonate Alkalinity as CaCO3 | 217 | mg/L | SM2320-B | 5 | 2018-10-01 | 12:28:00 | BP |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2018-10-01 | 12:28:00 | BP |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2018-10-02 | 09:46:00 | BP |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2018-09-25 | 11:07:00 | BP |
| Total Suspended Solids | 34 | mg/L | SM2540-D | 5 | 2018-09-27 | 13:00:00 | KN |
| Total Dissolved Solids | 296 | mg/L | SM2540-C | 30 | 2018-09-27 | 13:00:00 | KN |
| Nitrate | 2.54 | mg/L | EPA 300.0 | 0.05 | 2018-09-26 | 07:09:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-09-26 | 07:09:00 | CH |
| Chloride, Cl | 17 | mg/L | EPA 300.0 | 1 | 2018-09-26 | 07:09:00 | CH |
| Sulfate, SO4 | 28 | mg/L | EPA 300.0 | 1 | 2018-09-26 | 07:09:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2018-09-26 | 07:09:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-10-02 | 12:00:00 | KN |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |

Kaitlyn Natelli
Lead Lab Tech



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## Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | CR-10-11 | Sample ID By: | Carbon Resources LLC |
| Date Sampled: | Sep 22, 2018 | Sample Taken At: | CR-10-11 |
| Date Received: | Sep 25, 2018 | Sample Taken By: | SG |
| Product Description: | WATER | Time Sampled: | 1241 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Field - pH: | 6.9 pH |
| | | Field - Conductivity: | 660 umhos/cm |
| | | Field - Temperature: | 8.8 Deg C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1809070-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2018-10-02 | 12:00:00 | KN |
| Calcium, Ca - Dissolved | 81.61 | mg/L | EPA 200.7 | 0.03 | 2018-10-02 | 12:00:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Iron, Fe - Total | 0.05 | mg/L | EPA 200.7 | 0.05 | 2018-10-02 | 12:00:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2018-10-02 | 12:00:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Magnesium, Mg - Dissolved | 12.39 | mg/L | EPA 200.7 | 0.01 | 2018-10-02 | 12:00:00 | KN |
| Manganese, Mn - Total | 0.003 | mg/L | EPA 200.7 | 0.002 | 2018-10-02 | 12:00:00 | KN |
| Manganese, Mn - Dissolved | 0.002 | mg/L | EPA 200.7 | 0.002 | 2018-10-02 | 12:00:00 | KN |
| Molybdenum, Mo - Dissolved | 0.005 | mg/L | EPA 200.7 | 0.005 | 2018-10-02 | 12:00:00 | KN |
| Potassium, K - Dissolved | 1.16 | mg/L | EPA 200.7 | 0.14 | 2018-10-02 | 12:00:00 | KN |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2018-10-02 | 12:00:00 | KN |
| Sodium, Na - Dissolved | 9.53 | mg/L | EPA 200.7 | 0.09 | 2018-10-02 | 12:00:00 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2018-10-02 | 12:00:00 | KN |

Kaitlyn Natelli
Lead Lab Tech



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SGS

# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MUD CREEK | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | MUD CREEK |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1615 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 18 |
| | | Field - pH: | 7.9 pH |
| | | Field - Conductivity: | 610 umhos/cm |
| | | Field - Temperature: | 17.3 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 253 | mg/L | SM2340-B | 1 | 2017-07-25 | 14:27:06 | Cv |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2017-07-25 | 11:30:00 | CH |
| Acidity | -224 | meq/L | D1067 | -999 | 2017-07-12 | 06:30:00 | CH |
| Anions | 7.00 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Balance | 1.50 | % | SM1030E | -10 | 2017-07-25 | 14:27:06 | Cv |
| Cations | 7.21 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Alkalinity, mg CaCO3/L (pH 4.5) | 225 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Bicarbonate Alkalinity as CaCO3 | 216 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Carbonate Alkalinity as CaCO3 | 9 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-07-27 | 13:43:02 | SM |
| Total Dissolved Solids | 394 | mg/L | SM2540-C | 30 | 2017-07-14 | 12:50:00 | TI |
| Total Suspended Solids | 30 | mg/L | SM2540-D | 5 | 2017-07-14 | 12:14:00 | TI |
| Settleable Solids | 0.3 | mL/L | SM2540-F a | 0.1 | 2017-06-30 | 14:35:00 | TI |
| Nitrate | 0.18 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 19:41:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 19:41:00 | CH |
| Nitrate + Nitrite as Nitrogen | 1.08 | mg/L | EPA 300.0 | 0.05 | 2017-07-14 | 23:02:00 | CH |
| Chloride, Cl | 16 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 19:41:00 | CH |
| Sulfate, SO4 | 99 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 19:41:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 19:41:00 | CH |

Coco van den Bergh
Branch Manager



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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MUD CREEK | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | MUD CREEK |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1615 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 18 |
| | | Field - pH: | 7.9 pH |
| | | Field - Conductivity: | 610 umhos/cm |
| | | Field - Temperature: | 17.3 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:45 | JJ |
| Arsenic, As - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Boron, B - Dissolved | 0.11 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-07-18 | 14:46:45 | JJ |
| Calcium, Ca - Dissolved | 61.61 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:45 | JJ |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Iron, Fe - Total | 0.35 | mg/L | EPA 200.7 | 0.05 | 2017-07-14 | 14:46:09 | JJ |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:45 | JJ |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Magnesium, Mg - Total | 25.31 | mg/L | EPA 200.7 | 0.01 | 2017-07-14 | 14:46:09 | JJ |
| Magnesium, Mg - Dissolved | 24.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Manganese, Mn - Dissolved | 0.012 | mg/L | EPA 200.7 | 0.002 | 2017-07-18 | 14:46:45 | JJ |
| Manganese, Mn - Total | 0.034 | mg/L | EPA 200.7 | 0.002 | 2017-07-14 | 14:46:09 | JJ |
| Molybdenum, Mo - Dissolved | 0.009 | mg/L | EPA 200.7 | 0.005 | 2017-07-18 | 14:46:45 | JJ |
| Potassium, K - Dissolved | 4.82 | mg/L | EPA 200.7 | 0.14 | 2017-07-18 | 14:46:45 | JJ |
| Selenium, Se - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.02 | 2017-07-18 | 14:46:45 | JJ |
| Sodium, Na - Dissolved | 46.91 | mg/L | EPA 200.7 | 0.09 | 2017-07-18 | 14:46:45 | JJ |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-07-18 | 14:46:45 | JJ |

Coco van den Bergh
Branch Manager

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

Member of the SGS Group (Société Générale de Surveillance)

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MILLER OUTLET | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | MILLER OUTLET |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1800 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 17 |
| | | Field - pH: | 7.0 pH |
| | | Field - Flow: | 42 gpm |
| | | Field - Conductivity: | 450 umhos/cm |
| | | Field - Temperature: | 17.8 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 264 | mg/L | SM2340-B | 1 | 2017-07-25 | 14:27:06 | Cv |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2017-07-25 | 11:30:00 | CH |
| Acidity | -226 | meq/L | D1067 | -999 | 2017-07-12 | 06:30:00 | CH |
| Anions | 5.19 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Balance | 3.81 | % | SM1030E | -10 | 2017-07-25 | 14:27:06 | Cv |
| Cations | 5.60 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Alkalinity, mg CaCO3/L (pH 4.5) | 223 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Bicarbonate Alkalinity as CaCO3 | 223 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-07-27 | 13:43:02 | SM |
| Total Dissolved Solids | 291 | mg/L | SM2540-C | 30 | 2017-07-14 | 12:50:00 | TI |
| Total Suspended Solids | 22 | mg/L | SM2540-D | 5 | 2017-07-14 | 12:14:00 | TI |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2017-06-30 | 14:35:00 | TI |
| Nitrate | 0.09 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 20:21:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 20:21:00 | CH |
| Nitrate + Nitrite as Nitrogen | 0.10 | mg/L | EPA 300.0 | 0.05 | 2017-07-14 | 23:41:00 | CH |
| Chloride, Cl | 8 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 20:21:00 | CH |
| Sulfate, SO4 | 24 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 20:21:00 | CH |

Coco van den Bergh
Branch Manager

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MILLER OUTLET | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | MILLER OUTLET |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1800 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 17 |
| | | Field - pH: | 7.0 pH |
| | | Field - Flow: | 42 gpm |
| | | Field - Conductivity: | 450 umhos/cm |
| | | Field - Temperature: | 17.8 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 20:21:00 | CH |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:45 | JJ |
| Arsenic, As - Dissolved | 0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Boron, B - Dissolved | 0.04 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-07-18 | 14:46:45 | JJ |
| Calcium, Ca - Dissolved | 77.81 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:45 | JJ |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Iron, Fe - Total | 0.60 | mg/L | EPA 200.7 | 0.05 | 2017-07-14 | 14:46:10 | JJ |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:45 | JJ |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Magnesium, Mg - Total | 17.19 | mg/L | EPA 200.7 | 0.01 | 2017-07-14 | 14:46:10 | JJ |
| Magnesium, Mg - Dissolved | 17.04 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:45 | JJ |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2017-07-18 | 14:46:45 | JJ |
| Manganese, Mn - Total | 0.045 | mg/L | EPA 200.7 | 0.002 | 2017-07-14 | 14:46:10 | JJ |
| Molybdenum, Mo - Dissolved | 0.008 | mg/L | EPA 200.7 | 0.005 | 2017-07-18 | 14:46:45 | JJ |
| Potassium, K - Dissolved | 1.64 | mg/L | EPA 200.7 | 0.14 | 2017-07-18 | 14:46:45 | JJ |
| Selenium, Se - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.02 | 2017-07-18 | 14:46:45 | JJ |

Coco van den Bergh
Branch Manager



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## Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | MILLER OUTLET | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | MILLER OUTLET |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1800 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 17 |
| | | Field - pH: | 7.0 pH |
| | | Field - Flow: | 42 gpm |
| | | Field - Conductivity: | 450 umhos/cm |
| | | Field - Temperature: | 17.8 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Sodium, Na - Dissolved | 6.33 | mg/L | EPA 200.7 | 0.09 | 2017-07-18 | 14:46:45 | JJ |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-07-18 | 14:46:45 | JJ |

Coco van den Bergh
Branch Manager



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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | RES-1 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | RES-1 |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1830 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 19 |
| | | Field - pH: | 8.0 pH |
| | | Field - Conductivity: | 420 umhos/cm |
| | | Field - Temperature: | 18.7 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 210 | mg/L | SM2340-B | 1 | 2017-07-25 | 14:27:06 | Cv |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2017-07-25 | 11:20:00 | CH |
| Acidity | -188 | meq/L | D1067 | -999 | 2017-07-12 | 06:30:00 | CH |
| Anions | 4.77 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Balance | 1.75 | % | SM1030E | -10 | 2017-07-25 | 14:27:06 | Cv |
| Cations | 4.94 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Alkalinity, mg CaCO3/L (pH 4.5) | 190 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Bicarbonate Alkalinity as CaCO3 | 190 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-07-27 | 13:43:02 | SM |
| Total Dissolved Solids | 265 | mg/L | SM2540-C | 30 | 2017-07-14 | 12:50:00 | TI |
| Total Suspended Solids | 15 | mg/L | SM2540-D | 5 | 2017-07-14 | 12:14:00 | TI |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2017-06-30 | 14:35:00 | TI |
| Nitrate | 0.13 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 20:41:00 | CH |
| Nitrite | 0.15 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 20:41:00 | CH |
| Nitrate + Nitrite as Nitrogen | 0.07 | mg/L | EPA 300.0 | 0.05 | 2017-07-15 | 00:21:00 | CH |
| Chloride, Cl | 8 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 20:41:00 | CH |
| Sulfate, SO4 | 35 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 20:41:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 20:41:00 | CH |

Coco van den Bergh
Branch Manager



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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | RES-1 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | RES-1 |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1830 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 19 |
| | | Field - pH: | 8.0 pH |
| | | Field - Conductivity: | 420 umhos/cm |
| | | Field - Temperature: | 18.7 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:46 | JJ |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:46 | JJ |
| Boron, B - Dissolved | 0.04 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:46 | JJ |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-07-18 | 14:46:46 | JJ |
| Calcium, Ca - Dissolved | 58.85 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:46 | JJ |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:46 | JJ |
| Iron, Fe - Total | 0.09 | mg/L | EPA 200.7 | 0.05 | 2017-07-14 | 14:46:10 | JJ |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:46 | JJ |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:46 | JJ |
| Magnesium, Mg - Total | 15.57 | mg/L | EPA 200.7 | 0.01 | 2017-07-14 | 14:46:10 | JJ |
| Magnesium, Mg - Dissolved | 15.42 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:46 | JJ |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2017-07-18 | 14:46:46 | JJ |
| Manganese, Mn - Total | 0.011 | mg/L | EPA 200.7 | 0.002 | 2017-07-14 | 14:46:10 | JJ |
| Molybdenum, Mo - Dissolved | 0.009 | mg/L | EPA 200.7 | 0.005 | 2017-07-18 | 14:46:46 | JJ |
| Potassium, K - Dissolved | 2.10 | mg/L | EPA 200.7 | 0.14 | 2017-07-18 | 14:46:46 | JJ |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2017-07-18 | 14:46:46 | JJ |
| Sodium, Na - Dissolved | 15.57 | mg/L | EPA 200.7 | 0.09 | 2017-07-18 | 14:46:46 | JJ |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-07-18 | 14:46:46 | JJ |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | ASPEN SPRING | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | ASPEN SPRING |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1340 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 12 |
| | | Field - pH: | 5.7 pH |
| | | Field - Flow: | 0.26 gpm |
| | | Field - Conductivity: | 500 umhos/cm |
| | | Field - Temperature: | 10.0 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-004**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 339 | mg/L | SM2340-B | 1 | 2017-07-25 | 14:27:06 | Cv |
| Acidity | -286 | meq/L | D1067 | -999 | 2017-07-12 | 06:30:00 | CH |
| Anions | 6.54 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Balance | 4.57 | % | SM1030E | -10 | 2017-07-25 | 14:27:06 | Cv |
| Cations | 7.16 | meq/L | SM1030E | 0 | 2017-07-25 | 14:27:06 | Cv |
| Alkalinity, mg CaCO3/L (pH 4.5) | 279 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Bicarbonate Alkalinity as CaCO3 | 279 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-07-19 | 13:51:00 | SM |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-07-27 | 13:43:02 | SM |
| Total Dissolved Solids | 368 | mg/L | SM2540-C | 30 | 2017-07-14 | 12:50:00 | TI |
| Total Suspended Solids | <5 | mg/L | SM2540-D | 5 | 2017-07-14 | 12:14:00 | TI |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2017-06-30 | 14:35:00 | TI |
| Nitrate | 3.15 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 21:01:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 21:01:00 | CH |
| Nitrate + Nitrite as Nitrogen | 4.17 | mg/L | EPA 300.0 | 0.05 | 2017-07-15 | 01:01:00 | CH |
| Chloride, Cl | 22 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 21:01:00 | CH |
| Sulfate, SO4 | 17 | mg/L | EPA 300.0 | 1 | 2017-07-16 | 21:01:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-07-16 | 21:01:00 | CH |

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## Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | ASPEN SPRING | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Jun 29, 2017 | Sample Taken At: | ASPEN SPRING |
| Date Received: | Jun 30, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1340 |
| | | Time Received: | 750 |
| | | Mine: | 42 |
| | | Site: | 12 |
| | | Field - pH: | 5.7 pH |
| | | Field - Flow: | 0.26 gpm |
| | | Field - Conductivity: | 500 umhos/cm |
| | | Field - Temperature: | 10.0 Deg.C |

Comments: Dissolved Metals Filtered at Lab. Nitrate, Nitrite, Orthophos expired when analyzed.

**SGS Minerals Sample ID: 782-1749556-004**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:47 | JJ |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:47 | JJ |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:47 | JJ |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-07-18 | 14:46:47 | JJ |
| Calcium, Ca - Dissolved | 113.80 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:47 | JJ |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:47 | JJ |
| Iron, Fe - Total | <0.05 | mg/L | EPA 200.7 | 0.05 | 2017-07-14 | 14:46:11 | JJ |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-07-18 | 14:46:47 | JJ |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:47 | JJ |
| Magnesium, Mg - Total | 13.23 | mg/L | EPA 200.7 | 0.01 | 2017-07-14 | 14:46:11 | JJ |
| Magnesium, Mg - Dissolved | 13.32 | mg/L | EPA 200.7 | 0.01 | 2017-07-18 | 14:46:47 | JJ |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2017-07-18 | 14:46:47 | JJ |
| Manganese, Mn - Total | <0.002 | mg/L | EPA 200.7 | 0.002 | 2017-07-14 | 14:46:11 | JJ |
| Molybdenum, Mo - Dissolved | 0.009 | mg/L | EPA 200.7 | 0.005 | 2017-07-18 | 14:46:47 | JJ |
| Potassium, K - Dissolved | 2.12 | mg/L | EPA 200.7 | 0.14 | 2017-07-18 | 14:46:47 | JJ |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2017-07-18 | 14:46:47 | JJ |
| Sodium, Na - Dissolved | 7.73 | mg/L | EPA 200.7 | 0.09 | 2017-07-18 | 14:46:47 | JJ |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-07-18 | 14:46:47 | JJ |

Coco van den Bergh
Branch Manager



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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Miller Outlet | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | Miller Outlet |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1200 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Site: | 17 |
| | | Field - pH: | 6.9 pH Units |
| | | Field - Flow: | 23 gpm |
| | | Field - Conductivity: | 600 umhos/cm |
| | | Field - Temperature: | 0.4 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754954-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 331 | mg/L | SM2340-B | 1 | 2017-12-15 | 10:01:00 | KN |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2017-12-08 | 12:30:00 | CH |
| Anions | 6.86 | meq/L | SM1030E | 0 | 2017-12-15 | 10:01:00 | KN |
| Balance | 1.41 | % | SM1030E | -10 | 2017-12-15 | 10:01:00 | KN |
| Cations | 7.06 | meq/L | SM1030E | 0 | 2017-12-15 | 10:01:00 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2017-12-05 | 08:20:00 | CH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 293 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Bicarbonate Alkalinity as CaCO3 | 293 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-12-13 | 09:00:00 | AH |
| Total Dissolved Solids | 355 | mg/L | SM2540-C | 30 | 2017-12-04 | 14:44:29 | KN |
| Total Suspended Solids | 13 | mg/L | SM2540-D | 5 | 2017-12-04 | 15:11:00 | KN |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2017-12-01 | 10:00:00 | KN |
| Nitrate | 0.24 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 18:16:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 18:16:00 | CH |
| Chloride, Cl | 33 | mg/L | EPA 300.0 | 1 | 2017-12-14 | 15:12:00 | CH |
| Sulfate, SO4 | 11 | mg/L | EPA 300.0 | 1 | 2017-12-14 | 15:12:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 18:16:00 | CH |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Miller Outlet | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | Miller Outlet |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1200 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Site: | 17 |
| | | Field - pH: | 6.9 pH Units |
| | | Field - Flow: | 23 gpm |
| | | Field - Conductivity: | 600 umhos/cm |
| | | Field - Temperature: | 0.4 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754954-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-12-07 | 10:10:00 | KN |
| Calcium, Ca - Dissolved | 100.10 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Iron, Fe - Total | 0.25 | mg/L | EPA 200.7 | 0.05 | 2017-12-07 | 10:10:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Magnesium, Mg - Dissolved | 19.80 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Manganese, Mn - Dissolved | 0.005 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:10:00 | KN |
| Manganese, Mn - Total | 0.026 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:10:00 | KN |
| Molybdenum, Mo - Dissolved | 0.009 | mg/L | EPA 200.7 | 0.005 | 2017-12-07 | 10:10:00 | KN |
| Potassium, K - Dissolved | 3.16 | mg/L | EPA 200.7 | 0.14 | 2017-12-07 | 10:10:00 | KN |
| Selenium, Se - Dissolved | 0.08 | mg/L | EPA 200.7 | 0.02 | 2017-12-07 | 10:10:00 | KN |
| Sodium, Na - Dissolved | 8.12 | mg/L | EPA 200.7 | 0.09 | 2017-12-07 | 10:10:00 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-12-07 | 10:10:00 | KN |

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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Mud Creek | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | Mud Creek |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1315 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Site: | 18 |
| | | Field - pH: | 7.1 pH Units |
| | | Field - Conductivity: | 890 umhos/cm |
| | | Field - Temperature: | 2.3 Deg.C |
| | | Labname: | Other |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754954-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 293 | mg/L | SM2340-B | 1 | 2017-12-15 | 10:01:00 | KN |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2017-12-08 | 12:30:00 | CH |
| Anions | 10.21 | meq/L | SM1030E | 0 | 2017-12-15 | 10:01:00 | KN |
| Balance | -1.39 | % | SM1030E | -10 | 2017-12-15 | 10:01:00 | KN |
| Cations | 9.93 | meq/L | SM1030E | 0 | 2017-12-15 | 10:01:00 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2017-12-05 | 08:20:00 | CH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 288 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Bicarbonate Alkalinity as CaCO3 | 276 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Carbonate Alkalinity as CaCO3 | 12 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-12-13 | 09:00:00 | AH |
| Total Dissolved Solids | 558 | mg/L | SM2540-C | 30 | 2017-12-04 | 14:44:29 | KN |
| Total Suspended Solids | <5 | mg/L | SM2540-D | 5 | 2017-12-04 | 15:11:00 | KN |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2017-12-01 | 10:00:00 | KN |
| Nitrate | 2.17 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 19:14:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 19:14:00 | CH |
| Chloride, Cl | 16 | mg/L | EPA 300.0 | 1 | 2017-12-14 | 18:42:00 | CH |
| Sulfate, SO4 | 193 | mg/L | EPA 300.0 | 1 | 2017-12-14 | 18:42:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 19:14:00 | CH |

Coco van den Bergh
Branch Manager



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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Mud Creek | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | Mud Creek |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1315 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Site: | 18 |
| | | Field - pH: | 7.1 pH Units |
| | | Field - Conductivity: | 890 umhos/cm |
| | | Field - Temperature: | 2.3 Deg.C |
| | | Labname: | Other |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754954-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Boron, B - Dissolved | 0.19 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-12-07 | 10:10:00 | KN |
| Calcium, Ca - Dissolved | 63.44 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Iron, Fe - Total | 0.16 | mg/L | EPA 200.7 | 0.05 | 2017-12-07 | 10:10:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Magnesium, Mg - Dissolved | 32.65 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Manganese, Mn - Dissolved | 0.003 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:10:00 | KN |
| Manganese, Mn - Total | 0.013 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:10:00 | KN |
| Molybdenum, Mo - Dissolved | 0.008 | mg/L | EPA 200.7 | 0.005 | 2017-12-07 | 10:10:00 | KN |
| Potassium, K - Dissolved | 9.19 | mg/L | EPA 200.7 | 0.14 | 2017-12-07 | 10:10:00 | KN |
| Selenium, Se - Dissolved | 0.10 | mg/L | EPA 200.7 | 0.02 | 2017-12-07 | 10:10:00 | KN |
| Sodium, Na - Dissolved | 88.28 | mg/L | EPA 200.7 | 0.09 | 2017-12-07 | 10:10:00 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-12-07 | 10:10:00 | KN |

Coco van den Bergh
Branch Manager



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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Res 1 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | Res 1 |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1530 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Site: | 19 |
| | | Field - pH: | 7.9 pH Units |
| | | Field - Conductivity: | 420 umhos/cm |
| | | Field - Temperature: | 4.2 Deg.C |
| | | Labname: | Other |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754954-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 206 | mg/L | SM2340-B | 1 | 2017-12-15 | 10:01:00 | KN |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2017-12-08 | 12:30:00 | CH |
| Anions | 5.03 | meq/L | SM1030E | 0 | 2017-12-15 | 10:01:00 | KN |
| Balance | -0.11 | % | SM1030E | -10 | 2017-12-15 | 10:01:00 | KN |
| Cations | 5.02 | meq/L | SM1030E | 0 | 2017-12-15 | 10:01:00 | KN |
| Acidity | <5 | mg/L | D1067 | 5 | 2017-12-05 | 08:20:00 | CH |
| Alkalinity, mg CaCO3/L (pH 4.5) | 192 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Bicarbonate Alkalinity as CaCO3 | 186 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Carbonate Alkalinity as CaCO3 | 6 | mg/L | SM2320-B | 5 | 2017-12-01 | 08:40:00 | AH |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2017-12-13 | 09:00:00 | AH |
| Total Dissolved Solids | 250 | mg/L | SM2540-C | 30 | 2017-12-04 | 14:44:29 | KN |
| Total Suspended Solids | 7 | mg/L | SM2540-D | 5 | 2017-12-04 | 15:11:00 | KN |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2017-12-01 | 10:00:00 | KN |
| Nitrate | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 19:33:00 | CH |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 19:33:00 | CH |
| Chloride, Cl | 7 | mg/L | EPA 300.0 | 1 | 2017-12-01 | 19:33:00 | CH |
| Sulfate, SO4 | 48 | mg/L | EPA 300.0 | 1 | 2017-12-01 | 19:33:00 | CH |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2017-12-01 | 19:33:00 | CH |

Coco van den Bergh
Branch Manager



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# Analysis Report

November 14, 2018

**CARBON RESOURCES LLC**
3019 COUNTRY CLUB DRIVE
PUEBLO CO 81008



| | | | |
|---|---|---|---|
| Client Sample ID: | Res 1 | Sample ID By: | CARBON RESOURCES LLC |
| Date Sampled: | Nov 30, 2017 | Sample Taken At: | Res 1 |
| Date Received: | Dec 1, 2017 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1530 |
| | | Time Received: | 705 |
| | | Mine: | 42 |
| | | Site: | 19 |
| | | Field - pH: | 7.9 pH Units |
| | | Field - Conductivity: | 420 umhos/cm |
| | | Field - Temperature: | 4.2 Deg.C |
| | | Labname: | Other |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1754954-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Boron, B - Dissolved | 0.05 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2017-12-07 | 10:10:00 | KN |
| Calcium, Ca - Dissolved | 54.06 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2017-12-07 | 10:10:00 | KN |
| Iron, Fe - Total | <0.05 | mg/L | EPA 200.7 | 0.05 | 2017-12-07 | 10:10:00 | KN |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Magnesium, Mg - Dissolved | 17.16 | mg/L | EPA 200.7 | 0.01 | 2017-12-07 | 10:10:00 | KN |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:10:00 | KN |
| Manganese, Mn - Total | 0.009 | mg/L | EPA 200.7 | 0.002 | 2017-12-07 | 10:10:00 | KN |
| Molybdenum, Mo - Dissolved | 0.008 | mg/L | EPA 200.7 | 0.005 | 2017-12-07 | 10:10:00 | KN |
| Potassium, K - Dissolved | 2.74 | mg/L | EPA 200.7 | 0.14 | 2017-12-07 | 10:10:00 | KN |
| Selenium, Se - Dissolved | 0.07 | mg/L | EPA 200.7 | 0.02 | 2017-12-07 | 10:10:00 | KN |
| Sodium, Na - Dissolved | 19.25 | mg/L | EPA 200.7 | 0.09 | 2017-12-07 | 10:10:00 | KN |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2017-12-07 | 10:10:00 | KN |

Coco van den Bergh
Branch Manager



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | JC-23 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | JC-23 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1045 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.4 pH Units |
| | | Field - Flow: | 23.3 GPM |
| | | Field - Conductivity: | 330 umhos/cm |
| | | Field - Temperature: | 5.4 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 207 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2012-10-19 | 07:15:00 | CM |
| Anions | 4.02 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 4.09 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 4.36 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | <5 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 169 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 169 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-18 | 07:30:00 | AL |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2012-10-15 | 09:00:00 | AL |
| Total Dissolved Solids | 210 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Total Suspended Solids | 10 | mg/L | SM2540-D | 5 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 0.30 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 5 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 24 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | 0.07 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |

**METALS BY ICP**

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | JC-23 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | JC-23 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1045 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.4 pH Units |
| | | Field - Flow: | 23.3 GPM |
| | | Field - Conductivity: | 330 umhos/cm |
| | | Field - Temperature: | 5.4 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-001**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Boron, B - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | CM |
| Calcium, Ca - Dissolved | 64.55 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Total | 0.89 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | CM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Magnesium, Mg - Dissolved | 11.13 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Dissolved | 0.012 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Total | 0.021 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | CM |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | CM |
| Potassium, K - Dissolved | 2.28 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | CM |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | CM |
| Sodium, Na - Dissolved | 3.86 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | CM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | LC-42 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | LC-42 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1130 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.6 pH Units |
| | | Field - Flow: | 269 GPM |
| | | Field - Conductivity: | 520 umhos/cm |
| | | Field - Temperature: | 11.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 256 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2012-10-19 | 07:15:00 | CM |
| Anions | 5.20 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 2.16 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 5.43 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | <5 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 228 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 228 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-18 | 07:30:00 | AL |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2012-10-15 | 09:00:00 | AL |
| Total Dissolved Solids | 264 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Total Suspended Solids | 7 | mg/L | SM2540-D | 5 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 0.62 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | 0.14 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 9 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 18 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | 0.07 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |

**METALS BY ICP**

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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SGS

# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | LC-42 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | LC-42 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1130 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.6 pH Units |
| | | Field - Flow: | 269 GPM |
| | | Field - Conductivity: | 520 umhos/cm |
| | | Field - Temperature: | 11.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-002**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | AL |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Boron, B - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | AL |
| Calcium, Ca - Dissolved | 78.38 | mg/L | EPA 200.7 | 0.03 | 2012-11-06 | 17:25:00 | AL |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | AL |
| Iron, Fe - Total | 0.21 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | AL |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Magnesium, Mg - Dissolved | 14.73 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Manganese, Mn - Dissolved | 0.008 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | AL |
| Manganese, Mn - Total | 0.015 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | AL |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | AL |
| Potassium, K - Dissolved | 2.54 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | AL |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | AL |
| Sodium, Na - Dissolved | 5.49 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | AL |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | AL |

Lab Supervisor

Domenic Ibanez
Lab Supervisor

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

Member of the SGS Group (Société Générale de Surveillance)

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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | JC-7 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | JC-7 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Weston I. |
| Product Description: | WATER | Time Sampled: | 1145 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.7 pH Units |
| | | Field - Flow: | 29.2 GPM |
| | | Field - Conductivity: | 310 umhos/cm |
| | | Field - Temperature: | 6.1 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 180 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2012-10-19 | 07:15:00 | CM |
| Anions | 3.52 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 4.44 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 3.84 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | <5 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 154 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 154 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-18 | 07:30:00 | AL |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2012-10-15 | 09:00:00 | AL |
| Total Dissolved Solids | 180 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Total Suspended Solids | 41 | mg/L | SM2540-D | 5 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 0.28 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | 0.11 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 5 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 14 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | 0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |

**METALS BY ICP**

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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## Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | JC-7 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | JC-7 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Weston I. |
| Product Description: | WATER | Time Sampled: | 1145 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.7 pH Units |
| | | Field - Flow: | 29.2 GPM |
| | | Field - Conductivity: | 310 umhos/cm |
| | | Field - Temperature: | 6.1 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-003**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Boron, B - Dissolved | 0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | CM |
| Calcium, Ca - Dissolved | 56.12 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Dissolved | 0.06 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Total | 0.92 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | CM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Magnesium, Mg - Dissolved | 9.72 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Dissolved | 0.007 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Total | 0.043 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | CM |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | CM |
| Potassium, K - Dissolved | 2.90 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | CM |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | CM |
| Sodium, Na - Dissolved | 3.86 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | CM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | BC-1 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | BC-1 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1200 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.6 pH Units |
| | | Field - Flow: | 23.3 GPM |
| | | Field - Conductivity: | 670 umhos/cm |
| | | Field - Temperature: | 10.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-004**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 257 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2012-10-19 | 07:15:00 | CM |
| Anions | 5.03 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 3.06 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 5.34 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | <5 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 225 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 225 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-18 | 07:30:00 | AL |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2012-10-15 | 09:00:00 | AL |
| Total Dissolved Solids | 255 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Total Suspended Solids | 71 | mg/L | SM2540-D | 5 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 1.33 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | 0.13 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 6 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 17 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | 0.08 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |

**METALS BY ICP**

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | BC-1 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | BC-1 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1200 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.6 pH Units |
| | | Field - Flow: | 23.3 GPM |
| | | Field - Conductivity: | 670 umhos/cm |
| | | Field - Temperature: | 10.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-004**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | AL |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Boron, B - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | AL |
| Calcium, Ca - Dissolved | 80.24 | mg/L | EPA 200.7 | 0.03 | 2012-11-06 | 17:25:00 | AL |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | AL |
| Iron, Fe - Total | 0.64 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | AL |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Magnesium, Mg - Dissolved | 13.82 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | AL |
| Manganese, Mn - Total | 0.031 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | AL |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | AL |
| Potassium, K - Dissolved | 1.89 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | AL |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | AL |
| Sodium, Na - Dissolved | 3.55 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | AL |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | AL |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | JC-27 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | JC-27 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Alan P. |
| Product Description: | WATER | Time Sampled: | 1215 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.5 pH Units |
| | | Field - Flow: | 199 GPM |
| | | Field - Conductivity: | 420 umhos/cm |
| | | Field - Temperature: | 8.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-005**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 240 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2012-10-19 | 07:15:00 | CM |
| Anions | 4.71 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 2.67 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 4.97 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | <5 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 205 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 205 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-18 | 07:30:00 | AL |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2012-10-15 | 09:00:00 | AL |
| Total Dissolved Solids | 258 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Total Suspended Solids | 6 | mg/L | SM2540-D | 5 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 0.18 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 4 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 23 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |

**METALS BY ICP**

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | JC-27 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | JC-27 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Alan P. |
| Product Description: | WATER | Time Sampled: | 1215 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.5 pH Units |
| | | Field - Flow: | 199 GPM |
| | | Field - Conductivity: | 420 umhos/cm |
| | | Field - Temperature: | 8.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-005**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Boron, B - Dissolved | 0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | CM |
| Calcium, Ca - Dissolved | 74.76 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Dissolved | 0.10 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Total | 0.61 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | CM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Magnesium, Mg - Dissolved | 12.94 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Dissolved | 0.018 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Total | 0.034 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | CM |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | CM |
| Potassium, K - Dissolved | 1.51 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | CM |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | CM |
| Sodium, Na - Dissolved | 3.05 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | CM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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SGS

# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | LC-12 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | LC-12 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Sam Grimes |
| Product Description: | WATER | Time Sampled: | 1409 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.2 pH Units |
| | | Field - Flow: | 0.25 GPM |
| | | Field - Conductivity: | 740 umhos/cm |
| | | Field - Temperature: | 13.8 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-006**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 257 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2012-10-19 | 07:15:00 | CM |
| Anions | 5.10 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 2.98 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 5.42 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | 7 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 233 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 233 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-18 | 07:30:00 | AL |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2012-10-15 | 09:00:00 | AL |
| Total Dissolved Solids | 272 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Total Suspended Solids | 111 | mg/L | SM2540-D | 5 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 0.95 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | 0.17 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 6 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 13 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |

**METALS BY ICP**

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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| | | | |
|---|---|---|---|
| Client Sample ID: | LC-12 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | LC-12 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Sam Grimes |
| Product Description: | WATER | Time Sampled: | 1409 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.2 pH Units |
| | | Field - Flow: | 0.25 GPM |
| | | Field - Conductivity: | 740 umhos/cm |
| | | Field - Temperature: | 13.8 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-006**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | CM |
| Calcium, Ca - Dissolved | 82.06 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Dissolved | 0.09 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Total | 0.45 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | CM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Magnesium, Mg - Dissolved | 12.74 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Dissolved | 0.010 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Total | 0.030 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | CM |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | CM |
| Potassium, K - Dissolved | 2.66 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | CM |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | CM |
| Sodium, Na - Dissolved | 4.69 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | CM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

Member of the SGS Group (Société Générale de Surveillance)

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November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | LC-29 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | LC-29 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1545 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.3 pH Units |
| | | Field - Flow: | 29.2 GPM |
| | | Field - Conductivity: | 500 umhos/cm |
| | | Field - Temperature: | 12.3 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-007**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 274 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2012-10-19 | 07:15:00 | CM |
| Anions | 5.43 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 3.04 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 5.77 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | <5 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 240 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 240 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-18 | 07:30:00 | AL |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2012-10-15 | 10:00:00 | AL |
| Total Dissolved Solids | 295 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Total Suspended Solids | 13 | mg/L | SM2540-D | 5 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 1.08 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | 0.16 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 9 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 18 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | 0.06 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |

**METALS BY ICP**

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | LC-29 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | LC-29 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1545 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.3 pH Units |
| | | Field - Flow: | 29.2 GPM |
| | | Field - Conductivity: | 500 umhos/cm |
| | | Field - Temperature: | 12.3 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-007**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Boron, B - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | CM |
| Calcium, Ca - Dissolved | 87.73 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Total | 0.13 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | CM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Magnesium, Mg - Dissolved | 13.38 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Dissolved | 0.005 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Total | 0.012 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | CM |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | CM |
| Potassium, K - Dissolved | 1.60 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | CM |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | CM |
| Sodium, Na - Dissolved | 5.79 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | CM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

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**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | LC-28 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | LC-28 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1615 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.0 pH Units |
| | | Field - Flow: | 8.6 GPM |
| | | Field - Conductivity: | 520 umhos/cm |
| | | Field - Temperature: | 11.7 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-008**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 284 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Oil and Grease, (HEM) | <5 | mg/L | EPA 1664A | 5 | 2012-10-19 | 07:15:00 | CM |
| Anions | 5.43 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 4.50 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 5.94 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | 17 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 240 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 240 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-18 | 07:30:00 | AL |
| Settleable Solids | <0.1 | mL/L | SM2540-F a | 0.1 | 2012-10-15 | 10:00:00 | AL |
| Total Dissolved Solids | 279 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Total Suspended Solids | <5 | mg/L | SM2540-D | 5 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 3.26 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 9 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 18 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | 0.10 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |

**METALS BY ICP**

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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|---|---|---|---|
| Client Sample ID: | LC-28 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | LC-28 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1615 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.0 pH Units |
| | | Field - Flow: | 8.6 GPM |
| | | Field - Conductivity: | 520 umhos/cm |
| | | Field - Temperature: | 11.7 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-008**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | AL |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Boron, B - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | AL |
| Calcium, Ca - Dissolved | 91.77 | mg/L | EPA 200.7 | 0.03 | 2012-11-06 | 17:25:00 | AL |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | AL |
| Iron, Fe - Total | <0.05 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | AL |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Magnesium, Mg - Dissolved | 13.33 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | AL |
| Manganese, Mn - Total | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | AL |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | AL |
| Potassium, K - Dissolved | 1.04 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | AL |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | AL |
| Sodium, Na - Dissolved | 5.48 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | AL |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | AL |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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299 SOUTH MAIN STREET
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SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | Aspen Spring | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | Aspen Spring |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 0915 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Site: | 12 |
| | | Field - pH: | 8.0 pH Units |
| | | Field - Flow: | 0.30 GPM |
| | | Field - Conductivity: | 630 umhos/cm |
| | | Field - Temperature: | 7.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-009**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 333 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Anions | 6.34 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 5.01 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 7.01 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | 16 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 274 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 274 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-18 | 07:30:00 | AL |
| Total Dissolved Solids | 377 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 3.31 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 20 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 14 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | 0.16 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | AL |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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SGS

# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | Aspen Spring | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | Aspen Spring |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 0915 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Site: | 12 |
| | | Field - pH: | 8.0 pH Units |
| | | Field - Flow: | 0.30 GPM |
| | | Field - Conductivity: | 630 umhos/cm |
| | | Field - Temperature: | 7.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-009**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Boron, B - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | AL |
| Calcium, Ca - Dissolved | 112.74 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | AL |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | AL |
| Iron, Fe - Total | <0.05 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | AL |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Magnesium, Mg - Dissolved | 12.55 | mg/L | EPA 200.7 | 0.01 | 2012-11-06 | 17:25:00 | AL |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | AL |
| Manganese, Mn - Total | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | AL |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | AL |
| Potassium, K - Dissolved | 1.14 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | AL |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | AL |
| Sodium, Na - Dissolved | 7.41 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | AL |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | AL |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | Angle Spring | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | Angle Spring |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 0940 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 7.8 pH Units |
| | | Field - Flow: | 0.5 GPM |
| | | Field - Conductivity: | 600 umhos/cm |
| | | Field - Temperature: | 7.1 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-010**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 337 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Anions | 6.73 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 3.47 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 7.21 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | 12 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 285 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 285 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-18 | 07:30:00 | AL |
| Total Dissolved Solids | 366 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 0.34 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | 0.23 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 17 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 26 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

Member of the SGS Group (Société Générale de Surveillance)

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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | |
|---|---|
| Client Sample ID: | Angle Spring |
| Date Sampled: | Oct 14, 2012 |
| Date Received: | Oct 15, 2012 |
| Product Description: | WATER |

| | |
|---|---|
| Sample ID By: | Wasatch Natural Resources LLC |
| Sample Taken At: | Angle Spring |
| Sample Taken By: | B.Grimes |
| Time Sampled: | 0940 |
| Time Received: | 0715 |
| Mine: | 42 |
| Field - pH: | 7.8 pH Units |
| Field - Flow: | 0.5 GPM |
| Field - Conductivity: | 600 umhos/cm |
| Field - Temperature: | 7.1 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-010**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | CM |
| Calcium, Ca - Dissolved | 99.89 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Total | 0.36 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | CM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Magnesium, Mg - Dissolved | 21.37 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Dissolved | 0.039 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Total | 0.041 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | CM |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | CM |
| Potassium, K - Dissolved | 2.27 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | CM |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | CM |
| Sodium, Na - Dissolved | 9.43 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | CM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | |
|---|---|
| Client Sample ID: | JC-67 |
| Date Sampled: | Oct 14, 2012 |
| Date Received: | Oct 15, 2012 |
| Product Description: | WATER |

| | |
|---|---|
| Sample ID By: | Wasatch Natural Resources LLC |
| Sample Taken At: | JC-67 |
| Sample Taken By: | Alan P. |
| Time Sampled: | 1015 |
| Time Received: | 0715 |
| Mine: | 42 |
| Field - pH: | 7.8 pH Units |
| Field - Flow: | 14.6 GPM |
| Field - Conductivity: | 500 umhos/cm |
| Field - Temperature: | 6.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-011**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 294 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Anions | 5.54 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 4.17 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 6.02 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | 5 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 243 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 243 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-18 | 07:30:00 | AL |
| Total Dissolved Solids | 306 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 1.21 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 3 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 29 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | 0.07 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Boron, B - Dissolved | 0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | JC-67 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | JC-67 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Alan P. |
| Product Description: | WATER | Time Sampled: | 1015 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 7.8 pH Units |
| | | Field - Flow: | 14.6 GPM |
| | | Field - Conductivity: | 500 umhos/cm |
| | | Field - Temperature: | 6.2 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-011**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | CM |
| Calcium, Ca - Dissolved | 85.38 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Total | <0.05 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | CM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Magnesium, Mg - Dissolved | 19.71 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Total | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | CM |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | CM |
| Potassium, K - Dissolved | 1.33 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | CM |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | CM |
| Sodium, Na - Dissolved | 2.47 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | CM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | JC-68 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | JC-68 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Alan P. |
| Product Description: | WATER | Time Sampled: | 1100 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.4 pH Units |
| | | Field - Flow: | 20 GPM |
| | | Field - Conductivity: | 440 umhos/cm |
| | | Field - Temperature: | 7.4 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-012**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 270 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Anions | 5.04 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 4.46 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 5.52 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | <5 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 228 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 228 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-18 | 07:30:00 | AL |
| Total Dissolved Solids | 269 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 1.10 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | 0.12 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 2 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 20 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Boron, B - Dissolved | 0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | JC-68 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | JC-68 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Alan P. |
| Product Description: | WATER | Time Sampled: | 1100 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.4 pH Units |
| | | Field - Flow: | 20 GPM |
| | | Field - Conductivity: | 440 umhos/cm |
| | | Field - Temperature: | 7.4 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-012**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | CM |
| Calcium, Ca - Dissolved | 82.11 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Total | 0.73 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | CM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Magnesium, Mg - Dissolved | 15.90 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Total | 0.050 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | CM |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | CM |
| Potassium, K - Dissolved | 0.90 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | CM |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | CM |
| Sodium, Na - Dissolved | 2.01 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | CM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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SGS

# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | 740 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | 740 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Weston I. |
| Product Description: | WATER | Time Sampled: | 1115 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 7.7 pH Units |
| | | Field - Flow: | 1.0 GPM |
| | | Field - Conductivity: | 620 umhos/cm |
| | | Field - Temperature: | 6.3 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-013**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 338 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Anions | 6.44 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 3.47 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 6.90 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | 16 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 270 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 270 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-16 | 08:25:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-18 | 07:30:00 | AL |
| Total Dissolved Solids | 341 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 0.31 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | 0.19 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 3 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 45 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | 0.10 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Boron, B - Dissolved | 0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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## Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | 740 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | 740 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Weston I. |
| Product Description: | WATER | Time Sampled: | 1115 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 7.7 pH Units |
| | | Field - Flow: | 1.0 GPM |
| | | Field - Conductivity: | 620 umhos/cm |
| | | Field - Temperature: | 6.3 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-013**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | CM |
| Calcium, Ca - Dissolved | 98.91 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Total | 0.31 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | CM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Magnesium, Mg - Dissolved | 22.09 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Total | 0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | CM |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | CM |
| Potassium, K - Dissolved | 0.82 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | CM |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | CM |
| Sodium, Na - Dissolved | 2.84 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | CM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

Member of the SGS Group (Société Générale de Surveillance)

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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | LC-47 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | LC-47 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Sam Grimes |
| Product Description: | WATER | Time Sampled: | 1246 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 7.9 pH Units |
| | | Field - Flow: | 2.6 GPM |
| | | Field - Conductivity: | 540 umhos/cm |
| | | Field - Temperature: | 5.1 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-014**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 308 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Anions | 5.82 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 4.45 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 6.37 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | 19 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 266 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 266 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-24 | 09:00:00 | AL |
| Total Dissolved Solids | 309 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 1.30 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 5 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 17 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | LC-47 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | LC-47 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Sam Grimes |
| Product Description: | WATER | Time Sampled: | 1246 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 7.9 pH Units |
| | | Field - Flow: | 2.6 GPM |
| | | Field - Conductivity: | 540 umhos/cm |
| | | Field - Temperature: | 5.1 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-014**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | CM |
| Calcium, Ca - Dissolved | 88.42 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Total | <0.05 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | CM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Magnesium, Mg - Dissolved | 21.29 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Total | 0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | CM |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | CM |
| Potassium, K - Dissolved | 1.62 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | CM |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | CM |
| Sodium, Na - Dissolved | 3.69 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | CM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | S3-1 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | S3-1 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1345 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.1 pH Units |
| | | Field - Flow: | 0.33 GPM |
| | | Field - Conductivity: | 720 umhos/cm |
| | | Field - Temperature: | 8.9 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-015**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 423 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Anions | 8.08 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 4.54 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 8.84 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | 5 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 309 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 309 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-24 | 09:00:00 | AL |
| Total Dissolved Solids | 462 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 3.02 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | 0.23 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 21 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 62 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | 0.11 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Boron, B - Dissolved | 0.03 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | S3-1 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | S3-1 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1345 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.1 pH Units |
| | | Field - Flow: | 0.33 GPM |
| | | Field - Conductivity: | 720 umhos/cm |
| | | Field - Temperature: | 8.9 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-015**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | CM |
| Calcium, Ca - Dissolved | 126.84 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Total | 0.68 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | CM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Magnesium, Mg - Dissolved | 25.72 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Dissolved | 0.003 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Total | 0.075 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | CM |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | CM |
| Potassium, K - Dissolved | 1.11 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | CM |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | CM |
| Sodium, Na - Dissolved | 8.50 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | CM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | LC-48 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | LC-48 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Sam Grimes |
| Product Description: | WATER | Time Sampled: | 1428 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.3 pH Units |
| | | Field - Flow: | 3.2 GPM |
| | | Field - Conductivity: | 480 umhos/cm |
| | | Field - Temperature: | 7.5 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-016**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 290 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Anions | 5.43 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 4.91 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 5.99 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | <5 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 248 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 248 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-24 | 09:00:00 | AL |
| Total Dissolved Solids | 295 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 2.30 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | 0.14 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 7 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 13 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | <0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Boron, B - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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SGS

# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | LC-48 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | LC-48 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Sam Grimes |
| Product Description: | WATER | Time Sampled: | 1428 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 8.3 pH Units |
| | | Field - Flow: | 3.2 GPM |
| | | Field - Conductivity: | 480 umhos/cm |
| | | Field - Temperature: | 7.5 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-016**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | CM |
| Calcium, Ca - Dissolved | 92.46 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Total | 0.13 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | CM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Magnesium, Mg - Dissolved | 14.27 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Total | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | CM |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | CM |
| Potassium, K - Dissolved | 0.89 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | CM |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | CM |
| Sodium, Na - Dissolved | 4.05 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | CM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | LC-SP1 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | LC-SP1 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1500 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 7.7 pH Units |
| | | Field - Flow: | 7.4 GPM |
| | | Field - Conductivity: | 520 umhos/cm |
| | | Field - Temperature: | 7.1 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-017**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 291 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Anions | 5.54 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 4.65 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 6.08 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | 21 | mg/L | D1067 | 5 | 2012-10-18 | 09:39:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 252 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 252 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-24 | 09:00:00 | AL |
| Total Dissolved Solids | 306 | mg/L | SM2540-C | 30 | 2012-10-16 | 13:25:00 | AL |
| Nitrate | 1.51 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 7 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 13 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | 0.14 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Boron, B - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | LC-SP1 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | LC-SP1 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | B.Grimes |
| Product Description: | WATER | Time Sampled: | 1500 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 7.7 pH Units |
| | | Field - Flow: | 7.4 GPM |
| | | Field - Conductivity: | 520 umhos/cm |
| | | Field - Temperature: | 7.1 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-017**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | CM |
| Calcium, Ca - Dissolved | 92.70 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | CM |
| Iron, Fe - Total | <0.05 | mg/L | EPA 200.7 | 0.05 | 2012-10-18 | 18:07:00 | CM |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Magnesium, Mg - Dissolved | 14.35 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | CM |
| Manganese, Mn - Total | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-18 | 18:07:00 | CM |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | CM |
| Potassium, K - Dissolved | 1.70 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | CM |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | CM |
| Sodium, Na - Dissolved | 5.22 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | CM |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | CM |

Lab Supervisor

Domenic Ibanez
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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | JC-16 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | JC-16 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Weston I. |
| Product Description: | WATER | Time Sampled: | 1555 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 7.8 pH Units |
| | | Field - Flow: | 1.4 GPM |
| | | Field - Conductivity: | 490 umhos/cm |
| | | Field - Temperature: | 4.6 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-018**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 233 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Anions | 4.47 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 4.53 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 4.89 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | 14 | mg/L | D1067 | 5 | 2012-10-24 | 08:20:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 183 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 183 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-24 | 09:00:00 | AL |
| Total Dissolved Solids | 264 | mg/L | SM2540-C | 30 | 2012-10-18 | 13:40:00 | AL |
| Nitrate | 0.44 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 7 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 30 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | 0.07 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | AL |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Boron, B - Dissolved | 0.02 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |

Lab Supervisor

Domenic Ibanez
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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | JC-16 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | JC-16 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Weston I. |
| Product Description: | WATER | Time Sampled: | 1555 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 7.8 pH Units |
| | | Field - Flow: | 1.4 GPM |
| | | Field - Conductivity: | 490 umhos/cm |
| | | Field - Temperature: | 4.6 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-018**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | AL |
| Calcium, Ca - Dissolved | 68.52 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | AL |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | AL |
| Iron, Fe - Total | 0.07 | mg/L | EPA 200.7 | 0.05 | 2012-10-24 | 11:15:00 | AL |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Magnesium, Mg - Dissolved | 15.07 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | AL |
| Manganese, Mn - Total | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-24 | 11:15:00 | AL |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | AL |
| Potassium, K - Dissolved | 0.96 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | AL |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | AL |
| Sodium, Na - Dissolved | 4.84 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | AL |
| Zinc, Zn - Dissolved | <0.004 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | AL |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | | | |
|---|---|---|---|
| Client Sample ID: | JC-18 | Sample ID By: | Wasatch Natural Resources LLC |
| Date Sampled: | Oct 14, 2012 | Sample Taken At: | JC-18 |
| Date Received: | Oct 15, 2012 | Sample Taken By: | Weston I. |
| Product Description: | WATER | Time Sampled: | 1615 |
| | | Time Received: | 0715 |
| | | Mine: | 42 |
| | | Field - pH: | 7.3 pH Units |
| | | Field - Flow: | 6.7 GPM |
| | | Field - Conductivity: | 410 umhos/cm |
| | | Field - Temperature: | 4.1 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-019**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| Hardness, mg equivalent CaCO3/L | 223 | mg/L | SM2340-B | 1 | 2012-11-08 | 16:36:42 | AL |
| Anions | 4.41 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Balance | 2.11 | % | SM1030E | -10 | 2012-11-08 | 16:36:42 | AL |
| Cations | 4.60 | meq/L | SM1030E | 0 | 2012-11-08 | 16:36:42 | AL |
| Acidity | <5 | mg/L | D1067 | 5 | 2012-10-24 | 08:20:00 | CM |
| Alkalinity, mg CaCO3/L (pH 4.5) | 179 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Bicarbonate Alkalinity as CaCO3 | 179 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Carbonate Alkalinity as CaCO3 | <5 | mg/L | SM2320-B | 5 | 2012-10-18 | 09:20:00 | AL |
| Nitrogen, Ammonia | <0.1 | mg/L | SM4500-B-D | 0.1 | 2012-10-24 | 09:00:00 | AL |
| Total Dissolved Solids | 255 | mg/L | SM2540-C | 30 | 2012-10-18 | 13:40:00 | AL |
| Nitrate | 0.75 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Nitrite | <0.05 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| Chloride, Cl | 4 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Sulfate, SO4 | 35 | mg/L | EPA 300.0 | 1 | 2012-10-15 | 23:52:00 | AL |
| Ortho-Phosphate-P | 0.06 | mg/L | EPA 300.0 | 0.05 | 2012-10-15 | 23:52:00 | AL |
| **METALS BY ICP** | | | | | | | |
| Aluminum, Al - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | AL |
| Arsenic, As - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Boron, B - Dissolved | 0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |

Lab Supervisor

Domenic Ibanez
Lab Supervisor



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# Analysis Report

November 12, 2012

**WASATCH NATURAL RESOURCES LLC**
299 SOUTH MAIN STREET
SUITE 1300
SALT LAKE CITY UT 84111



| | |
|---|---|
| Client Sample ID: | JC-18 |
| Date Sampled: | Oct 14, 2012 |
| Date Received: | Oct 15, 2012 |
| Product Description: | WATER |

| | |
|---|---|
| Sample ID By: | Wasatch Natural Resources LLC |
| Sample Taken At: | JC-18 |
| Sample Taken By: | Weston I. |
| Time Sampled: | 1615 |
| Time Received: | 0715 |
| Mine: | 42 |
| Field - pH: | 7.3 pH Units |
| Field - Flow: | 6.7 GPM |
| Field - Conductivity: | 410 umhos/cm |
| Field - Temperature: | 4.1 Deg.C |

Comments: Dissolved Metals Filtered at Lab

**SGS Minerals Sample ID: 782-1215924-019**

| TESTS | RESULT | UNIT | METHOD | REPORTING LIMIT | ANALYZED DATE | TIME | ANALYST |
|---|---|---|---|---|---|---|---|
| **METALS BY ICP (continued)** | | | | | | | |
| Cadmium, Cd - Dissolved | <0.001 | mg/L | EPA 200.7 | 0.001 | 2012-10-15 | 18:19:00 | AL |
| Calcium, Ca - Dissolved | 72.04 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | AL |
| Copper, Cu - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Iron, Fe - Dissolved | <0.03 | mg/L | EPA 200.7 | 0.03 | 2012-10-15 | 18:19:00 | AL |
| Iron, Fe - Total | 0.07 | mg/L | EPA 200.7 | 0.05 | 2012-10-24 | 11:15:00 | AL |
| Lead, Pb - Dissolved | <0.01 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Magnesium, Mg - Dissolved | 10.51 | mg/L | EPA 200.7 | 0.01 | 2012-10-15 | 18:19:00 | AL |
| Manganese, Mn - Dissolved | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-15 | 18:19:00 | AL |
| Manganese, Mn - Total | <0.002 | mg/L | EPA 200.7 | 0.002 | 2012-10-24 | 11:15:00 | AL |
| Molybdenum, Mo - Dissolved | <0.005 | mg/L | EPA 200.7 | 0.005 | 2012-10-15 | 18:19:00 | AL |
| Potassium, K - Dissolved | 0.87 | mg/L | EPA 200.7 | 0.14 | 2012-10-15 | 18:19:00 | AL |
| Selenium, Se - Dissolved | <0.02 | mg/L | EPA 200.7 | 0.02 | 2012-10-15 | 18:19:00 | AL |
| Sodium, Na - Dissolved | 2.71 | mg/L | EPA 200.7 | 0.09 | 2012-10-15 | 18:19:00 | AL |
| Zinc, Zn - Dissolved | 0.005 | mg/L | EPA 200.7 | 0.004 | 2012-10-15 | 18:19:00 | AL |

Lab Supervisor

Domenic Ibanez
Lab Supervisor

SGS North America Inc. | Minerals Services Division
2035 North Airport Road Huntington UT 84528 **t** (435) 653-2311 **f** (435)-653-2436 www.sgs.com/minerals

Member of the SGS Group (Société Générale de Surveillance)

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# Exhibit 13

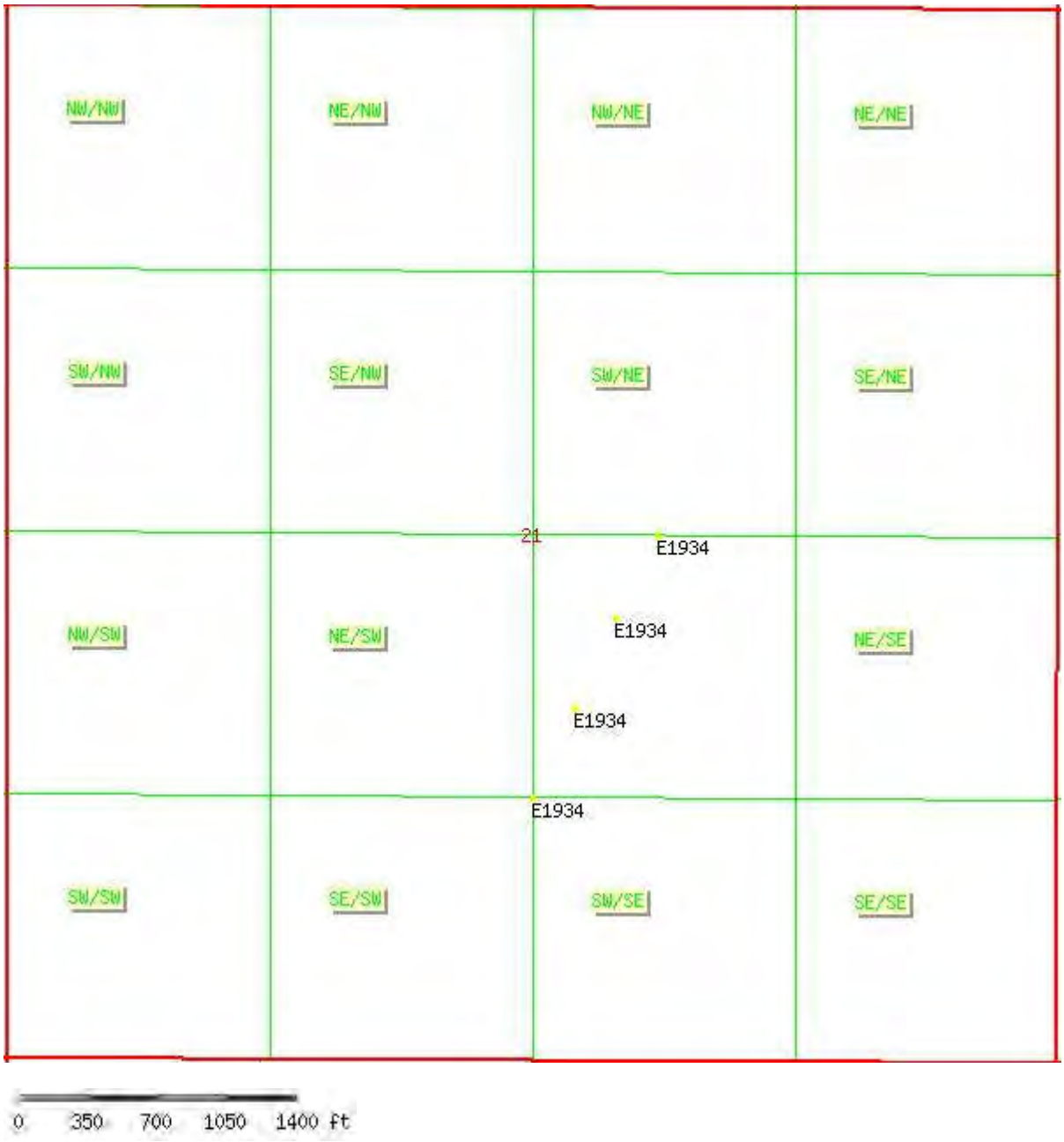
# Water Rights

## Kinney No. 2 Mine Water rights Search

## March 11, 2011

## Ground Water By Sections

**Search of Section 21, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=U,Sp status=U,A,P usetypes=all**



**Water Rights Section 21, T12S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| E1934 | Underground | | A | 19810629 | O | 0.000 | 20.000 | UCO INCORPORATED |
| | N1320 0 S4 21 12S 7E SL | | | | | | | 1580 LINCOLN SUITE 530 |
| E1934 | Underground | | A | 19810629 | O | 0.000 | 20.000 | UCO INCORPORATED |
| | N1771 E210 S4 21 12S 7E SL | | | | | | | 1580 LINCOLN SUITE 530 |
| E1934 | Underground | | A | 19810629 | O | 0.000 | 20.000 | UCO INCORPORATED |
| | N2220 E420 S4 21 12S 7E SL | | | | | | | 1580 LINCOLN SUITE 530 |
| E1934 | Underground | | A | 19810629 | O | 0.000 | 20.000 | UCO INCORPORATED |
| | N2640 E630 S4 21 12S 7E SL | | | | | | | 1580 LINCOLN SUITE 530 |

**Search of Section 32, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=U,Sp status=U,A,P usetypes=all**

**Water Rights Sectio0n 32, T12S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| 91-3401 | Underground<br>N625 E710 S4 32 12S 7E SL | | P | 18950000 | DS | 0.011 | 0.000 | WAINO E. BURTON<br>SCOFIELD UT |
| 91-3402 | Underground<br>N570 E690 S4 32 12S 7E SL | | P | 18950000 | DS | 0.011 | 0.000 | WAINO E. BURTON<br>SCOFIELD UT |
| 91-5069 | Spring<br>S1346 W630 N4 32 12S 7E SL | | P | 18690000 | OS | 0.000 | 1.244 | RUDMAN LAND AND LIVESTOCK L.L.C.<br>1111 EAST BRICKYARD ROAD SUITE 106 |
| a34946 | Underground<br>S1235 W1351 E4 32 12S 7E SL | well info | A | 20081016 | DIS | 0.000 | 1.000 | BOYD L. PETERSON AND PEGGY PETERSON TRUST<br>1363 SEA PINES |
| E164 | Underground<br>N30 E465 S4 32 12S 7E SL | | A | 19650218 | D | 0.000 | 1.000 | LOUIS GORISHEK<br>SCOFIELD UT |

**Search of Section 05, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=U,Sp status=U,A,P usetypes=all**

**Water Rights Section 5 T13S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| a34604 | Underground | | A | 20080701 | DS | 0.000 | 1.000 | ROBERT & ELLEN RADAKOVICH MARITAL & FAMILY TRUST |
| | N334 E432 W4 05 13S 7E SL | | | | | | | C/O KARI FOWLER, SUCCESSOR TRUSTEE |
| a34604 | Underground | | A | 20080701 | DS | 0.000 | 1.000 | ROBERT & ELLEN RADAKOVICH MARITAL & FAMILY TRUST |
| | N1347 W995 S4 05 13S 7E SL | | | | | | | C/O KARI FOWLER, SUCCESSOR TRUSTEE |
| E164 | Underground | | A | 19650218 | D | 0.000 | 1.000 | LOUIS GORISHEK |
| | N30 E465 S4 32 12S 7E SL | | | | | | | SCOFIELD UT |
| E1912 | Underground | | A | 19810611 | D | 0.000 | 1.000 | JIM NICOLODEMOS |
| | N2145 W1350 E4 05 13S 7E SL | | | | | | | 1221 SOUTH 2820 WEST |
| E2567 | Underground | well info | A | 19871013 | M | 0.000 | 30.000 | SCOFIELD TOWN |
| | S1056 W1451 N4 05 13S 7E SL | | | | | | | ATTN: JAY N. NELSON, MAYOR |

**********
**********

WATER RIGHT: **91-3402** APPLICATION/CLAIM NO.: CERT. NO.:

==========

**OWNERSHIP**********

NAME: Waino E. Burton
ADDR: Scofield UT
INTEREST: 100% REMARKS:

==========

**DATES, ETC.**********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:

FILED: |PRIORITY: 00/00/1895|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
08/02/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**----------

Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:

==========

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========
FLOW: 0.011 cfs SOURCE: Underground Water Well
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- UNDERGROUND: (Click Well ID# link for more well data.)
(1) N 570 ft E 690 ft from S4 cor, Sec 32, T 12S, R 7E, SLBM
DIAMETER OF WELL: ins. DEPTH: to ft. YEAR DRILLED: WELL LOG? No WELL ID#:
==========
**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*
**********

CHANGE: **a34946** WATER RIGHT: 91-5160 CERT. NO.: COUNTY TAX ID#: AMENDATORY? No
BASE WATER RIGHTS: 91-5160
RIGHT EVIDENCED BY: 91-5160 ( a seg`d portion of 91-2) Based on one share of stock #7926)
CHANGES: Point of Diversion [X], Place of Use [X], Nature of Use [X], Reservoir Storage [ ].
*----------

NAME: Boyd L. Peterson and Peggy Peterson Trust
ADDR: 1363 Sea Pines
Mesquite, NV 87024
REMARKS:

NAME: Price River Water User's Association
ADDR: 375 South Carbon Avenue A-10
Price, Utah 84501
REMARKS:
*----------
FILED: 10/16/2008|PRIORITY: 10/16/2008|ADV BEGAN: 11/06/2008|ADV ENDED: 11/13/2008|NEWSPAPER: Sun Advocate
ProtestEnd:12/03/2008|PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [Approved]|ActionDate:01/22/2009|PROOF DUE: 01/31/2014
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: |LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
Status: Approved
Related Distribution System: 41-PRICE RIVER
**********H E R E T O F O R E**********
**********H E R E A F T E R**********

| | |
|---|---|
| FLOW: 1.0 acre-feet | FLOW: 1.0 acre-feet |
| SOURCE: Gooseberry Creek | SOURCE: Underground Water Well |
| COUNTY: Sanpete | COUNTY: Carbon COM DESC: North Scofield |

| || The animals will be on the property |
| || from April - September, or approximately |
| || 50% of the year. .014 af per animal |
| || was used to calculate the amount of water |
| || for the elu`s. The domestic is part time. |
| ||
|
**|POINT(S) OF DIVERSION ------> MAP VIEWER ||CHANGED AS FOLLOWS: (Click Location link for WRPLAT) |**

|----------||----------
||Point Surface: ||
|
|(1) N 810 ft W 990 ft from SE cor, Sec 10, T 12S, R 7E, SLBM||
|
| Dvrting Wks: ||
|| Source: ||
||----------||----------
-|Point Underground:
||UNDERGROUND: (Click Link for PLAT data, Well ID# link for data.)|
| ||(1) S 1235 ft W 1351 ft from E4 cor, Sec 32, T 12S, R 7E, SLBM|
| || Diameter: 6 ins. Depth: 100 to 500 ft. WELL ID#: 433933 |
|----------||----------
|Point Rediversion: ||
|
|(1) N 900 ft E 100 ft from SW cor, Sec 03, T 12S, R 7E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Ex.430, Theresa A. Phelps-well ||
|
|(2) N 1420 ft W 480 ft from SE cor, Sec 04, T 12S, R 7E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Ex.175, Rudy Scartezina-well ||
|
|(3) N 1285 ft W 345 ft from SE cor, Sec 04, T 12S, R 7E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Ex.336, Frank Marrelli-well ||
|
|(4) S 1400 ft W 20 ft from E4 cor, Sec 04, T 12S, R 7E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Ex.397,Robt.or Francis Mallard-Well ||
|
|(5) N 1338 ft E 655 ft from SW cor, Sec 17, T 12S, R 7E, SLBM||
|

| Dvrting Wks: ||
|
| Source: Ex.178, Catherine Rudman-spring ||
|
|(6) N 860 ft E 430 ft from S4 cor, Sec 19, T 12S, R 7E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Ex.375, G. Pete Frandsen-spring ||
|
|(7) N 30 ft E 465 ft from S4 cor, Sec 32, T 12S, R 7E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Ex.164, Louis Gorishek-well ||
|
|(8) N 430 ft W 410 ft from S4 cor, Sec 26, T 12S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Price City Filtering Plant ||
|
|(9) S 90 ft E 730 ft from N4 cor, Sec 35, T 12S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Power Plant & Coal Company ||
|
|(10) S 970 ft E 60 ft from W4 cor, Sec 05, T 13S, R 7E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Ex.452, Robert Radokovich-well ||
|
|(11) N 900 ft E 980 ft from SW cor, Sec 12, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Bryner-Hansen Ditch ||
|
|(12) S 480 ft E 1440 ft from W4 cor, Sec 12, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Bryner-Ploutz Ditch ||
|
|(13) S 560 ft W 840 ft from N4 cor, Sec 13, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Spring Glen Canal ||
|
|(14) N 1310 ft E 1000 ft from S4 cor, Sec 24, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|

| Source: Gay Ditch ||
|
|(15) S 1190 ft W 1490 ft from E4 cor, Sec 24, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Stowell Ditch ||
|
|(16) S 0 ft W 730 ft from NE cor, Sec 24, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: O`Berto Ditch ||
|
|(17) N 580 ft W 240 ft from S4 cor, Sec 36, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Country Club-Cook Ditch ||
|
|(18) N 560 ft W 240 ft from S4 cor, Sec 36, T 13S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Price-Wellington Canal ||
|
|(19) S 560 ft E 680 ft from N4 cor, Sec 01, T 14S, R 9E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Carbon Canal ||
|
|(20) N 1410 ft W 535 ft from S4 cor, Sec 08, T 15S, R 11E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Coal Washing Plant ||
|
|(21) N 2261 ft W 218 ft from SE cor, Sec 16, T 15S, R 11E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Coal Washing Plant ||
|
|(22) S 1925 ft W 811 ft from NE cor, Sec 16, T 15S, R 11E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Coal Washing Plant ||
|
|(23) S 470 ft W 310 ft from E4 cor, Sec 16, T 15S, R 11E, SLBM||
|
| Dvrting Wks: ||
|
| Source: Farnham Ditch ||
|

**|PLACE OF USE ------>** **||CHANGED as follows:**

| | --NW¼-- --NE¼-- --SW¼-- --SE¼-- ||
|---|---|
| --NW¼-- --NE¼-- --SW¼-- --SE¼-- \| | \|N N S S\|\|N N S S\|\|N N S S\|\|N N S S\|\|\| |
| \|N N S S\|\|N N S S\|\|N N S S\|\|N N S S\|\| | \|W E W E\|\|W E W E\|\|W E W E\|\|W E W E\|\|\| |
| \|W E W E\|\|W E W E\|\|W E W E\|\|W E W E\|\| | |
| ALL T R SLBM * | ||Sec 32 T |
| 12S R 7E SLBM | * : : : ** : : : ** : : : ** : :X: *\| |
| \|Sec 12 T 13S R 9E SLBM | * : : : ** : : : **X: :X:X** : : : *\|\| |
| \|Sec 13 T 13S R 9E SLBM | *X:X:X:X** : : : **X:X:X:X**X:X:X:X*\|\| |
| \|Sec 24 T 13S R 9E SLBM | * :X: : **X:X:X:X** : : :X**X:X:X:X*\|\| |
| \|Sec 25 T 13S R 9E SLBM | * :X: : **X: :X:X** : : : **X:X:X:X*\|\| |
| \|Sec 36 T 13S R 9E SLBM | * : : : **X:X:X:X** :X: :X**X:X:X:X*\|\| |
| \|Sec 18 T 13S R 10E SLBM | * : : : ** : : : ** : :X: ** : : : *\|\| |
| \|Sec 19 T 13S R 10E SLBM | *X:X:X: **X: : : ** : : : ** : : : *\|\| |
| \|Sec 30 T 13S R 10E SLBM | * :X:X:X** : :X: **X: :X:X**X:X:X:X*\|\| |
| \|Sec 31 T 13S R 10E SLBM | *X:X:X:X**X:X:X:X**X:X: : **X:X: : *\|\| |
| \|Sec 32 T 13S R 10E SLBM | *X: :X: ** : : : ** : : : ** : : : *\|\| |
| \|Sec 01 T 14S R 9E SLBM | * :X: : **X: :X: ** : : : **X:X:X:X*\|\| |
| \|Sec 12 T 14S R 9E SLBM | * : : : ** :X: : ** : : : ** : : : *\|\| |
| \|Sec 05 T 14S R 10E SLBM | * : : : ** : : : **X: :X: ** : : : *\|\| |
| \|Sec 06 T 14S R 10E SLBM | * :X:X:X** : : : **X:X:X:X**X:X:X:X*\|\| |
| \|Sec 07 T 14S R 10E SLBM | *X:X:X:X**X:X:X:X** :X:X:X**X:X:X:X*\|\| |
| \|Sec 08 T 14S R 10E SLBM | * : :X: ** : : : **X: :X:X** : :X: *\|\| |
| \|Sec 15 T 14S R 10E SLBM | * : : : ** : : : **X:X:X:X** : :X: *\|\| |
| \|Sec 16 T 14S R 10E SLBM | * : : : ** : : : **X:X:X:X**X: :X:X*\|\| |
| \|Sec 17 T 14S R 10E SLBM | *X:X:X:X**X: :X:X**X:X:X:X**X:X:X: *\|\| |
| \|Sec 18 T 14S R 10E SLBM | *X:X:X:X**X:X:X:X**X:X: :X**X:X:X:X*\|\| |
| \|Sec 19 T 14S R 10E SLBM | * : : : **X: : : ** : : : ** :X: : *\|\| |
| \|Sec 20 T 14S R 10E SLBM | * :X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*\|\| |
| \|Sec 21 T 14S R 10E SLBM | *X:X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*\|\| |

|Sec 22 T 14S R 10E SLBM *X:X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 23 T 14S R 10E SLBM * : :X:X** : : : **X:X:X:X** : : : *||
|
|Sec 25 T 14S R 10E SLBM *X: :X: ** : : : **X: :X: **X:X:X:X*||
|
|Sec 26 T 14S R 10E SLBM * : : :X** :X:X:X**X: :X:X** :X: :X*||
|
|Sec 27 T 14S R 10E SLBM *X:X:X:X**X:X:X:X**X:X: :X**X:X:X:X*||
|
|Sec 28 T 14S R 10E SLBM * :X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 29 T 14S R 10E SLBM *X:X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 30 T 14S R 10E SLBM * : : : **X:X:X:X** : : : **X:X: : *||
|
|Sec 32 T 14S R 10E SLBM *X:X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 33 T 14S R 10E SLBM *X:X:X:X**X: :X:X**X:X:X:X**X:X:X:X*||
|
|Sec 34 T 14S R 10E SLBM * :X: :X**X:X:X:X**X:X:X: **X:X: : *||
|
|Sec 35 T 14S R 10E SLBM *X: :X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 36 T 14S R 10E SLBM * : : : **X:X:X:X** : : : ** :X: :X*||
|
|Sec 27 T 14S R 11E SLBM *X: :X: ** : : : **X: :X:X** : : : *||
|
|Sec 28 T 14S R 11E SLBM *X: :X: ** :X: :X**X: :X: ** :X: : *||
|
|Sec 29 T 14S R 11E SLBM * : : :X**X:X:X:X** : : : ** :X: :X*||
|
|Sec 30 T 14S R 11E SLBM * : : : ** : : : **X:X:X:X** : : : *||
|
|Sec 31 T 14S R 11E SLBM *X:X:X:X** : : : **X:X:X:X** : :X:X*||
|
|Sec 33 T 14S R 11E SLBM *X:X:X:X**X:X:X:X** :X: : **X:X:X:X*||
|
|Sec 34 T 14S R 11E SLBM *X:X:X: ** : : : **X:X:X:X** : : : *||
|
|Sec 01 T 15S R 10E SLBM *X: :X: ** :X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 02 T 15S R 10E SLBM * :X:X:X**X:X:X:X** :X: : **X:X:X:X*||
|
|Sec 03 T 15S R 10E SLBM * : : :X** :X:X:X** :X: : **X: : : *||
|
|Sec 04 T 15S R 10E SLBM *X:X:X:X**X:X:X:X** : : : **X: : : *||
|
|Sec 05 T 15S R 10E SLBM * :X:X:X**X: : : ** : : : ** : : : *||
|
|Sec 09 T 15S R 10E SLBM * : : : ** : : : ** : : :X** : :X:X*||
|
|Sec 10 T 15S R 10E SLBM * : : : ** : : :X**X:X:X:X**X: :X: *||
|
|Sec 11 T 15S R 10E SLBM * :X:X:X**X:X:X:X**X:X: :X**X:X:X: *||
|

|Sec 12 T 15S R 10E SLBM *X:X:X:X**X:X:X:X**X:X: : **X:X: : *||
|
|Sec 14 T 15S R 10E SLBM * : :X:X** : : :X**X:X:X:X** :X:X:X*||
|
|Sec 15 T 15S R 10E SLBM *X:X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 16 T 15S R 10E SLBM *X:X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 17 T 15S R 10E SLBM * : : : ** : :X:X** :X: : **X:X:X:X*||
|
|Sec 21 T 15S R 10E SLBM *X:X: :X**X:X:X:X** : : : **X:X: :X*||
|
|Sec 22 T 15S R 10E SLBM *X:X:X:X**X:X: :X**X: :X: ** : : : *||
|
|Sec 23 T 15S R 10E SLBM *X:X:X:X**X:X:X:X** :X: :X**X:X:X:X*||
|
|Sec 24 T 15S R 10E SLBM *X: :X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 25 T 15S R 10E SLBM *X:X: : **X:X: : ** : : : ** : : : *||
|
|Sec 26 T 15S R 10E SLBM *X:X:X:X** : : : **X:X:X:X**X: :X:X*||
|
|Sec 27 T 15S R 10E SLBM * :X: :X**X:X:X:X** :X: : **X:X:X:X*||
|
|Sec 34 T 15S R 10E SLBM *X:X:X:X**X: :X:X**X:X:X:X**X:X:X:X*||
|
|Sec 35 T 15S R 10E SLBM *X:X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 36 T 15S R 10E SLBM * : :X: ** : : : **X:X:X:X**X: :X:X*||
|
|Sec 02 T 15S R 11E SLBM *X: :X: ** : : : **X: :X: ** : : : *||
|
|Sec 03 T 15S R 11E SLBM *X:X:X:X** : :X:X**X:X:X:X**X:X: :X*||
|
|Sec 04 T 15S R 11E SLBM * : : :X**X:X:X:X** :X:X:X**X:X:X:X*||
|
|Sec 05 T 15S R 11E SLBM *X:X:X:X** : :X: **X:X:X:X**X:X:X:X*||
|
|Sec 06 T 15S R 11E SLBM *X:X:X:X** :X: :X**X:X:X:X** :X:X:X*||
|
|Sec 07 T 15S R 11E SLBM *X:X:X:X**X:X:X:X**X:X: : **X:X: : *||
|
|Sec 08 T 15S R 11E SLBM *X:X:X:X**X:X:X:X**X:X: : **X:X: :X*||
|
|Sec 09 T 15S R 11E SLBM *X:X:X: **X:X:X:X**X: :X:X**X:X: :X*||
|
|Sec 10 T 15S R 11E SLBM *X:X:X: **X:X: : **X: :X: ** : : : *||
|
|Sec 16 T 15S R 11E SLBM *X:X: :X** : :X:X** : : : **X:X: : *||
|
|Sec 18 T 15S R 11E SLBM * :X: :X** : : : ** :X: :X**X: :X:X*||
|
|Sec 19 T 15S R 11E SLBM * : : : **X:X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 20 T 15S R 11E SLBM *X: :X:X** : : : **X:X:X:X**X:X:X:X*||
|

|Sec 21 T 15S R 11E SLBM * : : : ** : : : **X: :X: ** : : : *||
|
|Sec 22 T 15S R 11E SLBM * : : : ** : : :X** : : : **X:X: :X*||
|
|Sec 23 T 15S R 11E SLBM * : : : ** : : : **X: :X: ** : : : *||
|
|Sec 26 T 15S R 11E SLBM *X:X:X:X** : :X: ** :X: : **X: :X:X*||
|
|Sec 28 T 15S R 11E SLBM *X: : : ** : : : ** : : : ** : : : *||
|
|Sec 29 T 15S R 11E SLBM *X:X: :X**X:X:X: ** :X:X:X**X: :X: *||
|
|Sec 30 T 15S R 11E SLBM *X:X:X:X**X:X: : ** : : : ** : : : *||
|
|Sec 31 T 15S R 11E SLBM * : : : ** :X: :X** : :X:X**X:X:X: *||
|
|Sec 32 T 15S R 11E SLBM *X:X: :X** : : : **X: : : ** : : : *||
|
|Sec 35 T 15S R 11E SLBM * : : : **X:X: :X** : :X:X**X:X:X:X*||
|
|Sec 01 T 16S R 10E SLBM *X:X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 02 T 16S R 10E SLBM *X:X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 03 T 16S R 10E SLBM * : : : **X:X:X:X** :X: :X**X:X:X:X*||
|
|Sec 11 T 16S R 10E SLBM * : : : ** : : : ** : : : ** :X: :X*||
|
|Sec 12 T 16S R 10E SLBM *X:X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 13 T 16S R 10E SLBM *X: : : ** : : : ** : :X: ** : : : *||
|
|Sec 14 T 16S R 10E SLBM *X:X:X:X** :X:X: **X:X:X:X**X:X:X:X*||
|
|Sec 15 T 16S R 10E SLBM * : : : ** :X: :X** : : : ** : : : *||
|
|Sec 23 T 16S R 10E SLBM * :X: : **X:X: : ** : : : ** : : : *||
|
|Sec 24 T 16S R 10E SLBM *X:X: : ** : : : ** : : : ** : : : *||
|
|Sec 01 T 16S R 11E SLBM * : : :X** : :X: ** :X: : **X: : : *||
|
|Sec 02 T 16S R 11E SLBM *X:X:X:X**X:X:X: **X:X:X:X** : : : *||
|
|Sec 05 T 16S R 11E SLBM *X:X:X:X** : : : ** : : : ** : : : *||
|
|Sec 06 T 16S R 11E SLBM *X:X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 07 T 16S R 11E SLBM *X:X:X:X**X:X:X:X**X:X:X:X**X:X:X:X*||
|
|Sec 08 T 16S R 11E SLBM *X: :X: ** : : : ** : : : ** : : : *||
|
|Sec 09 T 16S R 11E SLBM * : : : ** : : :X** : : : ** : : : *||
|
|Sec 10 T 16S R 11E SLBM *X:X:X:X**X:X:X:X**X:X:X:X** : : : *||
|

```
|Sec 11 T 16S R 11E SLBM     *X: :X: ** : : : ** : : : ** : : : *||
|
|Sec 16 T 16S R 11E SLBM     * : : : ** : : : **X:X:X:X**X: :X: *||
|
|Sec 17 T 16S R 11E SLBM     * : : : ** : : : **X:X:X: **X: :X:X*||
|
|Sec 20 T 16S R 11E SLBM     * : : : **X:X: :X** : : : ** : : : *||
|
|Sec 21 T 16S R 11E SLBM     *X:X:X:X** : : : ** : : : ** : : : *||
|
 _____________________________________________________________
|NATURE OF USE ------>                                          ||CHANGED as
follows:                                          |
|-------------------------------------------------------------||----------
----------------------------------------------------|
|IRR  = values are in acres.                                   ||
|
|STK  = values are in ELUs meaning Cattle or Equivalent.       ||
|
|DOM  = values are in EDUs meaning Equivalent Domestic Units (F  ||
|
|-------------------------------------------------------------||----------
----------------------------------------------------|
|SUPPLEMENTAL to Other Water Rights: Yes
||SUPPLEMENTAL to Other Water Rights: No                       |
|-------------------------------------------------------------||----------
----------------------------------------------------|
|IRR:      0.2000 acres.                      USED 04/01 - 10/31||IRR:
and       .2267 Supp acres   USED 04/01 - 10/31|
|.....................................................||.........
.....................................................|
|                                                              ||STK:
5.0000 Cattle or Equivalent         USED 04/01 - 09/30|
|.....................................................||.........
.....................................................|
|                                                              ||DOM:
1.0000 Equivalent Domestic Units.   USED 01/01 - 12/31|
 _____________________________________________________________
```

**********
**********

EXCHANGE: **E1912 (91-4889)** BASE WATER RIGHT: - STOCK/CONTRACT NUMBER:
COUNTY TAX ID#:
RIGHT EVIDENCED BY: Stock Cert. 4018, Price River Water Users Assoc.

**OWNERSHIP**

NAME: Jim Nicolodemos
ADDR: 1221 South 2820 West
South Jordan UT 84065

**DATES, ETC.**

```
FILED:     06/11/1981|PRIORITY:  06/11/1981|ADV BEGAN:          |ADV ENDED:
|NEWSPAPER:
ProtestEnd:          |PROTESTED: [No      ]||HEARNG HLD:         |SE ACTION:
[        ]||ActionDate:04/30/1982|PROOF DUE:
EXTENSION:           |ProofFiled:          |CertIssued:          |LAP, ETC:
|LAPS LETTR:          |RUSH LETTER:
```

RENOVATE: |RECON REQ: |TYPE: [ ]
Date Verified: Initials: Status: Approved
Related Distribution System: Not part of any Distribution System
**********C U R R E N T R I G H T
FLOW: 1.00 acre-feet
SOURCE: Scofield Reservoir
COUNTY: Carbon
POINT OF DIVERSION -- SURFACE:
(1) N 850 ft W 1080 ft from SE cor, Sec 10, T 12S, R 7E, SLBM
*-------------------------------------------------------------------------
NATURE OF USE:
.....
.....
###IRRIGATION: Total: acres Sole Supply: acres
PERIOD OF USE: 04/01 TO 10/31
**********P R O P O S E D E X C H A N G E
FLOW: 1.00 acre-feet PERIOD OF USE: 01/01 TO 12/31
SOURCE: Underground Water Well
COUNTY: Carbon COMMON DESCRIPTION: 12 1/2 Mi. NW of Scofield Dam
*-------------------------------------------------------------------------
==========
**LOCATION OF EXCHANGE***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========
POINT OF EXCHANGE -- UNDERGROUND: (Click link for PLAT data, click Well ID# link for more well data.)
(1) N 2145 ft W 1350 ft from E4 cor, Sec 05, T 13S, R 7E, SLBM
DIAMETER OF WELL: 6 ins. DEPTH: 100 to 500 ft. YEAR DRILLED:
WELL LOG? NO WELL ID#:
*-------------------------------------------------------------------------
POINT OF RELEASE:
FLOW: 1.00 acre-feet PERIOD OF USE: 01/01 TO 12/31
***Location of Release Point(s) is the SAME as Point(s) of Diversion in CURRENT RIGHT above.
*-------------------------------------------------------------------------
NATURE OF USE:
**********
**********

EXCHANGE: **E2567 (91-4909)** BASE WATER RIGHT: - STOCK/CONTRACT NUMBER:
COUNTY TAX ID#:
RIGHT EVIDENCED BY: Price River Water Users Assn. Stock Cert. #5163
==========
**OWNERSHIP**********

NAME: Scofield Town (Public Water Supplier)
ADDR: Attn: Jay N. Nelson, Mayor
Scofield Star Route
Helper UT 84526
INTEREST: 100% REMARKS:
**DATES,**
**ETC.**********

FILED: 10/13/1987|PRIORITY: 10/13/1987|ADV BEGAN: 11/18/1987|ADV ENDED:
|NEWSPAPER: Sun Advocate
ProtestEnd:01/01/1988|PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[Approved]|ActionDate:04/12/1988|PROOF DUE:
EXTENSION: |ProofFiled: |CertIssued: |LAP, ETC:
|LAPS LETTR: |RUSH LETTER:
RENOVATE: |RECON REQ: |TYPE: [ ]
Date Verified: /01/ 0 Initials: Status: Approved
Related Distribution System: Not part of any Distribution System
**********C U R R E N T R I G
HT**********
**
FLOW: 30.00 acre-feet
SOURCE: Scofield Reservoir
COUNTY: Carbon
POINT OF DIVERSION -- SURFACE:
(1) N 810 ft W 1000 ft from SE cor, Sec 10, T 12S, R 7E, SLBM
Diverting Works: Source: Scofield
Reservoir
*---
NATURE OF USE:
SUPPLEMENTAL to Other Water Rights
**********P R O P O S E D E X C H A N G E**********
FLOW: 30.00 acre-feet PERIOD OF USE: 01/01 TO 12/31
SOURCE: Underground Water Well
COUNTY: Carbon COMMON DESCRIPTION:
*---
LOCATION OF EXCHANGE***(Points of Diversion: Click on Location to access PLAT
Program.)**********MAP VIEWER**********
==========
POINT OF EXCHANGE -- UNDERGROUND: (Click link for PLAT data, click Well ID#
link for more well data.)
(1) S 1056 ft W 1451 ft from N4 cor, Sec 05, T 13S, R 7E, SLBM
DIAMETER OF WELL: 8 ins. DEPTH: 220 to ft. YEAR DRILLED:
WELL LOG? WELL ID#: 2933
*---
POINT OF RELEASE:
FLOW: PERIOD OF USE: / 0 TO / 0
***Location of Release Point(s) is the SAME as Point(s) of Diversion in
CURRENT RIGHT above.
*---
NATURE OF USE:
**********
**********

CHANGE: a34604 WATER RIGHT: 91-5165 CERT. NO.: COUNTY TAX
ID#: AMENDATORY? No
BASE WATER RIGHTS: 91-5165
RIGHT EVIDENCED BY: 91-5165 (based on one share of stock in the Price River
Water Users Association)
CHANGES: Point of Diversion [X], Place of Use [X], Nature of Use [X],
Reservoir Storage [ ].
*---

NAME: Robert & Ellen Radakovich Marital & Family Trust
ADDR: c/o Kari Fowler, Successor Trustee
2564 South Corral Drive

```
      Grand Juntion, CO  81505
                    REMARKS:

NAME: Price River Water Users Association
ADDR: 375 South Carbon Avenue, A-10
      Price, UT  84501
                    REMARKS:
*-------------------------------------------------------------------------
FILED:     07/01/2008|PRIORITY:  07/01/2008|ADV BEGAN: 08/21/2008|ADV ENDED:
08/28/2008|NEWSPAPER:  Sun Advocate
ProtestEnd:09/17/2008|PROTESTED: [No      ]|HEARNG HLD:          |SE ACTION:
[Approved]|ActionDate:03/11/2010|PROOF DUE:  03/31/2015
EXTENSION:           |ELEC/PROOF:[        ]|ELEC/PROOF:          |CERT/WUC:
|LAP, ETC:            |LAPS LETTER:
RUSH LETTR:          |RENOVATE:            |RECON REQ:           |TYPE: [
]
Status: Approved
Related Distribution System:  41-PRICE RIVER
**********H E R E T O F O R E**********
**********H E R E A F T E R**********
|FLOW:   1.0 acre-feet                                             ||FLOW:
1.0 acre-feet                                          |
|-----------------------------------------------------------------||----------
|SOURCE: Scofield Reservoir                                        ||SOURCE: 3
Underground Water Wells (existing)                     |
|COUNTY: Carbon                                                    ||COUNTY:
Carbon     COM DESC: 1/2 Mile SW of Scofield Town       |
 _________________________________________________________________

|POINT(S) OF DIVERSION ------> MAP VIEWER                         ||CHANGED AS
FOLLOWS: (Click Location link for WRPLAT)              |
|-----------------------------------------------------------------||----------
|Point Surface:                                                    ||
|
|(1)  N  810 ft W  990 ft from SE cor, Sec 10, T 12S, R  7E, SLBM||
|
| Dvrting Wks: Earthen Dam                                         ||
|
| Source:                                                          ||
||----------------------------------------------------------------||---------
-|Point Underground:
||UNDERGROUND: (Click Link for PLAT data, Well ID# link for data.)|
|                                                                  ||(1)  N
1347 ft W  995 ft from S4 cor, Sec 05, T 13S, R  7E, SLBM|
|                                                                  ||
Diameter:     ins.  Depth:      to      ft.  WELL ID#:         |
|                                                                  ||(2)  N
334 ft E  432 ft from W4 cor, Sec 05, T 13S, R  7E, SLBM|
|                                                                  ||
Diameter:  6  ins.  Depth: 205  to      ft.  WELL ID#:         |
|                                                                  ||(3)  N
1249 ft W  256 ft from SE cor, Sec 06, T 13S, R  7E, SLBM|
|                                                                  ||
Diameter:     ins.  Depth:      to      ft.  WELL ID#:         |
|-----------------------------------------------------------------||----------
|PLACE OF USE ------>                                             ||CHANGED as
follows:                                               |
```

```
|-------------------------------------------------------------||----------
|                              --NW¼--  --NE¼--  --SW¼--  --SE¼-- ||
--NW¼--  --NE¼--  --SW¼--  --SE¼-- |
|                              |N N S S||N N S S||N N S S||N N S S|||
|N N S S||N N S S||N N S S||N N S S||
|                              |W E W E||W E W E||W E W E||W E W E|||
|W E W E||W E W E||W E W E||W E W E||
|                                                             ||Sec 05 T
13S R  7E SLBM     * : :X: ** : : : ** :X: : ** : : : *|
|                                                             ||Sec 06 T
13S R  7E SLBM     * : : : ** : : : ** : : : ** : : :X*|
 _____________________________________________________________
|NATURE OF USE ------>                                        ||CHANGED as
follows:                                          |
|IRR  = values are in acres.                                  ||
|
|STK  = values are in ELUs meaning Cattle or Equivalent.      ||
|
|DOM  = values are in EDUs meaning Equivalent Domestic Units (F  ||
|
|-------------------------------------------------------------||----------
|SUPPLEMENTAL to Other Water Rights: No
||SUPPLEMENTAL to Other Water Rights: No                      |
|-------------------------------------------------------------||----------
|IRR:      0.2000 acres.                      USED 04/01 - 10/31||
|
|.............................................................||.........
38.0000 Cattle or Equivalent         USED 06/01 - 10/31|
                                                            ||DOM:
1.0000 Equivalent Domestic Units.   USED 01/01 - 12/31|
**********************************************************E N D   O F   D A T


EXCHANGE: E1934 (91-4891) BASE WATER RIGHT:   -        STOCK/CONTRACT NUMBER:
COUNTY TAX ID#:
RIGHT EVIDENCED BY: Price River Water Users Association Stock Certific
                    ate # 4035
================================================================================
OWNERSHIP*******************************************************************

NAME:  UCO Incorporated
ADDR: 1580 Lincoln Suite 530
      Denver UT 80203
================================================================================
DATES,
ETC.************************************************************************
FILED:     06/29/1981|PRIORITY:  06/29/1981|ADV BEGAN:           |ADV ENDED:
|NEWSPAPER:
ProtestEnd:          |PROTESTED: [No      ]|HEARNG HLD:          |SE ACTION:
[        ]|ActionDate:01/21/1983|PROOF DUE:
EXTENSION:           |ProofFiled:          |CertIssued:          |LAP, ETC:
|LAPS LETTR:          |RUSH LETTER:
RENOVATE:            |RECON REQ:           |TYPE: [             ]
Date Verified:             Initials:           Status: Approved
Related Distribution System:  Not part of any Distribution System
*****************************************C U R R E N T   R I G H T***
```

FLOW:  20.00 acre-feet
SOURCE: Scofield Reservoir
COUNTY: Carbon
POINT OF DIVERSION -- SURFACE:
(1) N  810 ft W 1000 ft from SE cor, Sec 10, T 12S, R  7E, SLBM
Diverting Works:  Source:  Scofield Reservoir
*---
NATURE OF USE:
.....
###OTHER  Irrigation under Wellington Canal System.
PERIOD OF USE: 01/01 TO 12/31
**********P R O P O S E D  E X C H A N G E**********
FLOW:  20.00 acre-feet  PERIOD OF USE: 01/01 TO 12/31
SOURCE: Underground Water Well
COUNTY: Carbon  COMMON DESCRIPTION: 1.5 - 2.5 mi. W. Scofield Town
*---
**LOCATION OF EXCHANGE***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

POINT OF EXCHANGE -- UNDERGROUND: (Click link for PLAT data, click Well ID# link for more well data.)
(1) N 1320 ft  0 ft from S4 cor, Sec 21, T 12S, R  7E, SLBM
DIAMETER OF WELL:  ins. DEPTH:  to  ft.  YEAR DRILLED:
WELL LOG? NO WELL ID#:
(2) N 1771 ft E  210 ft from S4 cor, Sec 21, T 12S, R  7E, SLBM
DIAMETER OF WELL:  ins. DEPTH:  to  ft.  YEAR DRILLED:
WELL LOG? NO WELL ID#:
(3) N 2220 ft E  420 ft from S4 cor, Sec 21, T 12S, R  7E, SLBM
DIAMETER OF WELL:  ins. DEPTH:  to  ft.  YEAR DRILLED:
WELL LOG? NO WELL ID#:
(4) N 2640 ft E  630 ft from S4 cor, Sec 21, T 12S, R  7E, SLBM
DIAMETER OF WELL:  ins. DEPTH:  to  ft.  YEAR DRILLED:
WELL LOG? NO WELL ID#:
(5) S 2200 ft W  700 ft from NE cor, Sec 01, T 13S, R  6E, SLBM
DIAMETER OF WELL:  ins. DEPTH:  to  ft.  YEAR DRILLED:
WELL LOG? NO WELL ID#:
(6) S 2000 ft W 2300 ft from NE cor, Sec 01, T 13S, R  6E, SLBM
DIAMETER OF WELL:  ins. DEPTH:  to  ft.  YEAR DRILLED:
WELL LOG? NO WELL ID#:
(7) S 1300 ft W 2200 ft from NE cor, Sec 12, T 13S, R  6E, SLBM
DIAMETER OF WELL:  ins. DEPTH:  to  ft.  YEAR DRILLED:
WELL LOG? NO WELL ID#:
(8) S 2100 ft E 2500 ft from NW cor, Sec 06, T 13S, R  7E, SLBM
DIAMETER OF WELL:  ins. DEPTH:  to  ft.  YEAR DRILLED:
WELL LOG? NO WELL ID#:
(9) S 2100 ft E 1000 ft from NW cor, Sec 06, T 13S, R  7E, SLBM
DIAMETER OF WELL:  ins. DEPTH:  to  ft.  YEAR DRILLED:
WELL LOG? NO WELL ID#:
*---
POINT OF RELEASE:
FLOW:  20.00 acre-feet  PERIOD OF USE: 01/01 TO 12/31
***Location of Release Point(s) is the SAME as Point(s) of Diversion in CURRENT RIGHT above.
*---
NATURE OF USE:

SUPPLEMENTAL GROUP NO. 615764.

**SEGREGATION HISTORY**

This Exchange as originally filed:

| FLOW IN | QUANTITY IN | | | | |
|---|---|---|---|---|---|
| W A T E R U S E S | | | | | |
| | CFS | ACRE-FEET | IRRIGATED | STOCK | |
| DOMESTIC | MUNICIPAL | MINING | POWER | OTHER | |
| | | | | ACREAGE | (ELUs) |
| (FAMILIES) | (ACRE-FEET) | | | | |
| | | 20.0 | | | |

**E N D O F D A T A**

**CH**ANGE: **a34604** WATER RIGHT: 91-5165 CERT. NO.: COUNTY TAX ID#: AMENDATORY? No

BASE WATER RIGHTS: 91-5165

RIGHT EVIDENCED BY: 91-5165 (based on one share of stock in the Price River Water Users Association)

CHANGES: Point of Diversion [X], Place of Use [X], Nature of Use [X], Reservoir Storage [ ].

NAME: Robert & Ellen Radakovich Marital & Family Trust
ADDR: c/o Kari Fowler, Successor Trustee
2564 South Corral Drive
Grand Juntion, CO 81505
REMARKS:

NAME: Price River Water Users Association
ADDR: 375 South Carbon Avenue, A-10
Price, UT 84501
REMARKS:

FILED: 07/01/2008|PRIORITY: 07/01/2008|ADV BEGAN: 08/21/2008|ADV ENDED: 08/28/2008|NEWSPAPER: Sun Advocate
ProtestEnd:09/17/2008|PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [Approved]|ActionDate:03/11/2010|PROOF DUE: 03/31/2015
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: |LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
Status: Approved
Related Distribution System: 41-PRICE RIVER

**H E R E T O F O R E**

**H E R E A F T E R**

|FLOW: 1.0 acre-feet ||FLOW: 1.0 acre-feet |
|---|---|
|SOURCE: Scofield Reservoir ||SOURCE: 3 Underground Water Wells (existing) |
|COUNTY: Carbon ||COUNTY: Carbon COM DESC: 1/2 Mile SW of Scofield Town |

**|POINT(S) OF DIVERSION ------> MAP VIEWER ||CHANGED AS FOLLOWS: (Click Location link for WRPLAT) |**

|Point Surface: ||
|
|(1) N 810 ft W 990 ft from SE cor, Sec 10, T 12S, R 7E, SLBM||
|
| Dvrting Wks: Earthen Dam ||
|
| Source: ||
||----------||
-|Point Underground:
||UNDERGROUND: (Click Link for PLAT data, Well ID# link for data.)|
| ||(1) N
1347 ft W 995 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM|
| ||
Diameter: ins. Depth: to ft. WELL ID#: |
| ||(2) N
334 ft E 432 ft from W4 cor, Sec 05, T 13S, R 7E, SLBM|
| ||
Diameter: 6 ins. Depth: 205 to ft. WELL ID#: |
| ||(3) N
1249 ft W 256 ft from SE cor, Sec 06, T 13S, R 7E, SLBM|
| ||
Diameter: ins. Depth: to ft. WELL ID#: |
|----------||----------
**|PLACE OF USE ------> ||CHANGED as follows: |**
|----------||----------
| --NW¼-- --NE¼-- --SW¼-- --SE¼-- ||
--NW¼-- --NE¼-- --SW¼-- --SE¼-- |
| |N N S S||N N S S||N N S S||N N S S|||
|N N S S||N N S S||N N S S||N N S S||
| |W E W E||W E W E||W E W E||W E W E|||
|W E W E||W E W E||W E W E||W E W E||
| ||Sec 05 T
13S R 7E SLBM * : :X: ** : : : ** :X: : ** : : : *|
| ||Sec 06 T
13S R 7E SLBM * : : : ** : : : ** : : : ** : : :X*|

**|NATURE OF USE ------> ||CHANGED as follows: |**
|----------||----------
**|IRR = values are in acres. ||**
|
**|STK = values are in ELUs meaning Cattle or Equivalent. ||**
|
**|DOM = values are in EDUs meaning Equivalent Domestic Units (F ||**
|
|----------||----------
|SUPPLEMENTAL to Other Water Rights: No
||SUPPLEMENTAL to Other Water Rights: No |
|----------||----------
|IRR: 0.2000 acres. USED 04/01 - 10/31||
|
| ||STK:
38.0000 Cattle or Equivalent USED 06/01 - 10/31|
| ||DOM:
1.0000 Equivalent Domestic Units. USED 01/01 - 12/31|

**********E N D  O F  D A T A********
**********
**********

EXCHANGE: **E2188 (91-4894)** BASE WATER RIGHT: - STOCK/CONTRACT NUMBER:
COUNTY TAX ID#:
RIGHT EVIDENCED BY: Price River Water Users Certificate Number: 4135
Midvale, Utah
**OWNERSHIP**********

NAME: Corporation of the Presiding Bishop LDS Church
ADDR: ATTN: Natural Resource Services
50 E. North Temple, 12th Floor East
Salt Lake City UT 84150-6321
**DATES, ETC.**********
FILED: 05/16/1983|PRIORITY: 05/16/1983|ADV BEGAN: 11/28/1983|ADV ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[Approved]|ActionDate:03/23/1984|PROOF DUE:
EXTENSION: |ProofFiled: |CertIssued: |LAP, ETC:
|LAPS LETTR: |RUSH LETTER:
RENOVATE: |RECON REQ: |TYPE: [ ]
Date Verified: Initials: Status: Approved
Related Distribution System: Not part of any Distribution System
**********C U R R E N T R I G H T**********
FLOW: 1.00 acre-feet
SOURCE: Scofield Reservoir
COUNTY: Carbon
POINT OF DIVERSION -- SURFACE:
(1) N 850 ft W 1080 ft from SE cor, Sec 10, T 12S, R 7E, SLBM
*---
NATURE OF USE:
SUPPLEMENTAL to Other Water Rights
==========
**OTHER COMMENTS**********
The water use is shown as Irrigation on Price River
**********P R O P O S E D E X C H A N G E**********
FLOW: 1.00 acre-feet PERIOD OF USE: 01/01 TO 12/31
SOURCE: Underground Water Well
COUNTY: Carbon COMMON DESCRIPTION: 1 Miles
South of Scofield
*---

**LOCATION OF EXCHANGE***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========

POINT OF EXCHANGE -- UNDERGROUND: (Click link for PLAT data, click Well ID#
link for more well data.)
(1) S 310 ft W 580 ft from N4 cor, Sec 08, T 13S, R 7E, SLBM
DIAMETER OF WELL: 8 ins. DEPTH: 140 to ft. YEAR DRILLED:
WELL LOG? WELL ID#: 7196
*---
POINT OF RELEASE:
FLOW: 1.00 acre-feet PERIOD OF USE: 01/01 TO 12/31

***Location of Release Point(s) is the SAME as Point(s) of Diversion in CURRENT RIGHT above.

NATURE OF USE:
SUPPLEMENTAL GROUP NO. 615767.

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 20.0000
Div Limit: PERIOD OF USE: 05/01 TO 10/31

###PLACE OF USE: NORTH WEST QUARTER | NORTH EAST QUARTER | SOUTH WEST QUARTER | SOUTH EAST QUARTER | Section

| | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sec 08 T 13S R 7E SLBM | | | | X | | | | | | | | | 0.0000 |

**OTHER COMMENTS**

Note on the file says to send a copy of all correspondence to:
Trent G. Jeppson, 420 Wilson Street - Midvale, Utah 84047

**SEGREGATION HISTORY**

This Exchange as originally filed:

| WATER USES | FLOW IN CFS | QUANTITY IN ACRE-FEET | IRRIGATED ACREAGE | STOCK (ELUs) |
|---|---|---|---|---|
| DOMESTIC (FAMILIES) | | | | |
| MUNICIPAL | | | | |
| MINING | | | | |
| POWER | | | | |
| OTHER | | 1.0 | | 20.0000 |

**E N D O F D A TA**

WATER RIGHT: **91-5069** APPLICATION/CLAIM NO.: CERT. NO.: CERTIFICAT
CHANGES: a27697 Certificate (Issued: 02/08/2011)

**OWNERSHIP**

NAME: Rudman Land and Livestock L.L.C.
ADDR: 1111 East Brickyard Road Suite 106
Salt Lake City, UT 84106

**DATES, ETC.**

LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:

ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: |LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [ 91- ]|MAP: [ ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------***

Type of Right: Diligence Claim Source of Info: Certificate
Status: Certificate

==========

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)*********MAP VIEWER***GOOGLE VIEW***

==========

FLOW: 1.2436 acre-feet SOURCE: Unnamed Spring and Woods Canyon Creek
COUNTY: Carbon COMMON DESCRIPTION: Woods Canyon

POINT OF SPRING:
(1) S 1346 ft W 630 ft from N4 cor, Sec 32, T 12S, R 7E, SLBM
Diverting Works: Collection box and pipeline
Source:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at S 1441 ft. E 1343 ft. from NW corner, Sec 32, T12S, R7E, SLBM,
to a point at S 1272 ft. W 277 ft. from N4 corner, Sec 32, T12S, R7E, SLBM.
SOURCE:

==========

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

==========

SUPPLEMENTAL GROUP NO.: **615951.**

.....
.....

STOCKWATER: 35.0000 Stock Units
Div Limit: 0.98 acft. PERIOD OF USE: 01/01 TO 12/31

.....

OTHER: Evaporation
PERIOD OF USE: 01/01 TO 12/31
Acre Feet Contributed by this Right for this Use: 0.2636

.....

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section

| | * | NW | NE | SW | SE | * | NW | NE | SW | SE | * | NW | NE | SW | SE | * | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sec 32 T 12S R 7E SLBM | * | | | | | * | | | | | * | | | X | | * | 0.0000 |

GROUP ACREAGE TOTAL: 0.0000

==========

Storage from 01/01 to 12/31, inclusive, in Woods Canyon Pond with a maximum capacity of 0.390 acre-feet, located in:

Height of Dam: 3 NORTH-WEST¼ NORTH-EAST¼ SOUTH-WEST¼ SOUTH-EAST¼
Area Inundated: 0.22 NW NE SW SE NW NE SW SE NW NE SW SE NW NE SW SE
Sec 32 T 12S R 7E SLBM * : X: : * * : : : * * : : : * * : : : *

Small Dam Required?: No

**SEGREGATION HISTORY**

This Right was Segregated from 91-3655 , with Appl#: , Approval Date: / /
under which Proof is to be submitted.
This Right as originally filed:

| FLOW IN | QUANTITY IN | | | | | |
|---|---|---|---|---|---|---|
| WATER USES | CFS | ACRE-FEET | IRRIGATED ACREAGE | STOCK (ELUs) | DOMESTIC (FAMILIES) | MUNICIPAL |
| | | 1.4 | | 50.0000 | | |

MINING POWER OTHER
50 ELU from 91-3655 only.

WATER RIGHT: **91-3401** APPLICATION/CLAIM NO.: CERT. NO.:

**OWNERSHIP**

NAME: Waino E. Burton
ADDR: Scofield UT
INTEREST: 100% REMARKS:

**DATES, ETC.**

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1895|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 08/02/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-1 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**

Type of Right: Diligence Claim Source of Info: Proposed Determination Status:

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)*********MAP VIEWER***GOOGLE VIEW***

FLOW: 0.011 cfs SOURCE: Underground Water Well
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- UNDERGROUND: (Click Well ID# link for more well data.)
(1) N  625 ft E  710 ft from S4 cor, Sec 32, T 12S, R  7E, SLBM
DIAMETER OF WELL:    ins. DEPTH:      to
ft.[illegible] YEAR DRILLED:      WELL LOG? No WELL ID#:
==========
**USES OF WATER RIGHT********** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family*
==========
SUPPLEMENTAL GROUP NO.: **614798.** Water Rights Appurtenant to the following use(s):
91-3401(DIL),3402(DIL)

.....
.....
  STOCKWATER: Sole Supply: UNEVALUATED ELUs      Group Total: 4.0000
Div Limit: 0.11 acft.      PERIOD OF USE: 01/01 TO 12/31
*==========
SUPPLEMENTAL GROUP NO.: **614799.**
91-3401(DIL)

.....
.....
  DOMESTIC:   Sole Supply: UNEVALUATED EDUs      Group Total: 1.0000
Div Limit: 0.73 acft.      PERIOD OF USE: 01/01 TO 12/31
**********E N D  O F  D A T A**********
**********
**********

EXCHANGE: **E164** **(91-4945)** BASE WATER RIGHT:  -  STOCK/CONTRACT NUMBER:
COUNTY TAX ID#:
RIGHT EVIDENCED BY: Price River Water Users Certificate Number:

**OWNERSHIP************

NAME: Louis Gorishek
ADDR: Scofield UT
==========
**DATES, ETC.************
FILED:  02/18/1965|PRIORITY:  02/18/1965|ADV BEGAN:  |ADV ENDED:
|NEWSPAPER:
ProtestEnd:  |PROTESTED: [No  ]|HEARNG HLD:  |SE ACTION:
[  ]|ActionDate:09/10/1965|PROOF DUE:
EXTENSION:  |ProofFiled:  |CertIssued:  |LAP, ETC:
|LAPS LETTR:  |RUSH LETTER:
RENOVATE:  |RECON REQ:  |TYPE: [  ]
Date Verified: 08/03/1993  Initials: MJK  Status: Approved
Related Distribution System:  Not part of any Distribution System
**********C U R R E N T  R I G H T**********
FLOW:  1.00 acre-feet
SOURCE: Scofield Reservoir
COUNTY: Carbon
POINT OF DIVERSION -- SURFACE:
(1) N  850 ft W 1080 ft from SE cor, Sec 10, T 12S, R  7E, SLBM
*----------
NATURE OF USE:
.....

###MISCELLANEOUS Irrigation on the Price River
PERIOD OF USE: 03/15 TO 11/30
**********P R O P O S E D E X C H A N GE**********
FLOW: 1.00 acre-feet PERIOD OF USE: 01/01 TO 12/31
SOURCE: Underground Water Well
COUNTY: Carbon COMMON DESCRIPTION:
*---
**LOCATION OF EXCHANGE***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

POINT OF EXCHANGE -- UNDERGROUND: (Click link for PLAT data, click Well ID# link for more well data.)
(1) N 30 ft E 465 ft from S4 cor, Sec 32, T 12S, R 7E, SLBM
DIAMETER OF WELL: 7 ins. DEPTH: 65 to ft. YEAR DRILLED:
WELL LOG? NO WELL ID#:
*---
POINT OF RELEASE:
FLOW: 1.00 acre-feet PERIOD OF USE: 01/01 TO 12/31
***Location of Release Point(s) is the SAME as Point(s) of Diversion in CURRENT RIGHT above.
*---
NATURE OF USE:
SUPPLEMENTAL GROUP NO. 615819.
.....
DOMESTIC: Sole Supply: UNEVALUATED EDUs Group Total: 1.0000
Div Limit: PERIOD OF USE: 01/01 TO 12/31
==========
**SEGREGATION HISTORY**********
This Exchange as originally filed:

| FLOW IN | QUANTITY IN | | | | |
|---|---|---|---|---|---|
| ----W A T E R U S E S---------- | | | | | |
| CFS | ACRE-FEET | IRRIGATED | STOCK | | |
| DOMESTIC | MUNICIPAL | MINING | POWER | OTHER | |
| | | | | ACREAGE | (ELUs) |
| (FAMILIES) | (*----------ACRE-FEET----------*) | | | | |
| | | | 1.0 | | |
| 1.0000 | | | | | |

**********E N D O F D A T A**********

## Kinney No 2 Mine Water Rights Search

## Feb 18, 2011

## Surface Water Rights By Sections

**Search of Section 20, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all**

**Water Rights Section 20, T12S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| 91-3909 | Point to Point<br>N660 E660 S4 20 12S 7E SL | | P | 1869 | S | 0.000 | 0.000 | LOUISE M. WATTS<br>UT |

**Search of Section 21, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all**

**Water Rights Section 21, T12S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| 91-3514 | Point to Point<br>S660 W660 E4 21 12S 7E SL | | P | 18690000 | S | 0.011 | 0.000 | MILTON E. JACOB<br>PAUL JACOB, TRUSTEE |

**Search of Section 27, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all**

**Water Rights Section 27, T12, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| 91-1475 | Point to Point | | P | 19020000 | S | 0.000 | 0.000 | CLARENCE ANDERSON |
| | N660 W660 E4 27 12S 7E SL | | | | | | | GENERAL DELIVERY |

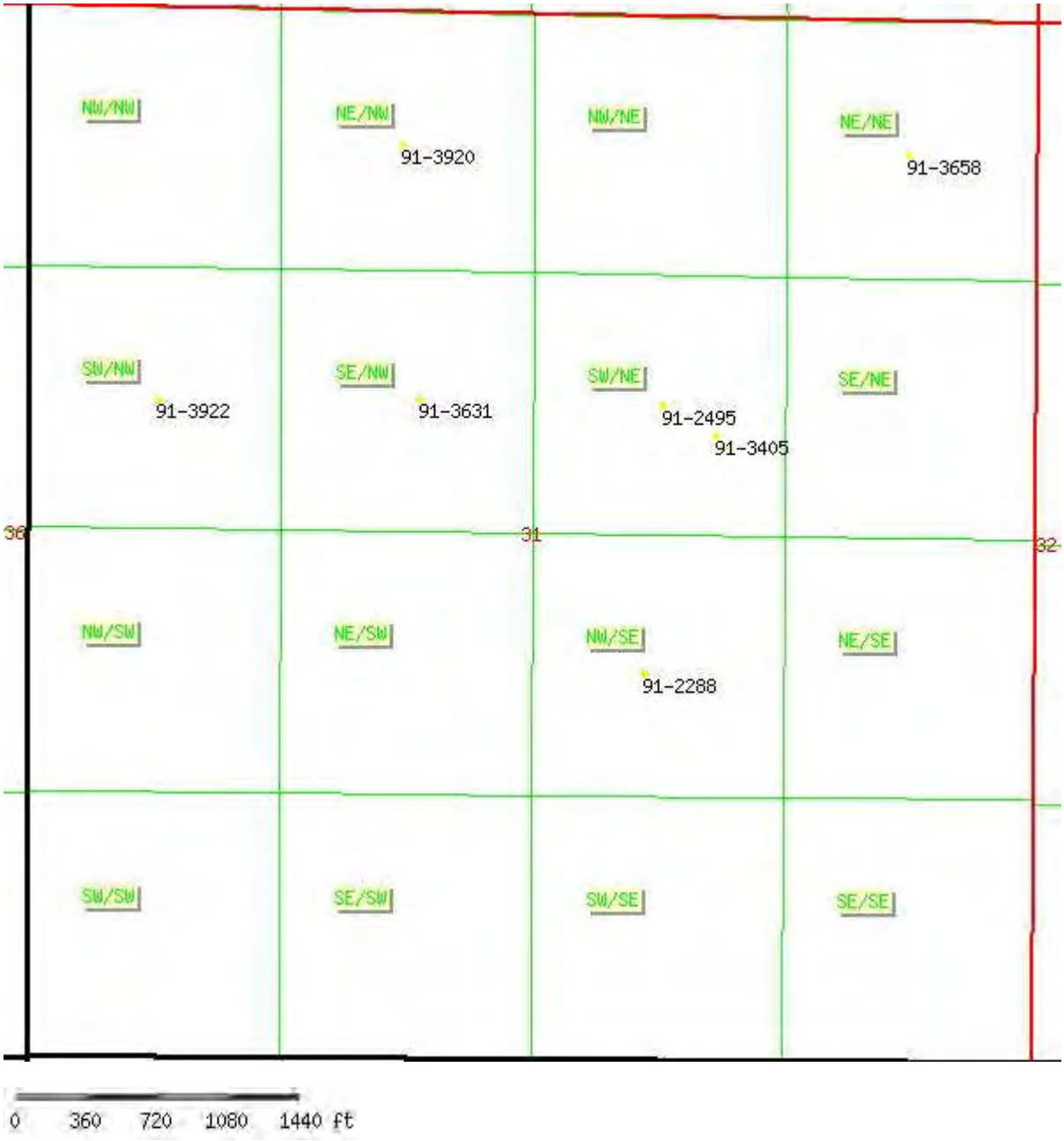
| | | | | | | |
|---|---|---|---|---|---|---|
| 91-3516 | Point to Point<br>S660 W660 NE 27 12S 7E SL | P | 18690000 | S | 0.000 0.000 | MILTON E. JACOB<br>PAUL JACOB, TRUSTEE |
| 91-4107 | Point to Point<br>S660 E660 N4 27 12S 7E SL | U | 1869 | DS | 0.011 0.000 | MILTON E. JACOB<br>PAUL JACOB, TRUSTEE |
| 91-3513 | Point to Point<br>S660 E660 N4 27 12S 7E SL | P | 18690000 | S | 0.000 0.000 | MILTON E. JACOB<br>349 EAST 200 SOUTH |
| 91-352 | Point to Point<br>N660 W660 E4 27 12S 7E SL | P | 18600000 | DS | 0.000 0.000 | CLARENCE ANDERSON |
| 91-640 | Point to Point<br>N660 E660 S4 27 12S 7E SL | P | 18600000 | DS | 0.000 0.000 | CLARENCE ANDERSON |

**Search of Section 29, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all**

**Water Rights Section 29, T12S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| 91-3442 | Point to Point | | P | 18690000 | S | 0.011 | 0.000 | DELLA L. MADSEN |
| | S660 E660 NW 29 12S 7E SL | | | | | | | MEADOW UT 84644 |
| 91-3443 | Point to Point | | P | 18690000 | S | 0.011 | 0.000 | DELLA L. MADSEN |
| | S660 E660 NW 29 12S 7E SL | | | | | | | MEADOW UT 84644 |
| 91-3601 | Point to Point | | P | 18690000 | S | 0.011 | 0.000 | DELLA L. MADSEN |
| | N660 E660 W4 29 12S 7E SL | | | | | | | MEADOW UT 84644 |
| 91-3910 | Point to Point | | P | 1869 | S | 0.000 | 0.000 | REED & LEON GUNDERSON |
| | S660 W660 N4 29 12S 7E SL | | | | | | | UT |
| 91-3910 | Point to Point | | P | 1869 | S | 0.000 | 0.000 | REED & LEON GUNDERSON |
| | S660 E660 N4 29 12S 7E SL | | | | | | | UT |
| 91-3911 | Point to Point | | P | 1869 | S | 0.000 | 0.000 | DELLA L. & HILDA M. MADSEN |
| | N660 E1980 W4 29 12S 7E SL | | | | | | | UT |
| 91-3911 | Point to Point | | P | 1869 | S | 0.000 | 0.000 | DELLA L. & HILDA M. MADSEN |
| | S1980 E660 N4 29 12S 7E SL | | | | | | | UT |
| 91-3648 | Point to Point | | P | 1869 | S | 0.000 | 0.000 | BILL B. AND UTAHNA PACE JONES |
| | S660 W1980 E4 29 12S 7E SL | | | | | | | SCOFIELD UT 84526 |
| 91-2997 | Surface | | P | 1874 | DI | 0.000 | 38.800 | GLADYS P. BUTLER |
| | N1810 E2535 SW 29 12S 7E SL | | | | | | | 1584 EAST 1500 NORTH |
| a15120 | Surface | | A | 19890608 | DI | 0.500 | 0.000 | GLADYS P. BUTLER |

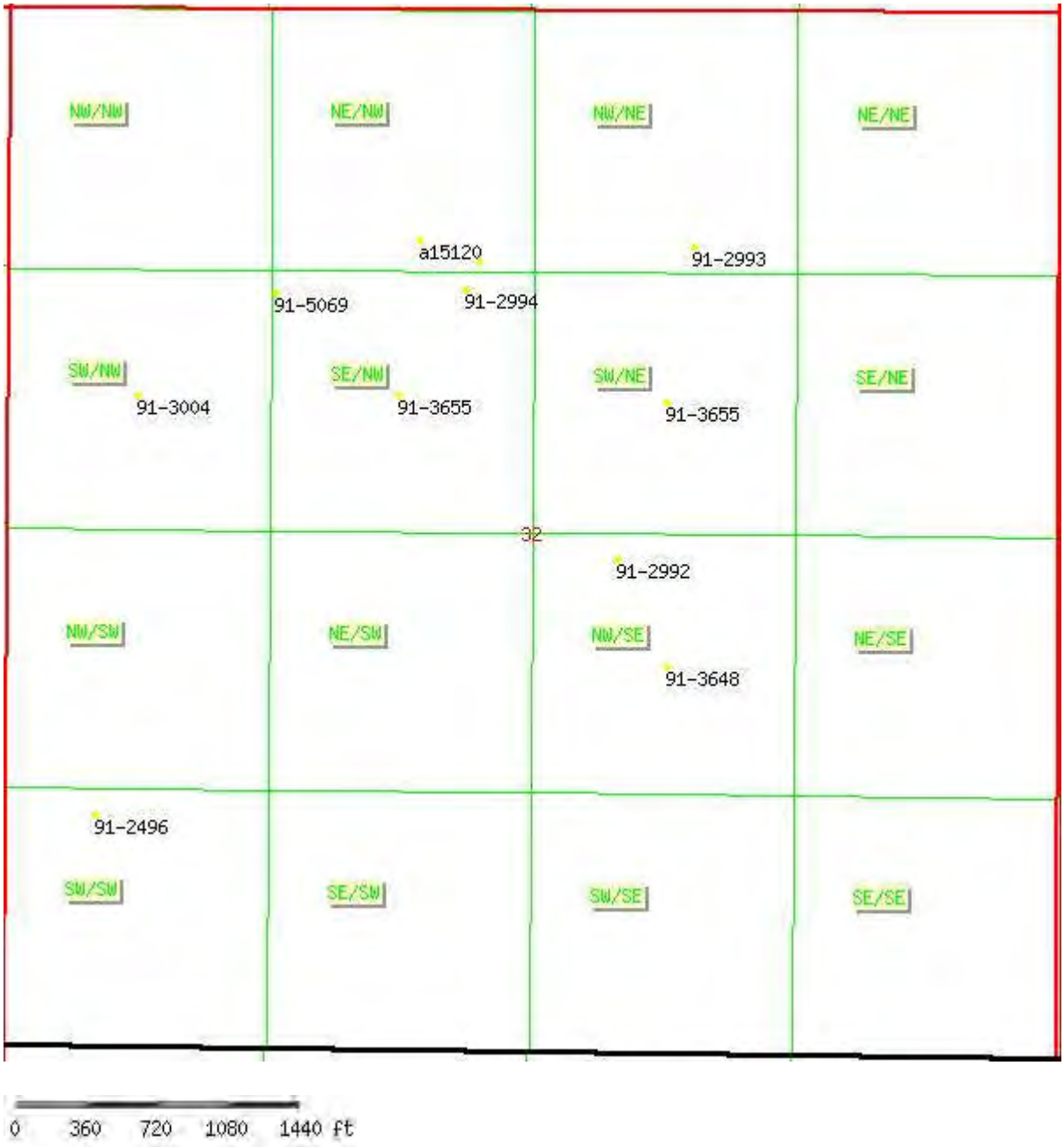
**Search of Section 31, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all**



**Water Rights Section 31, T12S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| 91-3658 | Point to Point | | P | 1902 | S | 0.000 | 0.000 | BILL & UTAHNA JONES FAMILY TRUST |
| | S660 W660 NE 31 12S 7E SL | | | | | | | GAYLAND B.JONES & JUDY SMITH AS SUCCESSOR TRUSTEES |

**Search of Section 32, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all**



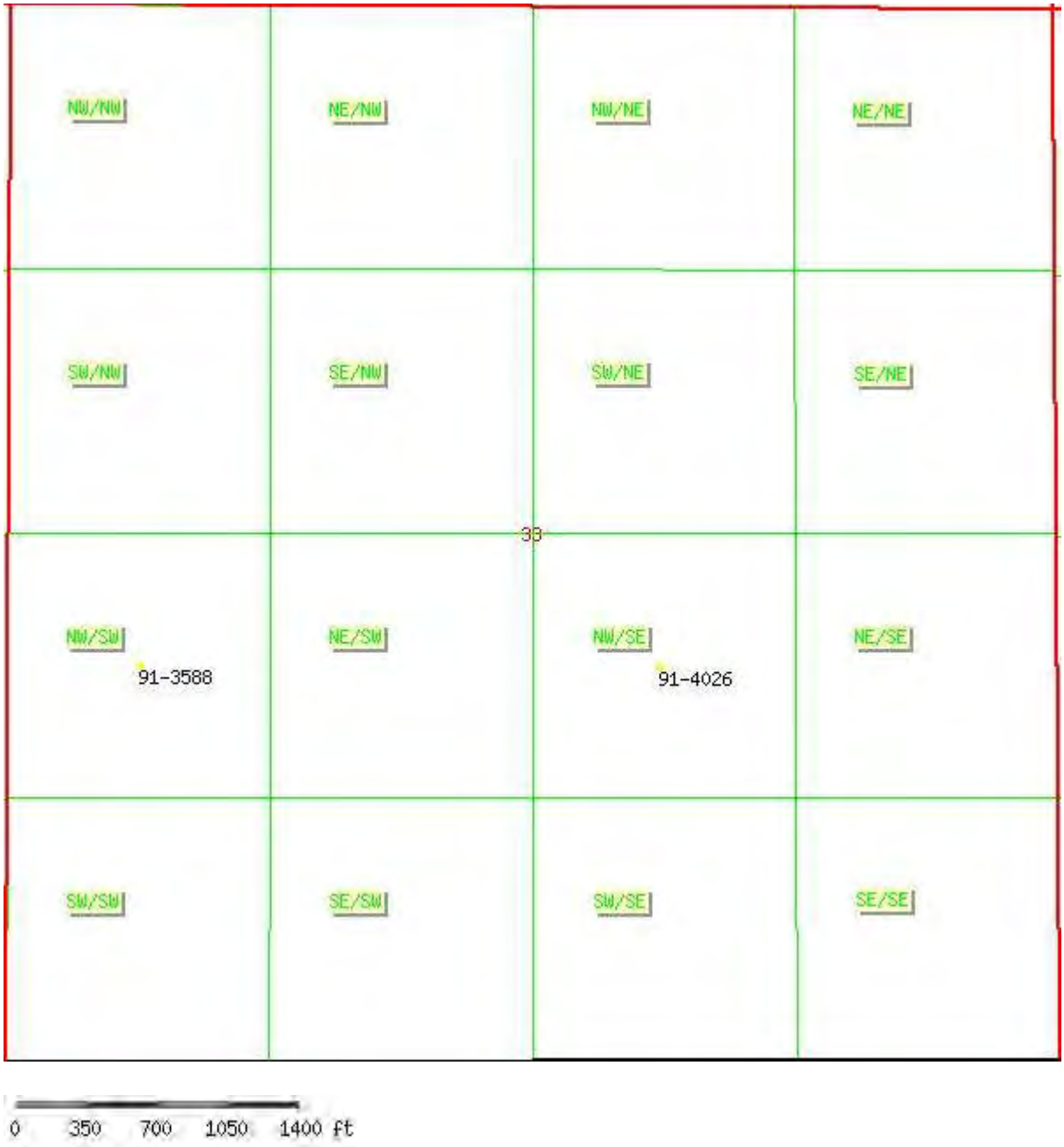

**Water Rights Section 32, T12S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| 91-2496 | Point to Point | | P | 1902 | S | 0.000 | 0.000 | MATTIE B. CORNABY FAMILY TRUST |
| | N1160 E460 SW 32 12S 7E SL | | | | | | | MATTIE B. AND WILLIAM ARGYLE CORNABY TRUSTEES |

| | | | | | | |
|---|---|---|---|---|---|---|
| 91-3648 | Point to Point | P | 1869 | S | 0.000 0.000 | BILL B. AND UTAHNA PACE JONES |
| | S660 W1980 E4 32 12S 7E SL | | | | | 555 W. FRONT STREET |
| 91-3655 | Point to Point | P | 1869 | S | 0.000 4.200 | BILL & UTAHNA JONES FAMILY TRUST |
| | N660 E1980 W4 32 12S 7E SL | | | | | BILL & UTAHNA JONES TRUSTEES, GAYLORD & JUDY |
| 91-5069 | Point to Point | P | 18690000 | OS | 0.000 1.244 | RUDMAN LAND AND LIVESTOCK L.L.C. |
| | S1441 E1343 NW 32 12S 7E SL | | | | | 1111 EAST BRICKYARD ROAD SUITE 106 |
| 91-2495 | Point to Point | P | 1869 | IS | 0.000 0.000 | MATTIE B. CORNABY FAMILY TRUST |
| | N660 E660 W4 32 12S 7E SL | | | | | 5087 SOUTH 3200 WEST |
| 91-3655 | Point to Point | P | 1869 | S | 0.000 4.200 | BILL & UTAHNA JONES FAMILY TRUST |
| | S1980 E660 N4 32 12S 7E SL | | | | | 555 W. FRONT STREET |
| 91-5069 | Point to Point | P | 18690000 | OS | 0.000 1.244 | RUDMAN LAND AND LIVESTOCK L.L.C. |
| | S1272 W277 N4 32 12S 7E SL | | | | | SALT LAKE CITY, UT 84106 |
| 91-2992 | Surface | P | 1874 | I | 4.580 0.000 | BILL B. AND UTAHNA PACE JONES |
| | S120 W2230 E4 32 12S 7E SL | | | | | PALMYRA UT |
| 91-2993 | Surface | P | 1874 | I | 4.580 0.000 | BILL B. AND UTAHNA PACE JONES |
| | S1200 E800 N4 32 12S 7E SL | | | | | PALMYRA UT |
| 91-2994 | Surface | P | 1874 | I | 0.012 0.000 | BILL B. AND UTAHNA PACE JONES |
| | S1410 W350 N4 32 12S 7E SL | | | | | PALMYRA UT |
| 91-2995 | Surface | P | 1874 | I | 0.000 0.000 | BILL B. AND UTAHNA PACE JONES |
| | S1160 W580 N4 32 12S 7E SL | | | | | PALMYRA UT |
| 91-2997 | Surface | P | 1874 | DI | 0.000 38.800 | LAZY CP LIMITED PARTNERSHIP |
| | S1160 W580 N4 32 12S 7E SL | | | | | C/O CLYDE PANNIER AND MARILYN PANNIER |
| 91-2998 | Surface | P | 18740000 | I | 0.500 0.000 | LAZY CP LIMITED PARTNERSHIP |
| | S1160 W580 N4 32 12S 7E SL | | | | | (CLYDE PANNIER AND MARILYN PANNIER) |
| 91-2999 | Surface | P | 18740000 | I | 0.136 0.000 | REED & LEOAN M. GUNDERSON |

| | | | | | | |
|---|---|---|---|---|---|---|
| | N660 E660 W4 32 12S 7E SL | | | | | 3990 RAYMOND |
| 91-3002 | Surface | P | 1874 | I | 0.035 0.000 | DELLA L. MADSEN |
| | N660 E660 W4 32 12S 7E SL | | | | | MEADOW UT 84644 |
| 91-3003 | Surface | P | 1874 | I | 0.433 0.000 | CHARLYN J. DALEBOUT |
| | N660 E660 W4 32 12S 7E SL | | | | | 284 `M` STREET |
| 91-3004 | Surface | P | 1874 | I | 0.433 0.000 | LOUISE M. AND HELEN L. WATTS |
| | N660 E660 W4 32 12S 7E SL | | | | | 287 EAST 1ST NORTH |
| a15120 | Surface | A | 19890608 | DI | 0.500 0.000 | GLADYS P. BUTLER |
| | S1160 W580 N4 32 12S 7E SL | | | | | 1584 EAST 1500 NORTH |

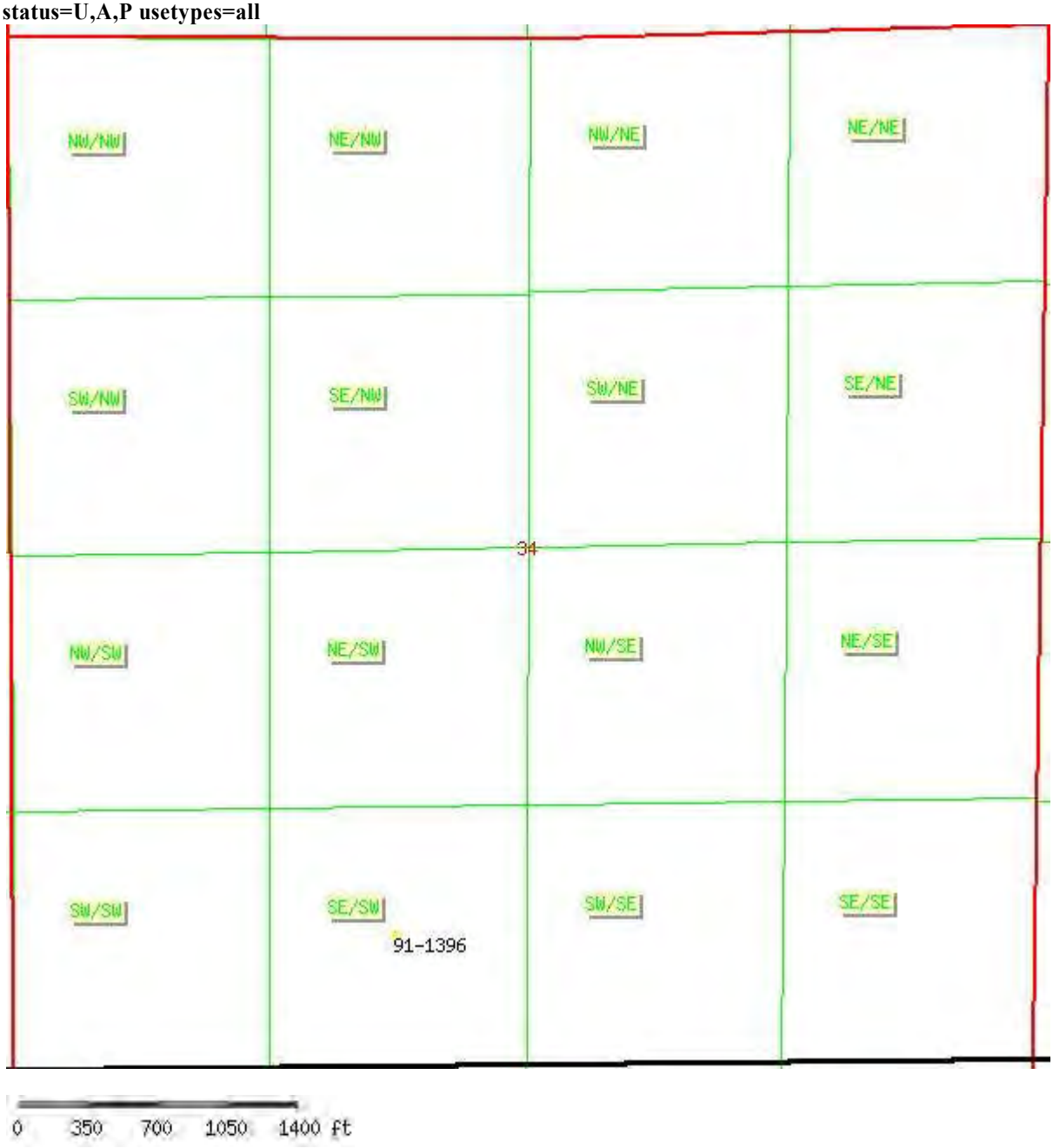
**Search of Section 33, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all**



**Water Rights Section 33, T12S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| 91-4026 | Point to Point<br>S660 W1980 E4 33 12S 7E SL | | U | 1869 | S | 0.000 | 0.000 | GEORGE TELONIS<br>C/O LUKE PAPPAS |
| 91-3588 | Point to Point | | P | 18690000 | S | 0.000 | 0.000 | CLEAR CREEK HOME ASSOCIATION |

**Search of Section 34, Township 12S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all**



**Water Rights Section 34, T12S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| 91-1396 | Point to Point<br>N660 W660 S4 34 12S 7E SL | | P | 19020000 | S | 0.000 | 0.000 | CLARENCE ANDERSON<br>PRICE UT 84501 |

**Search of Section 02, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,D,Sp,P,R status=U,A,P usetypes=all**

**Water Rights**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Ow |
|---|---|---|---|---|---|---|---|---|
| 91-1412 | Point to Point | | P | 18600000 | DS | 0.000 | 0.000 | HELPER ST |
| | S660 E660 N4 02 13S 7E SL | | | | | | | HELPER UT |
| 91-1413 | Point to Point | | P | 18600000 | DS | 0.000 | 0.000 | HELPER ST |
| | S660 W660 NE 02 13S 7E SL | | | | | | | HELPER UT |

**Search of Section 03, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all**

**Water Rights Section 3, T13S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| 91-1403 | Point to Point | | P | 18600000 | DS | 0.150 | 0.000 | CLARENCE ANDERSON |
| | S1980 E660 N4 03 13S 7E SL | | | | | | | GENERAL DELIVERY |
| 91-352 | Point to Point | | P | 18600000 | DS | 0.000 | 0.000 | CLARENCE ANDERSON |
| | N660 E1980 W4 03 13S 7E | | | | | | | PRICE UT |

SL

**Search of Section 05, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all**

**Water Rights Section 5, T13S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| 91-2146 | Point to Point | | P | 1869 | S | 0.000 | 0.000 | MATTIE B. CORNABY FAMILY TRUST |
| | N660 E660 W4 05 | | | | | | | MATTIE B. AND WILLIAM |

| | | | | | |
|---|---|---|---|---|---|
| | 13S 7E SL | | | | ARGYLE CORNABY TRUSTEES |
| 91-3011 | Point to Point | P | 18690000 S | 0.000 0.000 | FRED AND SHELIA JENSEN |
| | N660 W660 E4 05 13S 7E SL | | | | P.O. BOX 113 |
| 91-3644 | Point to Point | P | 18690000 S | 0.000 0.000 | CARBON CO. REC. TRANSPORTATION SPECIAL SERVICE DIS |
| | N660 E660 S4 05 13S 7E SL | | | | A SPECIAL SERVICE DIST. CREATED BY CO. OF CARBON |
| 91-3645 | Point to Point | P | 18690000 S | 0.000 0.000 | FRED AND SHELIA JENSEN |
| | S660 W1980 E4 05 13S 7E SL | | | | UT |
| 91-2146 | Point to Point | P | 1869 S | 0.000 0.000 | MATTIE B. CORNABY FAMILY TRUST |
| | N660 E660 W4 05 13S 7E SL | | | | 5087 SOUTH 3200 WEST |
| 91-3011 | Point to Point | P | 18690000 S | 0.000 0.000 | FRED AND SHELIA JENSEN |
| | S1980 E660 N4 05 13S 7E SL | | | | GOSHEN UT 84633 |
| 91-3644 | Point to Point | P | 18690000 S | 0.000 0.000 | CARBON CO. REC. TRANSPORTATION SPECIAL SERVICE DIS |
| | N660 E660 S4 05 13S 7E SL | | | | 185 EAST MAIN |
| 91-3645 | Point to Point | P | 18690000 S | 0.000 0.000 | FRED AND SHELIA JENSEN |
| | S1980 E660 N4 05 13S 7E SL | | | | |
| 91-2975 | Surface | P | 18740000 IS | 0.011 0.000 | CARBON CO. REC. TRANSPORTATION SPECIAL SERVICE DIS |
| | N420 W80 S4 05 13S 7E SL | | | | A SPECIAL SERVICE DIST. CREATED BY CO. OF CARBON |
| 91-2976 | Surface | P | 18740000 IS | 0.011 0.000 | CARBON CO. REC. TRANSPORTATION SPECIAL SERVICE DIS |
| | N100 W10 S4 05 13S 7E SL | | | | A SPECIAL SERVICE DIST. CREATED BY CO. OF CARBON |
| 91-2978 | Surface | P | 18740000 IS | 0.683 0.000 | CARBON CO. REC. TRANSPORTATION SPECIAL SERVICE DIS |
| | N310 E510 S4 05 13S 7E SL | | | | A SPECIAL SERVICE DIST. CREATED BY CO. OF CARBON |
| 91-2979 | Surface | P | 18740000 I | 0.453 0.000 | FRED AND SHELIA JENSEN |
| | N310 E510 S4 05 13S 7E SL | | | | P.O. BOX 113 |
| 91-2980 | Surface | P | 18740000 I | 0.100 0.000 | FRANK T. JR. & PAMELA G. HELSTEN |
| | N310 E510 S4 05 13S 7E SL | | | | 1339 EAST 3955 SOUTH |

| | | | | | | |
|---|---|---|---|---|---|---|
| 91-2981 | Surface<br>N310 E510 S4 05<br>13S 7E SL | P | 18740000 | I | 0.100 0.000 | ORSON MARSING<br>MILLER CREEK UT |
| 91-2982 | Surface<br>N310 E510 S4 05<br>13S 7E SL | P | 18740000 | I | 0.100 0.000 | LILLIE PEARSON<br>315 SOUTH 7TH EAST |
| 91-2983 | Surface<br>N310 E510 S4 05<br>13S 7E SL | P | 1874 | I | 0.100 0.000 | THOMAS BIGGS<br>COLUMBIA UT |
| 91-2984 | Surface<br>N310 E510 S4 05<br>13S 7E SL | P | 18740000 | I | 0.100 0.000 | WAINO E. BURTON<br>SCOFIELD UT |
| 91-2985 | Surface<br>N310 E510 S4 05<br>13S 7E SL | P | 18740000 | I | 0.100 0.000 | PHYLLIS M. CONOVER<br>358 SOUTH 1ST WEST |
| 91-2986 | Surface<br>N310 E510 S4 05<br>13S 7E SL | P | 18740000 | I | 0.015 0.000 | JAMES F. LEVANGER<br>HC-35 BOX 250 |
| 91-2987 | Surface<br>N310 E510 S4 05<br>13S 7E SL | P | 18740000 | I | 0.100 0.000 | LEAH B. JOHNSON<br>273 WEST MAIN |
| 91-2988 | Surface<br>N310 E510 S4 05<br>13S 7E SL | P | 18740000 | I | 0.000 0.000 | NOLAN G. AND LARUE H. DAVIS<br>HELPER UT 84526 |
| 91-2989 | Surface<br>N310 E510 S4 05<br>13S 7E SL | P | 18740000 | IM | 0.100 0.000 | TOWN OF SCOFIELD<br>SCOFIELD UT |
| 91-2990 | Surface<br>N310 E510 S4 05<br>13S 7E SL | P | 18740000 | I | 1.166 0.000 | DELLA L. MADSEN<br>MEADOW UT 84644 |
| 91-2991 | Surface<br>N310 E510 S4 05<br>13S 7E SL | P | 1874 | I | 0.000 0.000 | JOHN B. JONES<br>RT. 2 BOX 96 |
| 91-3008 | Surface<br>N700 W1400 E4 05<br>13S 7E SL | P | 18740000 | I | 0.693 0.000 | FRED AND SHELIA JENSEN<br>P.O. BOX 113 |
| 91-354 | Surface<br>N388 E437 W4 05<br>13S 7E SL | P | 19030000 | O | 0.019 0.000 | PIONEER DITCH COMPANY #1<br>PRICE UT 84501 |
| 91-3622 | Surface<br>N310 E510 S4 05<br>13S 7E SL | P | 1874 | I | 0.016 0.000 | MAE NICOLODEMAS<br>SCOFIELD UT 84538 |
| 91-4195 | Surface<br>N310 E510 S4 05<br>13S 7E SL | P | 18740000 | M | 0.100 0.000 | SCOFIELD TOWN<br>SCOFIELD UT 84538 |

Search of Section 06, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P

**Water Rights Section 6, T13S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| 91-462 | Point to Point<br>N660 E660 W4 06 13S 7E SL | | P | 18600000 | S | 0.000 | 0.000 | EUREKA ENERGY COMPANY<br>215 MARKET STREET |

**Search of Section 08, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all**

**Water Rights Section 8, T13S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| 91-2048 | Point to Point<br>S1980 E660 N4 08 13S 7E SL | | P | 18690000 S | | 0.000 | 0.000 | CARBON CO. REC. TRANSPORTATION SPECIAL SERVICE DIS<br>A SPECIAL SERVICE DIST. CREATED BY CO. OF CARBON |

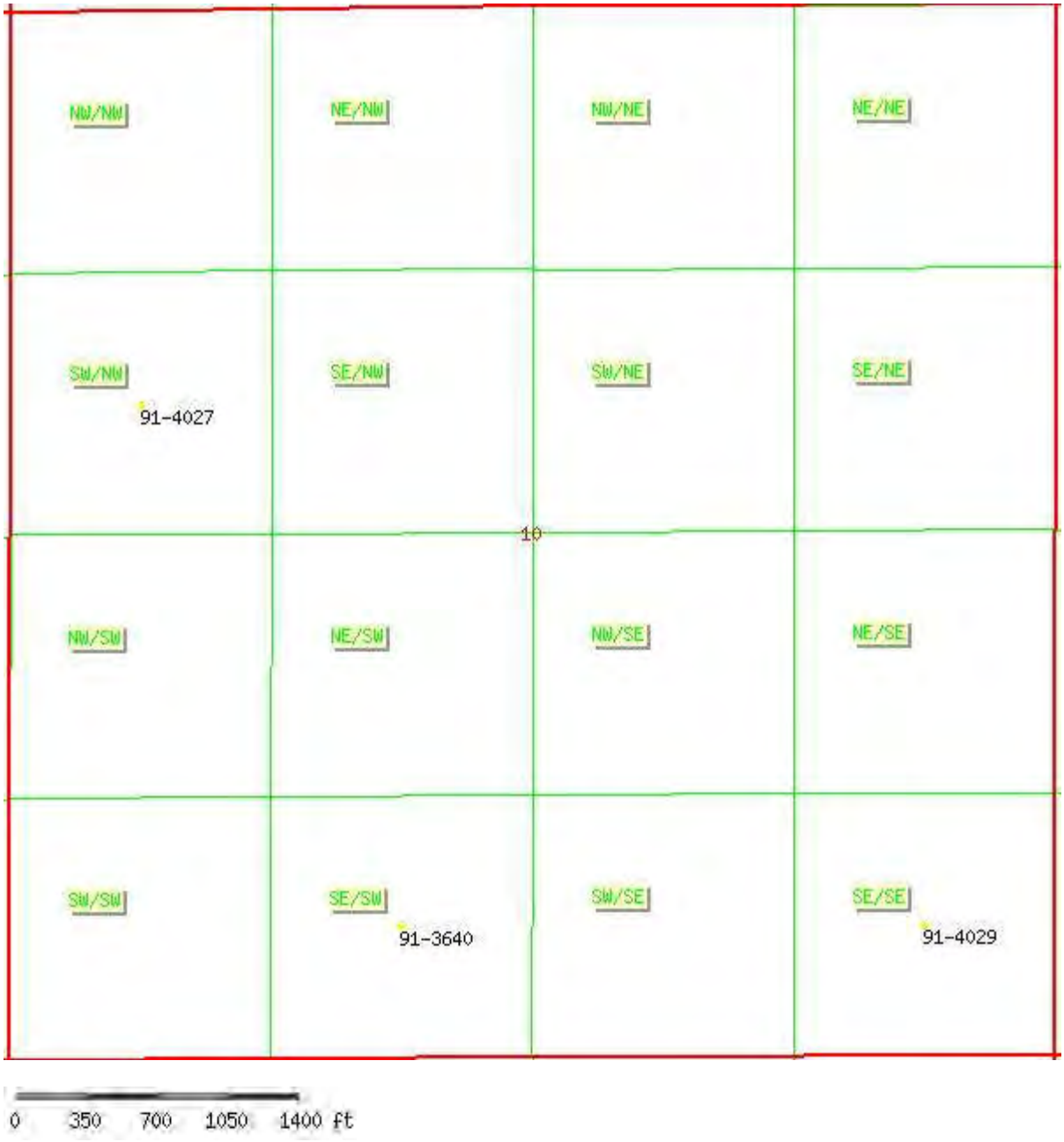
**Search of Section 09, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all**

NW/NW
91-201
NE/NW
NW/NE
NE/NE
SW/NW
SE/NW
SW/NE
SE/NE
9
NW/SW
NE/SW
NW/SE
91-4143
NE/SE
SW/SW
SE/SW
91-4031
SW/SE
SE/SE
0
350
700
1050
1400 ft

**Water Rights Section 9, T13S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| 91-201 | Point to Point<br>S660 E660 NW 09 13S 7E SL | | P | 19530930 S | | 0.068 | 0.000 | ALBERT B. AND APRIL S. CORNABY<br>5167 SOUTH 3200 WEST |

**Search of Section 10, Township 13S, Range 7E, SL b&m Criteria:wrtypes=W,C,E podtypes=S,P status=U,A,P usetypes=all**



**Water Rights Section 10, T13S, R7E**

| WR Number | Diversion Type/Location | Well Log | Status | Priority | Uses | CFS | ACFT | Owner Name |
|---|---|---|---|---|---|---|---|---|
| 91-4027 | Point to Point | | U | 1869 | S | 0.011 | 0.000 | GEORGE TELONIS |
| | N660 E660 W4 10 13S 7E SL | | | | | | | C/O LUKE PAPPAS |

**********
**********

**INDIVIDUAL WATER RIGHTS RECORDS**

WATER RIGHT: **91-2495** APPLICATION/CLAIM NO.: CERT. NO.:
==========
**OWNERSHIP**********
**********

NAME: Mattie B. Cornaby Family Trust
ADDR: Mattie B. and William Argyle Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w William Argyle Cornaby Family Trust

NAME: William Argyle Cornaby Family Trust
ADDR: William Argyle and Mattie B. Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w Mattie B. Cornaby Family Trust
==========
**DATES, ETC.**********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
04/01/1966|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1 ]|MAP: [28d ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS**********
**********
Type of Right: Diligence Claim Source of Info: Proposed
Determination Status: Water User's Claim
==========
==========
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========
FLOW: SOURCE: Woods Canyon Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at S 1980 ft. E 660 ft. from N4 corner, Sec 31, T12S, R7E, SLBM,

to a point at N 660 ft. E 660 ft. from W4 corner, Sec 32, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family**

SUPPLEMENTAL GROUP NO.: **614247.** Water Rights Appurtenant to the following use(s):
91-2146(WUC),2288(WUC),2494(WUC),2495(WUC),2496(WUC)
3405(WUC)

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 100.0000
Div Limit: 2.1 acft. PERIOD OF USE: 06/01 TO 11/30

SUPPLEMENTAL GROUP NO.: **614337.** Water Rights Appurtenant to the following use(s):
91-2288(WUC),2494(WUC),2495(WUC),3405(WUC)

IRRIGATION: Sole Supply: UNEVALUATED acres Group Total: 18.0
Div Limit: 72.0 acft. PERIOD OF USE: 03/01 TO 11/30

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*

| Section | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sec 31 T 12S R 7E SLBM | | | | | | | | | | | | | |
| | 9.6000 | | | | | 1.7000 | | | | | | | 11.3000 |
| Sec 32 T 12S R 7E SLBM | | | | | | | | | | | | | |
| | 5.8000 | | | | | | | | | | | | 0.9000 |

GROUP ACREAGE TOTAL: 18.0000

**********E N D O F D A T**********

**OWNERSHIP**********
**********

NAME: Milton E. Jacob Family Trust
ADDR: Paul Jacob, Trustee
      349 East 200 South
      Pleasant Grove UT 84062
INTEREST: 100%       REMARKS:

**DATES,**
**ETC.**********
**********
LAND OWNED BY APPLICANT? Yes                COUNTY TAX ID#:
FILED:               |PRIORITY:  00/00/1869|PUB BEGAN:           |PUB ENDED:
|NEWSPAPER:
ProtestEnd:          |PROTESTED: [No      ]|HEARNG HLD:          |SE ACTION:
[         ]|ActionDate:          |PROOF DUE:
EXTENSION:           |ELEC/PROOF:[        ]|ELEC/PROOF:          |CERT/WUC:
09/06/1968|LAP, ETC:            |LAPS LETTER:
RUSH LETTR:          |RENOVATE:            |RECON REQ:           |TYPE: [
]
PD BOOK: [91-1      ]|MAP:  [29b          ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS**********
**********
Type of Right: Diligence Claim                Source of Info: Proposed
Determination        Status:
==========
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========
FLOW: 0.011 cfs                                    SOURCE: Unnamed Spring
COUNTY: Carbon       COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on spring located at S 660 ft. W 660 ft. from E4 corner, Sec 21, T12S, R7E, SLBM.
                          COMMENT: Administratively updated by State Engineer.
==========
**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***
**********
**********

**WATER RIGHT: 91-3513      APPLICATION/CLAIM NO.:        CERT. NO.:**
==========
**OWNERSHIP**********

NAME: Milton E. Jacob Family Trust
ADDR: Paul Jacob, Trustee
      349 East 200 South
      Pleasant Grove UT 84062
INTEREST: 100%       REMARKS:
==========
**DATES,**
**ETC.**********

LAND OWNED BY APPLICANT? Yes                    COUNTY TAX ID#:
FILED:              |PRIORITY:  00/00/1869|PUB BEGAN:          |PUB ENDED:
|NEWSPAPER:
ProtestEnd:         |PROTESTED: [No       ]|HEARNG HLD:         |SE ACTION:
[        ]|ActionDate:          |PROOF DUE:
EXTENSION:          |ELEC/PROOF:[        ]|ELEC/PROOF:          |CERT/WUC:
09/06/1968|LAP, ETC:            |LAPS LETTER:
RUSH LETTR:         |RENOVATE:            |RECON REQ:          |TYPE: [
]
PD BOOK: [91-1      ]|MAP:  [29           ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS--------------------------------------------------------------------------------------------------------***

Type of Right: Diligence Claim                Source of Info: Proposed Determination        Status:

**================================================================================**

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

**================================================================================**

FLOW:                                           SOURCE: Unnamed Stream
COUNTY: Carbon       COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at S 660 ft. E 660 ft. from N4 corner, Sec 26, T12S, R7E, SLBM,
to a point at S 660 ft. E 660 ft. from N4 corner, Sec 27, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

**================================================================================**

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

******************************************************************************************************************************************************************************************************************************************

**WATER RIGHT: 91-3516      APPLICATION/CLAIM NO.:        CERT. NO.:**

**================================================================================**

**OWNERSHIP**************************************************************************************************************************************

NAME: Milton E. Jacob Family Trust
ADDR: Paul Jacob, Trustee
349 East 200 South
Pleasant Grove UT 84062
INTEREST: 100%       REMARKS:

**================================================================================**

**DATES, ETC.*********************************************************************** ***

LAND OWNED BY APPLICANT? Yes                    COUNTY TAX ID#:
FILED:              |PRIORITY:  00/00/1869|PUB BEGAN:          |PUB ENDED:
|NEWSPAPER:
ProtestEnd:         |PROTESTED: [No       ]|HEARNG HLD:         |SE ACTION:
[        ]|ActionDate:          |PROOF DUE:
EXTENSION:          |ELEC/PROOF:[        ]|ELEC/PROOF:          |CERT/WUC:
09/06/1968|LAP, ETC:            |LAPS LETTER:

RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1 ]|MAP: [29b ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS---------------------------------------------------------------------------------------------------------***
Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:
**==============================================================================**
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************
**==============================================================================**
FLOW: SOURCE: Hopkins Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at S 660 ft. W 660 ft. from NE corner, Sec 27, T12S, R7E, SLBM,
to a point at N 660 ft. E 1980 ft. from W4 corner, Sec 21, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.
**==============================================================================**
**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***
*******************************************************************************************************************************************************************************

**WATER RIGHT: 91-352 APPLICATION/CLAIM NO.: CERT. NO.:**
**==============================================================================**
**OWNERSHIP*************************************************************************

NAME: Clarence Anderson Estate
ADDR: Price UT
INTEREST: 100% REMARKS:
**==============================================================================**
**DATES, ETC.*************************************************************************
LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1860|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 07/22/1965|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2 ]|MAP: [29c ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS---------------------------------------------------------------------------------------------------------***
Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:
**==============================================================================**
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************
**==============================================================================**
FLOW: SOURCE: Hopkins Creek

COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at N 660 ft. E 1980 ft. from W4 corner, Sec 03, T13S, R7E, SLBM,
to a point at N 660 ft. W 660 ft. from E4 corner, Sec 27, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

**********

**WATER RIGHT: 91-640 APPLICATION/CLAIM NO.: CERT. NO.:**

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**OWNERSHIP**********

NAME: Clarence Anderson Estate
ADDR: Price UT 84501
INTEREST: 100% REMARKS:

==========

**DATES, ETC.**********

LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1860|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 07/22/1965|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-1 ]|MAP: [29 ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------***

Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:

==========

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: SOURCE: Left hand Fork of Hopkins Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at S 660 ft. W 660 ft. from E4 corner, Sec 35, T12S, R7E, SLBM,
to a point at N 660 ft. E 660 ft. from S4 corner, Sec 27, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

**********

**********

**WATER RIGHT: 91-3910 APPLICATION/CLAIM NO.: CERT. NO.:**

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**OWNERSHIP**********

NAME: Reed & Leon Gunderson
ADDR: UT
INTEREST: 100% REMARKS:

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**DATES, ETC.**********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2 ]|MAP: [28a ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**

Type of Right: Diligence Claim Source of Info: Proposed
Determination Status: Water User's Claim

==========

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: SOURCE: Clear Creek
(Scofield Reservoir)
COUNTY: Carbon COMMON DESCRIPTION:

POINTS OF DIVERSION:
( 1)Stockwatering directly on reservoir located at S 660 ft. W 660 ft. from N4 corner, Sec 29, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.
( 2)Stockwatering directly on reservoir located at S 660 ft. E 660 ft. from N4 corner, Sec 29, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

**********

**********

**WATER RIGHT: 91-3911 APPLICATION/CLAIM NO.: CERT. NO.:**

==========

**OWNERSHIP**********
**********

NAME: Della L. & Hilda M. Madsen
ADDR:  UT
INTEREST: 100%  REMARKS:

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**DATES, ETC.**********

LAND OWNED BY APPLICANT? Yes  COUNTY TAX ID#:
FILED:  |PRIORITY:  /  /1869|PUB BEGAN:  |PUB ENDED:  |NEWSPAPER:
ProtestEnd:  |PROTESTED: [No  ]|HEARNG HLD:  |SE ACTION: [  ]|ActionDate:  |PROOF DUE:
EXTENSION:  |ELEC/PROOF:[  ]|ELEC/PROOF:  |CERT/WUC:  |LAP, ETC:  |LAPS LETTER:
RUSH LETTR:  |RENOVATE:  |RECON REQ:  |TYPE: [ ]
PD BOOK: [91-2  ]|MAP:  [28a  ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**********

Type of Right: Diligence Claim  Source of Info: Proposed Determination  Status: Water User's Claim

==========

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW:  SOURCE: Clear Creek (Scofield Reservoir)
COUNTY: Carbon  COMMON DESCRIPTION:

POINTS OF DIVERSION:
( 1)Stockwatering directly on reservoir located at N 660 ft. E 1980 ft. from W4 corner, Sec 29, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.
( 2)Stockwatering directly on reservoir located at S 1980 ft. E 660 ft. from N4 corner, Sec 29, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family*

**********
**********

WATER RIGHT: **91-3642**  APPLICATION/CLAIM NO.:  CERT. NO.:

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**OWNERSHIP**********
**********

NAME: Bill & Utahna Jones Family Trust
ADDR: Gayland B.Jones & Judy Smith as Successor Trustees
555 W. Front Street
Scofield UT 84526

INTEREST: 100%  REMARKS: Bill B. Jones & Utahna Pace Jones as Trustees

**DATES, ETC.**

LAND OWNED BY APPLICANT? Yes  COUNTY TAX ID#:
FILED:  |PRIORITY:  /  /1902|PUB BEGAN:  |PUB ENDED:  |NEWSPAPER:
ProtestEnd:  |PROTESTED: [No  ]|HEARNG HLD:  |SE ACTION: [  ]|ActionDate:  |PROOF DUE:
EXTENSION:  |ELEC/PROOF:[  ]|ELEC/PROOF:  |CERT/WUC:  |LAP, ETC:  |LAPS LETTER:
RUSH LETTR:  |RENOVATE:  |RECON REQ:  |TYPE: [ ]
PD BOOK: [91-1  ]|MAP:  [28a  ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS*----------**

Type of Right: Diligence Claim  Source of Info: Proposed Determination  Status: Water User's Claim

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

FLOW: 0.011 cfs  SOURCE: Unnamed Spring
COUNTY: Carbon  COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on reservoir located at S 660 ft. W 660 ft. from E4 corner, Sec 30, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614855.** Water Rights Appurtenant to the following use(s):
91-3642(WUC),3648(WUC),3655(WUC),3658(WUC)

STOCKWATER: Sole Supply: UNEVALUATED ELUs  Group Total: 150.0000  Div Limit:  PERIOD OF USE: 01/01 TO 12/31

**PLACE OF USE for STOCKWATERING***************

```
   Height of Dam:              NORTH-WEST¼       NORTH-EAST¼       SOUTH-
WEST¼       SOUTH-EAST¼
   Area Inundated:             NW NE SW SE       NW NE SW SE       NW NE SW
SE       NW NE SW SE
Sec 30 T 12S R  7E SLBM      *  :  :  :  *     *  : X:  :  *     *  :  :  :
*     *  :  :  :  *

Small Dam Required?: No
******************E N D   O F   D A T A*****************************
```

**********
**********

**WATER RIGHT: 91-3658 APPLICATION/CLAIM NO.: CERT. NO.:**

==========

**OWNERSHIP**********

NAME: Bill & Utahna Jones Family Trust
ADDR: Gayland B.Jones & Judy Smith as Successor Trustees
555 W. Front Street
Scofield UT 84526
REMARKS: Bill B Jones & Utahna Jones as Trustees

==========

**DATES, ETC.**********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1902|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**

Type of Right: Diligence Claim Source of Info: Proposed
Determination Status: Water User's Claim

==========

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

==========

FLOW: SOURCE: Unnamed Stream
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on reservoir located at S 660 ft. W 660 ft. from NE corner, Sec 31, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

**********
**********

**CHANGE: a15120 WATER RIGHT: 91-2996 CERT. NO.: COUNTY TAX ID#: AMENDATORY? No**
BASE WATER RIGHTS: 91-2996
91-2997
RIGHT EVIDENCED BY: Morse Decree 1st Class 91-2996 & 91-2997
CHANGES: Point of Diversion [X], Place of Use [X], Nature of Use [X], Reservoir Storage [ ].
*----------

NAME: Gladys P. Butler
ADDR: 1584 East 1500 North
Logan UT 84321
REMARKS:
*----------
FILED: 06/08/1989|PRIORITY: 06/08/1989|ADV BEGAN: 06/28/1989|ADV ENDED: |NEWSPAPER: Sun Advocate
ProtestEnd:08/11/1989|PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [Approved]|ActionDate:11/17/1989|PROOF DUE: 02/28/1999
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: |LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
Status: Approved
**********H E R E T O F O R E**********
**********H E R E A F T E R**********

---

|FLOW: 0.5 cfs ||FLOW: 0.5 cfs |
|---|---|
|SOURCE: Woods Canyon Creek ||SOURCE: Woods Canyon Creek & Scofield Res. |
|COUNTY: Carbon ||COUNTY: Carbon COM DESC: Scofield Reservoir |
| || The applicant desires to pump water |
| || from Scofield Reservoir onto land around |
| || the lake onto recreation property, the |
| || remainder of the water not used this |
| || way will be diverted onto acreage as |
| || heretofore. |
| || Interest: The applicant owns a |

| ||
9.70/21.70 interest in the flow of 0.50 cfs. |
| ||     Other
interests, see 91-2998. |
The domestic use will provide for |
| ||
inside sanitary purposes. |
|-----------------------------------------------------------||----------
----------|

**|POINT(S) OF DIVERSION ------> MAP VIEWER ||CHANGED AS
FOLLOWS: (Click Location link for WRPLAT) |**
|-----------------------------------------------------------||----------
----------|
|Point Surface: ||Point
Surface: |
|(1)  S 1160 ft W  580 ft from N4 cor, Sec 32, T 12S, R  7E, SLBM||(1)  S
1135 ft W   60 ft from NE cor, Sec 04, T 12S, R  7E, SLBM|
| Dvrting Wks: Earthen dam and ditches || Dvrting
Wks: |
| Source:      Woods Canyon Creek || Source:
|
| ||(2)  N
1400 ft E 1090 ft from SW cor, Sec 10, T 12S, R  7E, SLBM|
| || Dvrting
Wks: |
| || Source:
|
| ||(3)  N
135 ft E   80 ft from SW cor, Sec 10, T 12S, R  7E, SLBM|
| || Dvrting
Wks: |
| || Source:
|
| ||(4)  S
190 ft E 2225 ft from NW cor, Sec 20, T 12S, R  7E, SLBM|
| || Dvrting
Wks: |
| || Source:
|
| ||(5)  N
1810 ft E 2535 ft from SW cor, Sec 29, T 12S, R  7E, SLBM|
| || Dvrting
Wks: |
| || Source:
|
| ||(6)  S
1160 ft W  580 ft from N4 cor, Sec 32, T 12S, R  7E, SLBM|
| || Dvrting
Wks: |
| || Source:
|
|Stream Alt?: No |
|-----------------------------------------------------------||----------
----------|
**|PLACE OF USE ------> ||CHANGED as
follows: |**

```
|-------------------------------------------------------------||----------
-----------------------------------------------|
|                              --NW¼--  --NE¼--  --SW¼--  --SE¼-- ||
--NW¼--  --NE¼--  --SW¼--  --SE¼-- |
|                              |N N S S||N N S S||N N S S||N N S S|||
|N N S S||N N S S||N N S S||N N S S||
|                              |W E W E||W E W E||W E W E||W E W E|||
|W E W E||W E W E||W E W E||W E W E||
|Sec 29 T 12S R  7E SLBM     * : : : ** : : : ** :X: : ** : : : *||Sec 04 T
12S R  7E SLBM     * : : : ** : : :X** : : : ** : : : *|
|                                                             ||Sec 10 T
12S R  7E SLBM     * : : : ** : : : **X: :X: ** : : : *|
|                                                             ||Sec 20 T
12S R  7E SLBM     * :X: : ** : : : ** : : : ** : : : *|
|                                                             ||Sec 29 T
12S R  7E SLBM     * : : : ** : : : ** :X: : ** : : : *|
 _____________________________________________________________
|NATURE OF USE ------>                                        ||CHANGED as
follows:                                          |
|IRR  = values are in acres.                                  ||
|
|STK  = values are in ELUs meaning Cattle or Equivalent.      ||
|
|DOM  = values are in EDUs meaning Equivalent Domestic Units (F  ||
|
|-------------------------------------------------------------||----------
|SUPPLEMENTAL to Other Water Rights: No
||SUPPLEMENTAL to Other Water Rights: No                      |
|-------------------------------------------------------------||----------
|IRR:      9.7000 acres.                      USED 03/01 - 11/30||IRR:
and      9.4500 Supp acres   USED 03/01 - 11/30|
|.............................................................||.........
.....................................................|
|                                                             ||DOM:
4.0000 Equivalent Domestic Units.   USED 05/01 - 11/01|
 _____________________________________________________________
*-------------------------------------------------------------------------
EXTENSIONS OF TIME WITHIN WHICH TO FILE
PROOF************************************************************************
*-------------------------------------------------------------------------
FILED:     02/26/1996|PUB BEGAN:           |PUB ENDED:           |NEWSPAPER:
ProtestEnd:          |PROTESTED: [No      ]||HEARNG HLD:          |SE ACTION:
[Approved]||ActionDate:03/22/1996|PROOF DUE:  02/28/1999

************************************************************************
*************************************************************************************

WATER RIGHT: 91-2993      APPLICATION/CLAIM NO.:        CERT. NO.:
OWNERSHIP************************************************************************

NAME: Bill B. and Utahna Pace Jones
ADDR: Palmyra UT
INTEREST: 100%       REMARKS:
=========================================================================
DATES,
ETC.*****************************************************************************
```

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/20/1968|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1 ]|MAP: [28d ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
**----------***
Type of Right: Decree Source of Info: Proposed
Determination Status: Water User's Claim
**==========**
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************
**==========**
FLOW: 4.58 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) S 1200 ft E 800 ft from N4 cor, Sec 32, T 12S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No
**==========**
**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***
**************
**************

**WATER RIGHT: 91-5069 APPLICATION/CLAIM NO.: CERT. NO.: CERTIFICAT**
CHANGES: a27697 Certificate (Issued: 02/08/2011)
**==========**
**OWNERSHIP************

NAME: Rudman Land and Livestock L.L.C.
ADDR: 1111 East Brickyard Road Suite 106
Salt Lake City, UT 84106
**==========**
**DATES,**
**ETC.************
LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [ 91- ]|MAP: [ ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
**----------***

Type of Right: Diligence Claim Source of Info: Certificate
Status: Certificate

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 1.2436 acre-feet SOURCE: Unnamed Spring and Woods Canyon Creek
COUNTY: Carbon COMMON DESCRIPTION: Woods Canyon

POINT OF SPRING:
(1) S 1346 ft W 630 ft from N4 cor, Sec 32, T 12S, R 7E, SLBM
Diverting Works: Collection box and pipeline
Source:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at S 1441 ft. E 1343 ft. from NW corner, Sec 32, T12S, R7E, SLBM,
to a point at S 1272 ft. W 277 ft. from N4 corner, Sec 32, T12S, R7E, SLBM.
SOURCE:

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***

**WATER RIGHT: 91-2994 APPLICATION/CLAIM NO.: CERT. NO.:**

**OWNERSHIP**

NAME: Bill B. and Utahna Pace Jones
ADDR: Palmyra UT
INTEREST: 100% REMARKS:

**DATES, ETC.**
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 07/20/1968|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-1 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**
Type of Right: Decree Source of Info: Proposed Determination Status: Water User's Claim

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.012 cfs SOURCE: Woods Canyon Creek

COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) S 1410 ft W 350 ft from N4 cor, Sec 32, T 12S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

==========

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

**WATER RIGHT: 91-3655 APPLICATION/CLAIM NO.: CERT. NO.:**

==========

**OWNERSHIP**********

NAME: Bill & Utahna Jones Family Trust
ADDR: Bill & Utahna Jones trustees, Gaylord & Judy
555 W. Front Street
Scofield UT 84526
REMARKS: 150 elu's supp/w 3642,3648,3655,3658 see affidavit

==========

**DATES, ETC**

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**
**----------***

Type of Right: Diligence Claim Source of Info: Proposed
Determination Status: Water User's Claim

==========

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: 4.2 acre-feet SOURCE: Woods Canyon Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at N 660 ft. E 1980 ft. from W4 corner, Sec 32, T12S, R7E, SLBM,
to a point at S 1980 ft. E 660 ft. from N4 corner, Sec 32, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*
**********
**********

**WATER RIGHT: 91-3004 APPLICATION/CLAIM NO.: CERT. NO.:**
==========
**OWNERSHIP**

NAME: Louise M. and Helen L. Watts
ADDR: 287 East 1st North
Moab UT 84532
==========
**DATES, ETC.**********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 09/11/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2 ]|MAP: [28d ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
**----------***
Type of Right: Decree Source of Info: Proposed Determination Status: Water User's Claim
==========
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========
FLOW: 0.433 cfs SOURCE: Woods Canyon Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 660 ft E 660 ft from W4 cor, Sec 32, T 12S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No
==========
**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*
**********
**********

**WATER RIGHT: 91-2992 APPLICATION/CLAIM NO.: CERT. NO.:**
==========
**OWNERSHIP**********

NAME: Bill B. and Utahna Pace Jones
ADDR: Palmyra UT
INTEREST: 100% REMARKS:

**==========**

**DATES,**
**ETC.**********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/20/1968|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**
**----------*

Type of Right: Decree Source of Info: Proposed
Determination Status: Water User's Claim

**==========**

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

**==========**

FLOW: 4.58 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) S 120 ft W 2230 ft from E4 cor, Sec 32, T 12S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

**==========**

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

**********

**********

**WATER RIGHT: 91-3648 APPLICATION/CLAIM NO.: CERT. NO.:**

**==========**

**OWNERSHIP**********

NAME: Bill B. and Utahna Pace Jones
ADDR: 555 W. Front Street
Scofield UT 84526
INTEREST: 100% REMARKS:

**==========**

**DATES,**
**ETC.**********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:

RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1 ]|MAP: [28d ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS---------------------------------------------------------------------------------------------------***

Type of Right: Diligence Claim Source of Info: Proposed Determination Status: Water User's Claim

**==============================================================================**

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

**==============================================================================**

FLOW: SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at S 660 ft. W 1980 ft. from E4 corner, Sec 32, T12S, R7E, SLBM,
to a point at S 660 ft. W 1980 ft. from E4 corner, Sec 29, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

**==============================================================================**

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

*************************************************************************************

*************************************************************************************

**WATER RIGHT: 91-2496 APPLICATION/CLAIM NO.: CERT. NO.:**

**==============================================================================**

**OWNERSHIP************************************************************************

NAME: Mattie B. Cornaby Family Trust
ADDR: Mattie B. and William Argyle Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w William Argyle Cornaby Family Trust

NAME: William Argyle Cornaby Family Trust
ADDR: William Argyle and Mattie B. Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w Mattie B. Cornaby Family Trust

**==============================================================================**

**DATES, ETC.*************************************************************************

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1902|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 04/01/1966|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]

PD BOOK: [91-1 ]|MAP: [28d ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
Type of Right: Diligence Claim Source of Info: Proposed Determination Status: Water User's Claim
**==========**
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************
**==========**
FLOW: SOURCE: Unnamed Stream
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on reservoir located at N 1160 ft. E 460 ft. from SW corner, Sec 32, T12S, R7E, SLBM.
**==========**
**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***
**************

**WATER RIGHT: 91-3588 APPLICATION/CLAIM NO.: CERT. NO.:**
**==========**
**OWNERSHIP************

NAME: Clear Creek Home Association
ADDR: P.O. Box 263
Springville UT 84663
INTEREST: 100% REMARKS: a Utah Corporation
**==========**
**DATES, ETC.************
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 08/11/1969|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2 ]|MAP: [49 ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
Type of Right: Diligence Claim Source of Info: Proposed Determination Status:
**==========**
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************
**==========**
FLOW: SOURCE: Finn Canyon Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at S 660 ft. W 1980 ft. from E4 corner, Sec 32, T13S, R7E, SLBM,

to a point at S 660 ft. E 660 ft. from W4 corner, Sec 33, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family**

**WATER RIGHT: 91-4026 APPLICATION/CLAIM NO.: CERT. NO.:**

**OWNERSHIP**

NAME: George Telonis
ADDR: C/O Luke Pappas
Price UT 84501
INTEREST: 100% REMARKS:

**DATES, ETC.**

LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 01/22/1973|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91- ]|MAP: [29c ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**

Type of Right: Pending Adjudication Claim Source of Info: Water User's Claim Status:

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on spring located at S 660 ft. W 1980 ft. from E4 corner, Sec 33, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family**

**WATER RIGHT: 91-1396 APPLICATION/CLAIM NO.: CERT. NO.:**

**OWNERSHIP**********

NAME: Clarence Anderson Estate
ADDR: Price UT 84501
INTEREST: 100%  REMARKS:
==========
**DATES, ETC.**********

LAND OWNED BY APPLICANT? Yes  COUNTY TAX ID#:
FILED:  |PRIORITY:  00/00/1902|PUB BEGAN:  |PUB ENDED:
|NEWSPAPER:
ProtestEnd:  |PROTESTED: [No  ]|HEARNG HLD:  |SE ACTION:
[  ]|ActionDate:  |PROOF DUE:
EXTENSION:  |ELEC/PROOF:[  ]|ELEC/PROOF:  |CERT/WUC:
07/22/1965|LAP, ETC:  |LAPS LETTER:
RUSH LETTR:  |RENOVATE:  |RECON REQ:  |TYPE: [
]
PD BOOK: [91-1  ]|MAP:  [29c  ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS**********

Type of Right: Diligence Claim  Source of Info: Proposed
Determination  Status:
==========
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========
FLOW:  SOURCE: Hopkins Creek
COUNTY: Carbon  COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on reservoir located at N 660 ft. W 660 ft. from S4 corner, Sec 34, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.
==========
**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***********

**WATER RIGHT: 91-1403  APPLICATION/CLAIM NO.:  CERT. NO.:**
==========
**OWNERSHIP**********

NAME: Clarence Anderson Estate
ADDR: General Delivery
Price UT 84501
INTEREST: 100%  REMARKS:
==========
**DATES, ETC.**********

LAND OWNED BY APPLICANT? Yes  COUNTY TAX ID#:
FILED:  |PRIORITY:  00/00/1860|PUB BEGAN:  |PUB ENDED:
|NEWSPAPER:

ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/22/1965|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2 ]|MAP: [29c ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS---------------------------------------------------------------------------------------------------------***

Type of Right: Diligence Claim Source of Info: Proposed Determination Status:

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

FLOW: 0.15 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on spring located at S 1980 ft. E 660 ft. from N4 corner, Sec 03, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

********************************************************************************************

**WATER RIGHT: 91-354 APPLICATION/CLAIM NO.: CERT. NO.:**
CHANGES: a1276 Certificate a58 (Issued: )

**OWNERSHIP**********************************************************************************************************************************************

NAME: Pioneer Ditch Company #1
ADDR: Price UT 84501
INTEREST: 100% REMARKS:

**DATES, ETC.******************************************************************************************************************************

LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1903|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [ 91- ]|MAP: [ ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS---------------------------------------------------------------------------------------------------------***

Type of Right: Decree Source of Info: Certificate
Status:

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.019 cfs SOURCE: Two Springs Trib to Winter Quarters
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 388 ft E 437 ft from W4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*
**********
**********

**WATER RIGHT: 91-3645 APPLICATION/CLAIM NO.: CERT. NO.:**
**OWNERSHIP**********
NAME: Fred and Shelia Jensen
ADDR: UT
INTEREST: 100% REMARKS:
==========
**DATES, ETC.**********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/27/1961|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2 ]|MAP: [28d ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS**********
Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:
==========
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========
FLOW: SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at S 660 ft. W 1980 ft. from E4 corner, Sec 05, T13S, R7E, SLBM,
to a point at S 1980 ft. E 660 ft. from N4 corner, Sec 05, T13S, R7E, SLBM.

COMMENT: Administratively updated by State Engineer.

==========

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family**

**********

**********

**WATER RIGHT: 91-3008 APPLICATION/CLAIM NO.: CERT. NO.:**

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**OWNERSHIP**********

NAME: Fred and Shelia Jensen
ADDR: P.O. Box 113
Goshen UT 84633
INTEREST: 100% REMARKS:

==========

**DATES, ETC.**********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 07/26/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**

Type of Right: Decree Source of Info: Proposed
Determination Status:

==========

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: 0.693 cfs SOURCE: Winter Quarters Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 700 ft W 1400 ft from E4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

==========

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family**

**********

**********

**WATER RIGHT: 91-3011 APPLICATION/CLAIM NO.: CERT. NO.:**

==========

**OWNERSHIP**********

NAME: Fred and Shelia Jensen
ADDR: P.O. Box 113
Goshen UT 84633
INTEREST: 100% REMARKS:

**DATES, ETC.**********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/26/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------***

Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

FLOW: SOURCE: Winter Quarters Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at N 660 ft. W 660 ft. from E4 corner, Sec 05, T13S, R7E, SLBM,
to a point at S 1980 ft. E 660 ft. from N4 corner, Sec 05, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

**WATER RIGHT: 91-3644 APPLICATION/CLAIM NO.: CERT. NO.:**

**OWNERSHIP**********

NAME: Carbon Co. Rec. Transportation Special Service Dis
ADDR: a Special Service Dist. created by Co. of Carbon
185 East Main
Price UT 84501
INTEREST: 100% REMARKS:

**DATES,**
**ETC.**********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**
**----------***

Type of Right: Diligence Claim Source of Info: Proposed
Determination Status:

==========

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

==========

FLOW: SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at N 660 ft. E 660 ft. from S4 corner, Sec 05, T13S, R7E, SLBM,
to a point at N 660 ft. E 660 ft. from S4 corner, Sec 05, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

**********

**********

**WATER RIGHT: 91-2975 APPLICATION/CLAIM NO.: CERT. NO.:**

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**OWNERSHIP**********

NAME: Carbon Co. Rec. Transportation Special Service Dis
ADDR: a Special Service Dist. created by Co. of Carbon
185 East Main
Price UT 84501
INTEREST: 100% REMARKS:

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**DATES,**
**ETC.**********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
08/10/1967|LAP, ETC: |LAPS LETTER:

RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2 ]|MAP: [28d ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
Type of Right: Decree Source of Info: Proposed
Determination Status:
**==========**
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************
**==========**
FLOW: 0.011 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 420 ft W 80 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No
**==========**
**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***
**************

**WATER RIGHT: 91-4195 APPLICATION/CLAIM NO.: CERT. NO.:**
**==========**
**OWNERSHIP************

NAME: Scofield Town (Public Water Supplier)
ADDR: Scofield UT 84538
INTEREST: 100% REMARKS:
**==========**
**DATES, ETC.************
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
05/08/1979|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91- ]|MAP: [28d ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
Type of Right: Decree Source of Info: Water User's
Claim Status:
**==========**
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************
**==========**
FLOW: 0.1 cfs SOURCE: Mud Creek & Green Canyon Springs

COUNTY: Carbon COMMON DESCRIPTION:

POINTS OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:
(2) S 546 ft W 285 ft from N4 cor, Sec 17, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

POINT OF DIVERSION:
( 1)Municipal directly on spring located at S 660 ft. W 660 ft. from N4 corner, Sec 17, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family**

**WATER RIGHT: 91-2976 APPLICATION/CLAIM NO.: CERT. NO.:**

**OWNERSHIP**

NAME: Carbon Co. Rec. Transportation Special Service Dis
ADDR: a Special Service Dist. created by Co. of Carbon
185 East Main
Price UT 84501
INTEREST: 100% REMARKS:

**DATES, ETC.**

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 08/10/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**

Type of Right: Decree Source of Info: Proposed Determination Status:

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.011 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N  100 ft W   10 ft from S4 cor, Sec 05, T 13S, R  7E, SLBM
      Diverting Works:
Source:

Stream Alt Required?: No

==========

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

**********

**********

**WATER RIGHT: 91-462  APPLICATION/CLAIM NO.:  CERT. NO.:**

**OWNERSHIP**********

NAME: Eureka Energy Company
ADDR: 215 Market Street
      San Francisco CA 94106
INTEREST: 50%  REMARKS:

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**DATES, ETC.**

LAND OWNED BY APPLICANT?  COUNTY TAX ID#:
FILED:  |PRIORITY:  00/00/1860|PUB BEGAN:  |PUB ENDED:
|NEWSPAPER:
ProtestEnd:  |PROTESTED: [No  ]|HEARNG HLD:  |SE ACTION:
[  ]|ActionDate:  |PROOF DUE:
EXTENSION:  |ELEC/PROOF:[  ]|ELEC/PROOF:  |CERT/WUC:
11/26/1963|LAP, ETC:  |LAPS LETTER:
RUSH LETTR:  |RENOVATE:  |RECON REQ:  |TYPE: [
]
PD BOOK: [91-2  ]|MAP:  [28d  ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**

Type of Right: Diligence Claim  Source of Info: Proposed
Determination  Status:

==========

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW:  SOURCE: Winter Quarters
Creek
COUNTY: Carbon  COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at N 660 ft. E 660 ft. from W4 corner, Sec 06, T13S, R7E, SLBM,
to a point at N 660 ft. W 660 ft. from E4 corner, Sec 06, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

**********

**********

**WATER RIGHT: 91-2048 APPLICATION/CLAIM NO.: CERT. NO.:**
**OWNERSHIP**

NAME: Carbon Co. Rec. Transportation Special Service Dis
ADDR: a Special Service Dist. created by Co. of Carbon
185 East Main
Price UT 84501
INTEREST: 100% REMARKS:
**=======================================================**
**DATES, ETC.*****************************************************************
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 07/20/1966|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2 ]|MAP: [38a ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS------------------------------------------------------------------------------------------------------*"**
Type of Right: Diligence Claim Source of Info: Proposed Determination Status:
**=======================================================**
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*****************
**=======================================================**
FLOW: SOURCE: Pleasant Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at S 1980 ft. E 660 ft. from N4 corner, Sec 08, T13S, R7E, SLBM,
to a point at S 660 ft. E 660 ft. from N4 corner, Sec 08, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.
**=======================================================**
**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***
**************************************************************************************
**************************************************************************************

**WATER RIGHT: 91-201 APPLICATION/CLAIM NO.: A25267 CERT. NO.: 5100**
**=======================================================**
**OWNERSHIP*****************************************************************************************************************************

NAME: Albert B. and April S. Cornaby
ADDR: 5167 South 3200 West
Spanish Fork UT 84660
INTEREST: 100% REMARKS: as joint tenants

**DATES, ETC**

LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: 09/30/1953|PRIORITY: 09/30/1953|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[Approved]|ActionDate:07/24/1954|PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/05/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-2 ]|MAP: [39 ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
Type of Right: Application to Appropriate Source of Info: Proposed
Determination Status: Certificate
**==========**
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************
**==========**
FLOW: 0.068 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on spring located at S 660 ft. E 660 ft. from NW corner, Sec 09, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.)*** ******** ***EDU -- Equivalent Domestic Unit or 1 Family***
**********
**********

**WATER RIGHT: 91-4027 APPLICATION/CLAIM NO.: CERT. NO.:**
**==========**
**OWNERSHIP************

NAME: George Telonis
ADDR: C/O Luke Pappas
Price UT 84501
INTEREST: 100% REMARKS:

**DATES,**
**ETC.************
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
01/22/1973|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91- ]|MAP: [39 ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**

Type of Right: Pending Adjudication Claim Source of Info: Water User's Claim Status:

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.011 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on spring located at N 660 ft. E 660 ft. from W4 corner, Sec 10, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

**********

WATER RIGHT: **91-3601** APPLICATION/CLAIM NO.: CERT. NO.:

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**OWNERSHIP**********
**********

NAME: Della L. Madsen
ADDR: Meadow UT 84644
INTEREST: 100% REMARKS:

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**DATES, ETC.**********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
08/18/1969|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1 ]|MAP: [28a ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**********

Type of Right: Diligence Claim Source of Info: Proposed Determination Status:

==========

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: 0.011 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on spring located at N 660 ft. E 660 ft. from W4 corner, Sec 29, T12S, R7E, SLBM.

COMMENT: Administratively updated by State Engineer.

==========================================================================

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.)*** ******** ***EDU -- Equivalent Domestic Unit or 1 Family***

==========================================================================

SUPPLEMENTAL GROUP NO.: **614802.** Water Rights Appurtenant to the following use(s):
91-3406(DIL),3441(DIL),3442(DIL),3443(DIL),3444(DIL)
3599(DIL),3600(DIL),3601(DIL)

.............................................................................
STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 400.0000
Div Limit: 8.0 acft. PERIOD OF USE: 04/01 TO 11/30

==========================================================================

**PLACE OF USE for STOCKWATERING***************************************************************

| | NORTH-WEST¼ | NORTH-EAST¼ | SOUTH-WEST¼ | SOUTH-EAST¼ |
|---|---|---|---|---|
| | NW NE SW SE | NW NE SW SE | NW NE SW SE | NW NE SW SE |
| Sec 29 T 12S R 7E SLBM | * : : X: * | * : : : * | * : : : * | * : : : * |

*******E N D O F D A TA***************************************

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WATER RIGHT: **91-1412** APPLICATION/CLAIM NO.: CERT. NO.:

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**OWNERSHIP************************************************************************************************************************************

NAME: Helper State Bank
ADDR: General Delivery
Helper UT 84526
INTEREST: 100% REMARKS:

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**DATES, ETC.*******************************************************************************************************************************

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1860|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 07/27/1965|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2 ]|MAP: [39 ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**-------------------------------------------------------------------------------------------*

Type of Right: Diligence Claim Source of Info: Proposed Determination Status:

==========================================================================

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: SOURCE: Right Fork of Jump Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at N 660 ft. E 660 ft. from SW corner, Sec 11, T13S, R7E, SLBM,
to a point at S 660 ft. E 660 ft. from N4 corner, Sec 02, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

==========

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

==========

SUPPLEMENTAL GROUP NO.: **614073.** Water Rights Appurtenant to the following use(s):
91-1404(DIL),1405(DIL),1406(DIL),1407(DIL),1412(DIL)
1413(DIL),1414(DIL)

.....
.....
STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 606.0000
Div Limit: 9.08 acft. PERIOD OF USE: 05/01 TO 11/01

*==========

SUPPLEMENTAL GROUP NO.: **614079.**
91-1412(DIL)

.....
DOMESTIC: Sole Supply: UNEVALUATED EDUs Group Total: 1.0000
Div Limit: 0.37 acft. PERIOD OF USE: 05/01 TO 11/01
.....

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*

| Section | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sec 02 T 13S R 7E SLBM | | | | | | | | X | | | | | 0.0000 |
| Sec 11 T 13S R 7E SLBM | | | | | | | | | | | | X | 0.0000 |

GROUP ACREAGE TOTAL: 0.0000

==========

**PLACE OF USE for STOCKWATERING**********

| | NORTH-WEST¼ | | | | NORTH-EAST¼ | | | | SOUTH-WEST¼ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE |

Sec 02 T 13S R 7E SLBM * : : : * * X: : : * * : : :
* * : : : *
Sec 11 T 13S R 7E SLBM * : : : * * : : : * * : : X:
* * : : : *
**********E N D O F D A T A**********

**********
**********
WATER RIGHT: **91-4143** APPLICATION/CLAIM NO.: CERT. NO.:
==========
**OWNERSHIP**********

NAME: George Telonis
ADDR: C/O Luke Pappas
Price UT 84501
INTEREST: 100% REMARKS:
==========
**DATES, ETC.**********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
01/22/1973|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91- ]|MAP: [39 ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS**********
Type of Right: Pending Adjudication Claim Source of Info: Water User's
Claim Status:
==========
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========
FLOW: 0.011 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on spring located at S 660 ft. W 1980 ft. from E4 corner, Sec 09, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.
==========
**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*
==========
SUPPLEMENTAL GROUP NO.: **615057.** Water Rights Appurtenant to the following use(s):
91-3640(WUC),4025(PAC),4026(PAC),4027(PAC),4028(PAC)
4029(PAC),4030(WUC),4031(PAC),4032(PAC),4033(PAC)
4143(PAC)

```
.....................................................................
  STOCKWATER: Sole Supply: UNEVALUATED ELUs      Group Total: 510.0000
Div Limit:                 PERIOD OF USE: 05/01 TO 11/30
=====================================================================
PLACE OF USE for
STOCKWATERING*********************************************************
************************************

                                NORTH-WEST¼       NORTH-EAST¼       SOUTH-
WEST¼       SOUTH-EAST¼
                                NW NE SW SE       NW NE SW SE       NW NE SW
SE       NW NE SW SE
Sec 09 T 13S R  7E SLBM       *  :  :  :  *     *  :  :  :  *     *  :  :  :
*     * X:  :  :  *
*********************************************************************
*********************************************E N D   O F   D A T A*

WATER RIGHT: 91-3515      APPLICATION/CLAIM NO.:        CERT. NO.:
=====================================================================
OWNERSHIP*************************************************************
=====================================================================

NAME: Milton E. Jacob Family Trust
ADDR: Paul Jacob, Trustee
      349 East 200 South
      Pleasant Grove UT 84062
INTEREST: 100%       REMARKS:
=====================================================================
DATES,
ETC.******************************************************************
LAND OWNED BY APPLICANT? Yes                 COUNTY TAX ID#:
FILED:               |PRIORITY:  00/00/1869|PUB BEGAN:           |PUB ENDED:
|NEWSPAPER:
ProtestEnd:          |PROTESTED: [No      ]|HEARNG HLD:          |SE ACTION:
[        ]|ActionDate:          |PROOF DUE:
EXTENSION:           |ELEC/PROOF:[        ]|ELEC/PROOF:          |CERT/WUC:
09/06/1968|LAP, ETC:            |LAPS LETTER:
RUSH LETTR:          |RENOVATE:            |RECON REQ:           |TYPE: [
]
PD BOOK: [91-1      ]|MAP:  [29b          ]|PUB DATE:
*TYPE -- DOCUMENT -- STATUS-------------------------------------------------
-----------------------------------------------------*
Type of Right: Diligence Claim               Source of Info: Proposed
Determination        Status:
=====================================================================
LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access
PLAT Program.)***********MAP VIEWER*****************
=====================================================================
FLOW: 0.011 cfs                                  SOURCE: Unnamed Spring
COUNTY: Carbon       COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on spring located at S 1980 ft. E 660 ft. from N4
corner, Sec 21, T12S, R7E, SLBM.
                          COMMENT: Administratively updated by State
Engineer.
```

==========

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.)*** ******** ***EDU -- Equivalent Domestic Unit or 1 Family***

==========

SUPPLEMENTAL GROUP NO.: **614126.** Water Rights Appurtenant to the following use(s):
91-408(DIL),660(DIL),665(DIL),667(DIL),1678(DIL)
1679(DIL),1680(DIL),1681(DIL),2233(DIL),2341(DIL)
2647(DIL),3041(DIL),3131(DIL),3419(DIL),3423(DIL)
3425(DIL),3440(DIL),3504(DIL),3505(DIL),3506(DIL)
3507(DIL),3508(DIL),3509(DIL),3510(DIL),3511(DIL)
3512(DIL),3513(DIL),3514(DIL),3515(DIL),3516(DIL)
3517(DIL),3518(DIL),3521(DIL),3525(DIL),3591(DIL)
3681(DIL),3687(DIL),3908(DIL)

.....

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 810.0000
Div Limit: 12.16 acft. PERIOD OF USE: 05/01 TO 11/30

*==========

SUPPLEMENTAL GROUP NO.: **614804.** Water Rights Appurtenant to the following use(s):
91-408(DIL),660(DIL),665(DIL),667(DIL),1678(DIL)
1679(DIL),1680(DIL),1681(DIL),2233(DIL),2341(DIL)
2647(DIL),3041(DIL),3131(DIL),3419(DIL),3421(DIL)
3423(DIL),3425(DIL),3440(DIL),3504(DIL),3505(DIL)
3506(DIL),3507(DIL),3508(DIL),3509(DIL),3510(DIL)
3511(DIL),3512(DIL),3513(DIL),3514(DIL),3515(DIL)
3516(DIL),3517(DIL),3518(DIL),3521(DIL),3525(DIL)
3591(DIL),3681(DIL),3687(DIL),3908(DIL)

.....

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 810.0000
Div Limit: 12.16 acft. PERIOD OF USE: 05/01 TO 11/30

*==========

SUPPLEMENTAL GROUP NO.: **614805.** Water Rights Appurtenant to the following use(s):
91-408(DIL),660(DIL),665(DIL),667(DIL),1678(DIL)
1679(DIL),1680(DIL),1681(DIL),2233(DIL),2341(DIL)
2647(DIL),3041(DIL),3131(DIL),3419(DIL),3421(DIL)
3423(DIL),3425(DIL),3440(DIL),3504(DIL),3505(DIL)
3506(DIL),3507(DIL),3508(DIL),3509(DIL),3510(DIL)
3511(DIL),3512(DIL),3513(DIL),3514(DIL),3515(DIL)
3516(DIL),3517(DIL),3518(DIL),3525(DIL),3591(DIL)
3681(DIL),3687(DIL),3908(DIL)

.....

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 810.0000
Div Limit: 12.16 acft. PERIOD OF USE: 05/01 TO 11/30

*==========

SUPPLEMENTAL GROUP NO.: **614817.** Water Rights Appurtenant to the following use(s):
91-408(DIL),660(DIL),665(DIL),667(DIL),1678(DIL)
1679(DIL),1680(DIL),1681(DIL),2233(DIL),2341(DIL)
2647(DIL),3041(DIL),3131(DIL),3419(DIL),3421(DIL)
3423(DIL),3425(DIL),3440(DIL),3504(DIL),3505(DIL)
3506(DIL),3507(DIL),3508(DIL),3509(DIL),3510(DIL)
3511(DIL),3512(DIL),3513(DIL),3514(DIL),3515(DIL)

3516(DIL),3517(DIL),3518(DIL),3525(DIL),3591(DIL)
3681(DIL),3687(DIL)

.....
  STOCKWATER: Sole Supply: UNEVALUATED ELUs  Group Total: 810.0000
Div Limit: 12.16 acft.  PERIOD OF USE: 03/01 TO 11/30
==========
**PLACE OF USE for**
**STOCKWATERING**********

| | NORTH-WEST¼ | | | | NORTH-EAST¼ | | | | SOUTH-WEST¼ | | | | SOUTH-EAST¼ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE |
| Sec 21 T 12S R 7E SLBM | * | : | : | : | * | * | : | : | X: | * | * | : | : | : | * | * |

**********E N D  O F  D A T A**********

WATER RIGHT: **91-1475**  APPLICATION/CLAIM NO.:  CERT. NO.:
**OWNERSHIP**********

NAME: Clarence Anderson Estate
ADDR: General Delivery
      Price UT 84501
==========
**DATES,**
**ETC.**********
LAND OWNED BY APPLICANT? Yes  COUNTY TAX ID#:
FILED:  |PRIORITY: 00/00/1902|PUB BEGAN:  |PUB ENDED:
|NEWSPAPER:
ProtestEnd:  |PROTESTED: [No  ]|HEARNG HLD:  |SE ACTION:
[  ]|ActionDate:  |PROOF DUE:
EXTENSION:  |ELEC/PROOF:[  ]|ELEC/PROOF:  |CERT/WUC:
07/22/1965|LAP, ETC:  |LAPS LETTER:
RUSH LETTR:  |RENOVATE:  |RECON REQ:  |TYPE: [
]
PD BOOK: [91-1  ]|MAP: [29b  ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS**----------
----------*
Type of Right: Diligence Claim  Source of Info: Proposed
Determination  Status:
==========
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********
==========
FLOW:  SOURCE: Hopkins Creek
COUNTY: Carbon  COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on reservoir located at N 660 ft. W 660 ft. from E4 corner, Sec 27, T12S, R7E, SLBM.
  COMMENT: Administratively updated by State Engineer.
==========
**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***
==========

SUPPLEMENTAL GROUP NO.: **614068.** Water Rights Appurtenant to the following use(s):
91-352(DIL),640(DIL),740(DIL),1221(DIL),1396(DIL)
1397(DIL),1398(DIL),1399(DIL),1400(DIL),1401(DIL)
1402(DIL),1403(DIL),1475(DIL),3279(DIL)

.....
STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 556.0000
Div Limit: 8.18 acft. PERIOD OF USE: 05/01 TO 11/01
*=========================================================================
SUPPLEMENTAL GROUP NO.: **614088.** Water Rights Appurtenant to the following use(s):
91-352(DIL),640(DIL),740(DIL),1221(DIL),1396(DIL)
1397(DIL),1398(DIL),1399(DIL),1400(DIL),1401(DIL)
1402(DIL),1475(DIL)

.....
STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 556.0000
Div Limit: 8.18 acft. PERIOD OF USE: 05/01 TO 11/01
==========
**PLACE OF USE for STOCKWATERING**********

| | NORTH-WEST¼ | | | | NORTH-EAST¼ | | | | SOUTH-WEST¼ | | | | SOUTH-EAST¼ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE |
| Sec 27 T 12S R 7E SLBM | * | : | : | : | * | * | : | : | : X* | * | : | : | : | * | : | : | : | * |

==========
Storage from 01/01 to 12/31, inclusive, in Lower Miller Canyon Res. with a maximum capacity of 0.250 acre-feet, located in:

| Height of Dam: | NORTH-WEST¼ | | | | NORTH-EAST¼ | | | | SOUTH-WEST¼ | | | | SOUTH-EAST¼ | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area Inundated: | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE |
| Sec 27 T 12S R 7E SLBM | * | : | : | : | * | * | : | : | : X* | * | : | : | : | * | : | : | : | * |

Small Dam Required?: No
**********E N D O F D A T A*****

WATER RIGHT: **91-4107** APPLICATION/CLAIM NO.: CERT. NO.:
**OWNERSHIP**********

NAME: Milton E. Jacob Family Trust
ADDR: Paul Jacob, Trustee
349 East 200 South
Pleasant Grove UT 84062
INTEREST: 100% REMARKS:
==========
**DATES, ETC.**********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:

ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91- ]|MAP: [29b ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS--------------------------------------------------------------------------------------------------------***

Type of Right: Pending Adjudication Claim Source of Info: Water User's Claim Status:

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

FLOW: 0.011 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on spring located at S 660 ft. E 660 ft. from N4 corner, Sec 27, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***

WATER RIGHT: **91-2978** APPLICATION/CLAIM NO.: CERT. NO.:

**OWNERSHIP****************************************************************************

NAME: Carbon Co. Rec. Transportation Special Service Dis
ADDR: a Special Service Dist. created by Co. of Carbon
185 East Main
Price UT 84501
INTEREST: 100% REMARKS:

**DATES, ETC.****************************************************************************

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
08/10/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [ 91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS--------------------------------------------------------------------------------------------------------***

Type of Right: Decree Source of Info: Proposed Determination Status:

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

FLOW: 0.683 cfs                                    SOURCE: Clear Creek
COUNTY: Carbon       COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N  310 ft E  510 ft from S4 cor, Sec 05, T 13S, R  7E, SLBM
      Diverting Works:
Source:

Stream Alt Required?: No
**USES OF WATER RIGHT** ******** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***
==============================================================================
SUPPLEMENTAL GROUP NO.: **614284.**  Water Rights Appurtenant to the following use(s):
91-2187(DIL),2974(DEC),2975(DEC),2976(DEC),2978(DEC)
3644(DIL),3742(DIL),3743(DIL),3744(DIL),3749(DIL)
3750(DIL),3751(DIL),3868(DIL)
  STOCKWATER: Sole Supply: UNEVALUATED ELUs      Group Total: 710.0000
Div Limit: 10.66 acft.     PERIOD OF USE: 05/01 TO 11/30
*=============================================================================
SUPPLEMENTAL GROUP NO.: **614598.**
91-2978(DEC)

..............................................................................
  IRRIGATION: Sole Supply: UNEVALUATED acres     Group Total: 4.1
Div Limit: 16.4 acft.      PERIOD OF USE: 03/01 TO 11/30
..............................................................................
.......................................................
  ###PLACE OF USE:       *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*   Section

| | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sec 05 T 13S R 7E SLBM | | | | | | | | | | | | | | 4.1000 | | | 4.1000 |

GROUP ACREAGE TOTAL:      4.1000
==============================================================================
**OTHER COMMENTS**************************************************************************
     Morse Decree, 1st Class
**********************************************************E N D   O F   D A T
**************************************************************************************
**************************************************************************************

WATER RIGHT: **91-2979**     APPLICATION/CLAIM NO.:       CERT. NO.:
==============================================================================
**OWNERSHIP**************************************************************************

NAME: Fred and Shelia Jensen
ADDR: P.O. Box 113
      Goshen UT 84633
INTEREST: 100%       REMARKS:

**DATES, ETC.**********************************************************************
LAND OWNED BY APPLICANT? Yes                    COUNTY TAX ID#:
FILED:                |PRIORITY:  00/00/1874|PUB BEGAN:           |PUB ENDED:
|NEWSPAPER:
ProtestEnd:           |PROTESTED: [No      ]|HEARNG HLD:          |SE ACTION:
[        ]|ActionDate:           |PROOF DUE:
EXTENSION:            |ELEC/PROOF:[        ]|ELEC/PROOF:          |CERT/WUC:
07/26/1967|LAP, ETC:             |LAPS LETTER:
RUSH LETTR:           |RENOVATE:            |RECON REQ:           |TYPE: [
]
PD BOOK: [  91-2    ]|MAP:  [28d          ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS---------------------------------------------------------------------------------------------------------------***

Type of Right: Decree                            Source of Info: Proposed
Determination         Status:

**==============================================================================**

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*****************

**==============================================================================**

FLOW: 0.453 cfs                                       SOURCE: Clear Creek
COUNTY: Carbon        COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N  310 ft E  510 ft from S4 cor, Sec 05, T 13S, R  7E, SLBM
      Diverting Works:
Source:

Stream Alt Required?: No

**==============================================================================**

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

**==============================================================================**

SUPPLEMENTAL GROUP NO.: **614599.**
..............................................................................
  IRRIGATION: 27.2 acres
Div Limit: 108.8 acft.     PERIOD OF USE: 03/01 TO 11/30
..............................................................................
  ###PLACE OF USE:       *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*   Section
                         *  NW   |  NE   |  SW   |  SE   *  NW   |  NE   |  SW   |  SE   *  NW   |  NE   |  SW   |  SE   *  NW   |  NE   |  SW   |  SE   *   Totals
 Sec 05 T 13S R  7E SLBM
*_______|_______|_______|_______*_______|_______|13.7000|_______*_______|_______|_______|_______*13.5000|_______|_______|_______*     27.2000

GROUP ACREAGE TOTAL:     27.2000

**==============================================================================**

**OTHERCOMMENTS*****************************************************************************

     Morse Decree, 1st Class

**************************************************E N D   O F   D A T A****
******************************************************************************
******************************************************************************

WATER RIGHT: **91-2980** APPLICATION/CLAIM NO.: CERT. NO.:

**OWNERSHIP**********

NAME: Frank T. Jr. & Pamela G. Helsten
ADDR: 1339 East 3955 South
Salt Lake City UT 84124
INTEREST: 100% REMARKS:
**DATES,**
**ETC.**********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/26/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [ 91-2 ]|MAP: [28d ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS**********
**********

Type of Right: Decree Source of Info: Proposed
Determination Status:
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.1 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

==========

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

==========

SUPPLEMENTAL GROUP NO.: **614601.**

.....
IRRIGATION: 0.8 acres
Div Limit: 3.2 acft. PERIOD OF USE: 03/01 TO 11/30
.....
###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section
* NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * Totals
Sec 05 T 13S R 7E SLBM *_____|_____|_____|_____*
0.8000|_____|_____|_____*_____|_____|_____|_____*_____|_____|_____|_____*
0.8000

GROUP ACREAGE TOTAL: 0.8000

**OTHER COMMENTS**

Morse Decree, 1st Class

**E N D O F D A T A**

WATER RIGHT: **91-2981** APPLICATION/CLAIM NO.: CERT. NO.:

**OWNERSHIP**

NAME: Orson Marsing
ADDR: Miller Creek UT
INTEREST: 100% REMARKS:

**DATES, ETC.**

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/03/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [ 91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**

Type of Right: Decree Source of Info: Proposed
Determination Status:

**LOCATION OF WATER RIGHT*** (Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.1 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614602.**

IRRIGATION: 2.2 acres
Div Limit: 8.8 acft. PERIOD OF USE: 03/01 TO 11/30

```
  ###PLACE OF USE:       *-------NORTH WEST QUARTER------*-------NORTH EAST
QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------
*   Section
                         *  NW    |  NE    |  SW    |  SE    *  NW    |  NE    |
SW    |  SE    *  NW    |  NE    |  SW    |  SE    *  NW    |  NE    |  SW    |  SE
*   Totals
 Sec 05 T 13S R  7E SLBM *_______|_______|_______|_______*
2.2000|_______|_______|_______*_______|_______|_______|_______*_______|______
_|_______|_______*      2.2000

GROUP ACREAGE TOTAL:      2.2000
================================================================================
OTHER
COMMENTS*******************************************************************
     Morse Decree, 1st Class
*************************************************E N D   O F   D A T A***
*****************************************************************************
*****************************************************************************

WATER RIGHT: 91-2982      APPLICATION/CLAIM NO.:        CERT. NO.:
================================================================================
OWNERSHIP*******************************************************************

NAME: Lillie Pearson
ADDR: 315 South 7th East
      Salt Lake City UT
INTEREST: 100%       REMARKS:
================================================================================
DATES,
ETC.************************************************************************
LAND OWNED BY APPLICANT? Yes                 COUNTY TAX ID#:
FILED:               |PRIORITY:  00/00/1874|PUB BEGAN:           |PUB ENDED:
|NEWSPAPER:
ProtestEnd:          |PROTESTED: [No      ]|HEARNG HLD:          |SE ACTION:
[        ]|ActionDate:          |PROOF DUE:
EXTENSION:           |ELEC/PROOF:[        ]|ELEC/PROOF:          |CERT/WUC:
07/25/1967|LAP, ETC:            |LAPS LETTER:
RUSH LETTR:          |RENOVATE:            |RECON REQ:           |TYPE: [
]
PD BOOK: [  91-2    ]|MAP:  [28d          ]|PUB DATE:
*TYPE -- DOCUMENT -- STATUS-------------------------------------------------
-------------------------------------------------*
Type of Right: Decree                          Source of Info: Proposed
Determination        Status:
================================================================================
LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access
PLAT Program.)***********MAP VIEWER*****************
================================================================================
FLOW: 0.1 cfs                                      SOURCE: Clear Creek
COUNTY: Carbon       COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N  310 ft E  510 ft from S4 cor, Sec 05, T 13S, R  7E, SLBM
      Diverting Works:
Source:
```

Stream Alt Required?: No

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614603.**

IRRIGATION: 1.2 acres
Div Limit: 4.8 acft. PERIOD OF USE: 03/01 TO 11/30

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*  Section

| | * NW | NE | SW | SE | * NW | NE | SW | SE | * NW | NE | SW | SE | * Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sec 32 T 12S R 7E SLBM | | | | | | | | | | | | | |
| | | | | | | | | | 1.2000 | | | | 1.2000 |

GROUP ACREAGE TOTAL: 1.2000

**OTHER COMMENTS**
Morse Decree, 1st Class
**END OF DATA**

WATER RIGHT: **91-2983** APPLICATION/CLAIM NO.: CERT. NO.:

**OWNERSHIP**

NAME: Thomas Biggs Jr.
ADDR: Columbia UT
INTEREST: 100% REMARKS:

**DATES, ETC.**
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 07/05/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [ 91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**
Type of Right: Decree Source of Info: Proposed
Determination Status: Water User's Claim

==========

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

==========

FLOW: 0.1 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

==========

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

==========

SUPPLEMENTAL GROUP NO.: **614604.**

.....
IRRIGATION: 1.1 acres
Div Limit: 4.4 acft. PERIOD OF USE: 03/01 TO 11/30
.....
###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*
Section
* NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE *
Totals
Sec 32 T 12S R 7E SLBM
*_____|_____|_____|_____*_____|_____|_____|_____*_____|_____|_____|_____*_____|_____|_____|_____* 1.1000* 1.1000

GROUP ACREAGE TOTAL: 1.1000

==========

**OTHER COMMENTS**********

Morse Decree, 1st Class

**********E N D O F D A T A***

**********

**********

**(WARNING: Water Rights makes NO claims as to the accuracy of this data.)** RUN DATE: 09/27/2010
WATER RIGHT: **91-2984** APPLICATION/CLAIM NO.: CERT. NO.:

==========

**OWNERSHIP**********

NAME: Waino E. Burton
ADDR: Scofield UT
INTEREST: 100% REMARKS:

==========

**DATES, ETC.**********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:

FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 08/02/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [ 91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS---------------------------------------------------**

Type of Right: Decree Source of Info: Proposed Determination Status:

**=============================================================================**

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

**=============================================================================**

FLOW: 0.1 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

**=============================================================================**

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

**=============================================================================**

SUPPLEMENTAL GROUP NO.: **614605.**

...............................................................................
IRRIGATION: 0.6 acres
Div Limit: 2.4 acft. PERIOD OF USE: 03/01 TO 11/30
...............................................................................
.......................................................

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section

| | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sec 32 T 12S R 7E SLBM | | | | | | | | | | | | | | 0.6000 | | | 0.6000 |

GROUP ACREAGE TOTAL: 0.6000

**=============================================================================**

**OTHER COMMENTS***********************************************************************

Morse Decree, 1st Class

**************************************************E N D O F D A T A******
*********************************************************************************
*********************************************************************************

WATER RIGHT: **91-2985** APPLICATION/CLAIM NO.: CERT. NO.:

**OWNERSHIP**********

NAME: Phyllis M. Conover
ADDR: 358 South 1st West
Provo UT 84601
INTEREST: 100% REMARKS:

==========

**DATES, ETC**

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/28/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [ 91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**
**----------***

Type of Right: Decree Source of Info: Proposed
Determination Status:

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**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

==========

FLOW: 0.1 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

==========

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

==========

SUPPLEMENTAL GROUP NO.: **614606.**

.....
IRRIGATION: 0.3 acres
Div Limit: 1.2 acft. PERIOD OF USE: 03/01 TO 11/30
.....
###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section
* NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * Totals
Sec 32 T 12S R 7E SLBM
*_____|_____|_____|_____*_____|_____|_____|_____*_____|_____|_____|_____*_____|_____|_____|_____| 0.3000|_____* 0.3000

GROUP ACREAGE TOTAL: 0.3000

**OTHER COMMENTS**

Morse Decree, 1st Class

**E N D O F D A T A**

WATER RIGHT: **91-2986** APPLICATION/CLAIM NO.: CERT. NO.:

**OWNERSHIP**

NAME: James F. Levanger
ADDR: HC-35 Box 250
Helper UT 84526
INTEREST: 100% REMARKS:

**DATES, ETC.**

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
06/02/1969|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [ 91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**

Type of Right: Decree Source of Info: Proposed
Determination Status:

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.015 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614607.**

IRRIGATION: 0.9 acres
Div Limit: 3.6 acft. PERIOD OF USE: 03/01 TO 11/01

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*

| Section | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Totals | | | | | | | | | | | | |
| Sec 32 T 12S R 7E SLBM | | | | | | | | | | | | 0.9000 |

GROUP ACREAGE TOTAL: 0.9000

**COMMENTS**
Morse Decree, 1st Class
**E N D O F D A T A**

WATER RIGHT: **91-2987** APPLICATION/CLAIM NO.: CERT. NO.:

**OWNERSHIP**

NAME: Leah B. Johnson
ADDR: 273 West Main
Spanish Fork UT 84660
INTEREST: 100% REMARKS:

**DATES, ETC.**
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
08/02/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [ 91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**
Type of Right: Decree Source of Info: Proposed
Determination Status:

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

FLOW: 0.1 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No
================================================================================
**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***
================================================================================
SUPPLEMENTAL GROUP NO.: **614608.**

................................................................................
IRRIGATION: 0.7 acres
Div Limit: 2.8 acft. PERIOD OF USE: 03/01 TO 11/30
................................................................................
........................................................
###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section
* NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * Totals
Sec 32 T 12S R 7E SLBM
*_______|_______|_______|_______*_______|_______|_______|_______*_______|_______|_______|_______*_______|_______| 0.7000|_______* 0.7000

GROUP ACREAGE TOTAL: 0.7000
================================================================================
**OTHER COMMENTS*****************************************************************
Morse Decree, 1st Class.
**************************************************E N D O F D A T A**
**********************************************************************************
**********************************************************************************

WATER RIGHT: **91-2988** APPLICATION/CLAIM NO.: CERT. NO.:
================================================================================
**OWNERSHIP***********************************************************************

NAME: Nolan G. and Larue H. Davis
ADDR: Helper UT 84526
INTEREST: 100% REMARKS:
================================================================================
**DATES, ETC.*********************************************************************
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:

EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 09/22/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [ 91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS---------------------------------------------------------------------------------------------------------***

Type of Right: Decree Source of Info: Proposed Determination Status:

**==============================================================================**

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

**==============================================================================**

FLOW: SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

**==============================================================================**

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

**==============================================================================**

SUPPLEMENTAL GROUP NO.: **614609.**

..............................................................................
IRRIGATION: 0.7 acres
Div Limit: 2.8 acft. PERIOD OF USE: 03/01 TO 11/30
..............................................................................
###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section
* NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * Totals
Sec 32 T 12S R 7E SLBM
*_______|_______|_______|_______*_______|_______|_______|_______*_______|_______|_______|_______*_______|_______| 0.7000|_______* 0.7000

GROUP ACREAGE TOTAL: 0.7000

**==============================================================================**

**OTHER COMMENTS**********************************************************************************

Morse Decree, 1st Class

***************************************************************************************************************************************E N D O F D A T A*****

*******************************************************************************************************************************************************************************

WATER RIGHT: **91-2989** APPLICATION/CLAIM NO.: CERT. NO.:

**OWNERSHIP**

NAME: Town of Scofield (Public Water Supplier)
ADDR: Scofield UT
INTEREST: 100% REMARKS:

**DATES, ETC.**

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
07/26/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [ 91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**

Type of Right: Decree Source of Info: Proposed
Determination Status:

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)**********MAP VIEWER**********

FLOW: 0.1 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614610.**
91-2989(DEC)

IRRIGATION: Sole Supply: UNEVALUATED acres Group Total: 3.4
Div Limit: 13.6 acft. PERIOD OF USE: 03/01 TO 11/30

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*
Section
* NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE *
Totals

Sec 32 T 12S R 7E SLBM
*_____|_____|_____|_____*_____|_____|_____|_____*_____|_____|_____|_____*_____|_____| 1.4000| 2.0000* 3.4000

GROUP ACREAGE TOTAL: 3.4000
*==========
SUPPLEMENTAL GROUP NO.: 615095. Water Rights Appurtenant to the following use(s):
91-830(REJ),2989(DEC),3094(DIL),4195(DEC),E1784(APP)
E2567(APP)

.....
MUNICIPAL: Scofield
PERIOD OF USE: 01/01 TO 12/31
Acre Feet Contributed by this Right for this Use: Unevaluated
.....
###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*
Section
* NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * Totals
Sec 17 T 13S R 7E SLBM *_____|X
|_____|_____*_____|_____|_____|_____*_____|_____|_____|_____|_____*_____|_____|_____|_____* 0.0000

GROUP ACREAGE TOTAL: 3.4000
==========
OTHER
COMMENTS**********
Morse Decree, 1st Class
**********E N D O F D A T A***
**********
**********

WATER RIGHT: **91-2990** APPLICATION/CLAIM NO.: CERT. NO.:
==========
OWNERSHIP**********

NAME: Della L. Madsen
ADDR: Meadow UT 84644
INTEREST: 100% REMARKS:
==========
DATES,
ETC.**********
LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
09/11/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [ 91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS------------------------------------------------------------------------------------------------------------***
Type of Right: Decree                    Source of Info: Proposed Determination       Status:
**================================================================================**
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************
**================================================================================**
FLOW: 1.166 cfs                              SOURCE: Clear Creek
COUNTY: Carbon       COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N  310 ft E  510 ft from S4 cor, Sec 05, T 13S, R  7E, SLBM
      Diverting Works:
Source:

Stream Alt Required?: No
**================================================================================**
**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***
**================================================================================**
SUPPLEMENTAL GROUP NO.: **614611.**

.............................................................................
IRRIGATION: 70.0 acres                                                    Div
Limit: 280.0 acft.     PERIOD OF USE: 03/01 TO 11/30
.............................................................................
  ###PLACE OF USE:       *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*   Section
                         *  NW   |  NE   |  SW   |  SE   *  NW   |  NE   |
SW   |  SE   *  NW   |  NE   |  SW   |  SE   *  NW   |  NE   |  SW   |  SE
*   Totals
 Sec 32 T 12S R  7E SLBM *_______|_______|_______|_______*_______|_______|
6.3000|37.7000*_______|_______|_______|_______*
6.1000|19.9000|_______|_______*     70.0000

GROUP ACREAGE TOTAL:     70.0000
**================================================================================**
**OTHER COMMENTS**********************************************************************
     Morse Decree, 1st Class
**********************************************************END OF DATA********************************************************************************************************************************************************************************

WATER RIGHT: **91-2991**     APPLICATION/CLAIM NO.:       CERT. NO.:
CHANGES: a11884    Withdrawn
**OWNERSHIP************************************************************************

NAME: John B. Jones
ADDR: Rt. 2 Box 96
      Spanish Fork UT 84660
**================================================================================**

**DATES, ETC.**********

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:

FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:

ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:

EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 07/20/1967|LAP, ETC: |LAPS LETTER:

RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]

PD BOOK: [ 91- ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------**

Type of Right: Decree Source of Info: Water User's Claim Status: Water User's Claim

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**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************

==========

FLOW: SOURCE: Clear Creek

COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:

(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM

Diverting Works:

Source:

Stream Alt Required?: No

==========

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

==========

SUPPLEMENTAL GROUP NO.: **614612.**

91-2991(WUC)

IRRIGATION: Sole Supply: UNEVALUATED acres Group Total: 66.9

Div Limit: 267.6 acft. PERIOD OF USE: 03/01 TO 11/30

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section

| | * NW | NE | SW | SE | * NW | NE | SW | SE | * NW | NE | SW | SE | * Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sec 32 T 12S R 7E SLBM | | | | | * 1.8000 | 23.8000 | 7.4000 | | * | | | | * |
| | | | | | 26.6000 | | 1.9000 | | * 61.5000 | | | | |
| Sec 33 T 12S R 7E SLBM | | | | | * | | | | * | | | | |
| | | | | | 5.4000 | | | | * 5.4000 | | | | |

GROUP ACREAGE TOTAL: 66.9000

SUPPLEMENTAL GROUP NO.: **614613.** Water Rights Appurtenant to the following use(s):

91-2991(WUC),2992(WUC)

```
.....................................................................
  IRRIGATION: Sole Supply: UNEVALUATED acres     Group Total: 141.5
Div Limit: 566.0 acft.     PERIOD OF USE: 03/01 TO 11/30
.....................................................................
.....................................................
  ###PLACE OF USE:       *-------NORTH WEST QUARTER------*-------NORTH EAST
QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------
*   Section
                          *  NW    |  NE    |  SW    |  SE    *  NW    |  NE    |
SW    |  SE    *  NW    |  NE    |  SW    |  SE    *  NW    |  NE    |  SW    |  SE
*   Totals
 Sec 28 T 12S R  7E SLBM
*_______|_______|_______|_______*_______|_______|_______|_______*22.2000|____
___|15.0000|_______*_______|_______|_______|_______*     37.2000
 Sec 29 T 12S R  7E SLBM
*_______|_______|_______|_______*_______|_______|_______|_______*_______|____
___|_______|_______* 4.7000|34.1000| 5.7000|40.0000*     84.5000
 Sec 32 T 12S R  7E SLBM *_______|_______|_______|_______*
4.3000|14.2000|_______|_______*_______|_______|_______|_______*_______|______
_|_______|_______*     18.5000
 Sec 33 T 12S R  7E SLBM *_______|_______|_______|_______*_______|
1.3000|_______|_______*_______|_______|_______|_______*_______|_______|______
_|_______*      1.3000

GROUP ACREAGE TOTAL:    141.5000
=======================================================================
This Right (91-2991) has an evaluated sole-supply total for irrigation of
0.0000 acres.
=======================================================================
This Right (91-2991) is a member of 2 supplemental water right groups with
irrigated acreage totaling 208.4000 acres.
=======================================================================
OTHER
COMMENTS*************************************************************
     Morse Decree - 1st Class.
     WUCs 91-2991, 2992, 2993 are limited to the irrigation requirements of
267.5
     acres and 4.458 cfs.
*********************************************E N D   O F   D A T A**
***********************************************************************************
***********************************************************************************


WATER RIGHT: 91-3622      APPLICATION/CLAIM NO.:        CERT. NO.:
OWNERSHIP************************************************************

NAME: Mae Nicolodemas
ADDR: Scofield UT 84538
INTEREST: 100%       REMARKS:
=======================================================================
DATES,
ETC.*****************************************************************
LAND OWNED BY APPLICANT? Yes                COUNTY TAX ID#:
```

FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 08/13/1969|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [ 91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS--------------------------------------------------------------------------------------------------------***

Type of Right: Decree Source of Info: Proposed Determination Status: Water User's Claim

**===========================================================================**

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER*******************

**===========================================================================**

FLOW: 0.016 cfs SOURCE: Clear Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 310 ft E 510 ft from S4 cor, Sec 05, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

**===========================================================================**

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

**===========================================================================**

SUPPLEMENTAL GROUP NO.: **614843.**

..........................................................................
IRRIGATION: 1.0 acres
Div Limit: 4.0 acft. PERIOD OF USE: 03/01 TO 11/30
..........................................................................
###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section
* NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * NW | NE | SW | SE * Totals
Sec 05 T 13S R 7E SLBM *_______|_______|_______|_______*1.0000|_______|_______|_______*_______|_______|_______|_______*_______|_______|_______|_______* 1.0000

GROUP ACREAGE TOTAL: 1.0000

**===========================================================================**

**OTHER COMMENTS********************************************************************

Morse Decree, 1st Class

*************************E N D O F D A T A*****

********************************************************************************

********************************************************************************

WATER RIGHT: **91-3640** APPLICATION/CLAIM NO.: CERT. NO.:

==========
**OWNERSHIP**********

NAME: Angelo Georgedes c/o Luke Pappas
ADDR: Price UT 84501
INTEREST: 100%  REMARKS:
==========
**DATES, ETC.**********
LAND OWNED BY APPLICANT? Yes  COUNTY TAX ID#:
FILED:  |PRIORITY:  /  /1869|PUB BEGAN:  |PUB ENDED:  |NEWSPAPER:
ProtestEnd:  |PROTESTED: [No  ]|HEARNG HLD:  |SE ACTION: [  ]|ActionDate:  |PROOF DUE:
EXTENSION:  |ELEC/PROOF:[  ]|ELEC/PROOF:  |CERT/WUC: 10/30/1970|LAP, ETC:  |LAPS LETTER:
RUSH LETTR:  |RENOVATE:  |RECON REQ:  |TYPE: [ ]
PD BOOK: [91-2  ]|MAP:  [39  ]|PUB DATE:
***TYPE -- DOCUMENT -- STATUS----------**
Type of Right: Diligence Claim  Source of Info: Proposed Determination  Status: Water User's Claim
==========
**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)***********MAP VIEWER******************
==========
FLOW:  SOURCE: Hopkins Creek
COUNTY: Carbon  COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at N 660 ft. W 660 ft. from S4 corner, Sec 10, T13S, R7E, SLBM,
to a point at S 660 ft. E 1980 ft. from W4 corner, Sec 31, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.
==========
**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

WATER RIGHT: **91-3405**  APPLICATION/CLAIM NO.:  CERT. NO.:
**OWNERSHIP************

NAME: Mattie B. Cornaby Family Trust
ADDR: Mattie B. and William Argyle Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w William Argyle Cornaby Family Trust

NAME: William Argyle Cornaby Family Trust
ADDR: William Argyle and Mattie B. Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660

REMARKS: undv inter/w Mattie B. Cornaby Family Trust

**DATES, ETC.**

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1874|PUB BEGAN: |PUB ENDED:
|NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION:
[ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC:
09/05/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [
]
PD BOOK: [91-1 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS----------***

Type of Right: Decree Source of Info: Proposed
Determination Status: Water User's Claim

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)*********MAP VIEWER***GOOGLE VIEW***

FLOW: 0.5 cfs SOURCE: Woods Canyon Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 540 ft W 1610 ft from E4 cor, Sec 31, T 12S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614247.** Water Rights Appurtenant to the following use(s):
91-2146(WUC),2288(WUC),2494(WUC),2495(WUC),2496(WUC)
3405(WUC)
Period of use for this water right is March 1 through November 30.

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 100.0000
Div Limit: 2.1 acft. PERIOD OF USE: 06/01 TO 11/30

SUPPLEMENTAL GROUP NO.: **614337.** Water Rights Appurtenant to the following use(s):
91-2288(WUC),2494(WUC),2495(WUC),3405(WUC)

IRRIGATION: Sole Supply: UNEVALUATED acres Group Total: 18.0
Div Limit: 72.0 acft. PERIOD OF USE: 03/01 TO 11/30

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------* Section

```
                          *  NW   |  NE   |  SW   |  SE   *  NW   |  NE   |
SW   |  SE   *  NW   |  NE   |  SW   |  SE   *  NW   |  NE   |  SW   |  SE
*   Totals
 Sec 31 T 12S R  7E SLBM
*_______|_______|_______|_______*_______|_______|_______|
9.6000*_______|_______|_______|_______*_______| 1.7000|_______|_______*
11.3000
 Sec 32 T 12S R  7E SLBM *_______|_______|
5.8000|_______*_______|_______|_______|_______*
0.9000|_______|_______|_______*_______|_______|_______|_______*      6.7000

GROUP ACREAGE TOTAL:     18.0000
```

**OTHER COMMENTS**

Morse Decree, 1st Class.

************************E N D  O F  D A T A*************************

**********************************************************************

WATER RIGHT: **91-2288**  APPLICATION/CLAIM NO.:  CERT. NO.:

**OWNERSHIP**

NAME: Mattie B. Cornaby Family Trust
ADDR: Mattie B. and William Argyle Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: Undv inter/w William Argyle Cornaby Family Trust

NAME: William Argyle Cornaby Family Trust
ADDR: William Argyle and Mattie B. Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w Mattie B. Cornaby Family Trust

**DATES, ETC.**

LAND OWNED BY APPLICANT? Yes  COUNTY TAX ID#:
FILED:  |PRIORITY:  /  /1869|PUB BEGAN:  |PUB ENDED:  |NEWSPAPER:
ProtestEnd:  |PROTESTED: [No  ]|HEARNG HLD:  |SE ACTION: [  ]|ActionDate:  |PROOF DUE:
EXTENSION:  |ELEC/PROOF:[  ]|ELEC/PROOF:  |CERT/WUC: 09/06/1967|LAP, ETC:  |LAPS LETTER:
RUSH LETTR:  |RENOVATE:  |RECON REQ:  |TYPE: [ ]
PD BOOK: [91-1  ]|MAP:  [28d  ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**

Type of Right: Diligence Claim  Source of Info: Proposed Determination  Status: Water User's Claim

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)*********MAP VIEWER***GOOGLE VIEW***

FLOW: 0.011 cfs SOURCE: Unnamed Spring
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION:
( 1)Stockwatering directly on spring located at S 660 ft. W 1980 ft. from E4 corner, Sec 31, T12S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.)* ******** *EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614247.** Water Rights Appurtenant to the following use(s):
91-2146(WUC),2288(WUC),2494(WUC),2495(WUC),2496(WUC)
3405(WUC)

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 100.0000
Div Limit: 2.1 acft. PERIOD OF USE: 06/01 TO 11/30

SUPPLEMENTAL GROUP NO.: **614337.** Water Rights Appurtenant to the following use(s):
91-2288(WUC),2494(WUC),2495(WUC),3405(WUC)

IRRIGATION: Sole Supply: UNEVALUATED acres Group Total: 18.0
Div Limit: 72.0 acft. PERIOD OF USE: 03/01 TO 11/30

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*

| Section | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE | Totals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sec 31 T 12S R 7E SLBM | | | | | | | | | | | | | |
| | 9.6000 | | | | | 1.7000 | | | | | | | 11.3000 |
| Sec 32 T 12S R 7E SLBM | 5.8000 | | | | | | | | | | | | 0.9000 |
| | | | | | | | | | | | | | 6.7000 |

GROUP ACREAGE TOTAL: 18.0000
**********E N D O F D A T A**********

WATER RIGHT: **91-2146** APPLICATION/CLAIM NO.: CERT. NO.:

**OWNERSHIP**********

NAME: Mattie B. Cornaby Family Trust

ADDR: Mattie B. and William Argyle Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w William Argyle Cornaby Family Trust

NAME: William Argyle Cornaby Family Trust
ADDR: William Argyle and Mattie B. Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter/w Mattie B. Conaby Family Trust

**DATES, ETC.**

LAND OWNED BY APPLICANT? Yes COUNTY TAX ID#:
FILED: |PRIORITY: / /1869|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 04/01/1966|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**

Type of Right: Diligence Claim Source of Info: Proposed Determination Status: Water User's Claim

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)*********MAP VIEWER***GOOGLE VIEW***

FLOW: SOURCE: Winter Quarters Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- POINT TO POINT:
( 1)Stockwatering directly on stream from a point at N 660 ft. E 660 ft. from W4 corner, Sec 05, T13S, R7E, SLBM,
to a point at N 660 ft. E 660 ft. from W4 corner, Sec 05, T13S, R7E, SLBM.
COMMENT: Administratively updated by State Engineer.

**USES OF WATER RIGHT********** ***ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family***

SUPPLEMENTAL GROUP NO.: **614247.** Water Rights Appurtenant to the following use(s):
91-2146(WUC),2288(WUC),2494(WUC),2495(WUC),2496(WUC)
3405(WUC)

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 100.0000
Div Limit: 2.1 acft. PERIOD OF USE: 06/01 TO 11/30

**PLACE OF USE for STOCKWATERING**********

| | NORTH-WEST¼ | | | NORTH-EAST¼ | | | SOUTH-WEST¼ | | | SOUTH-EAST¼ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NW | NE | SW | SE | NW | NE | SW | SE | NW | NE | SW | SE |
| Sec 05 T 13S R 7E SLBM | * | : | : X: | * | * | : | : | : | * | * | : | : |

**E N D O F D A T A**********

**********

**********

WATER RIGHT: **91-483** APPLICATION/CLAIM NO.: CERT. NO.:
CHANGES: t26901 Lapsed
t34399 Lapsed

==========

**OWNERSHIP**********

NAME: Mattie B.Cornaby Family Trust
ADDR: Mattie B. and William Argyle Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: Undv inter in 8.1ac with William Cornaby Trust

NAME: Radakovich Ranch, LLC
ADDR: 2564 South Corral Drive
Grand Junction, CO 81505
REMARKS: (18.70 ac and all Stockwatering)

NAME: William Argyle Cornaby Family Trust
ADDR: William Argyle and Mattie B. Cornaby trustees
5087 South 3200 West
Spanish Fork UT 84660
REMARKS: undv inter in 8.1ac with Mattie B. Cornaby Trust

==========

**DATES, ETC.**********

LAND OWNED BY APPLICANT? COUNTY TAX ID#:
FILED: |PRIORITY: 00/00/1874|PUB BEGAN: |PUB ENDED: |NEWSPAPER:
ProtestEnd: |PROTESTED: [No ]|HEARNG HLD: |SE ACTION: [ ]|ActionDate: |PROOF DUE:
EXTENSION: |ELEC/PROOF:[ ]|ELEC/PROOF: |CERT/WUC: 06/30/1967|LAP, ETC: |LAPS LETTER:
RUSH LETTR: |RENOVATE: |RECON REQ: |TYPE: [ ]
PD BOOK: [91-2 ]|MAP: [28d ]|PUB DATE:

***TYPE -- DOCUMENT -- STATUS**********

Type of Right: Decree Source of Info: Proposed
Determination Status:

==========

**LOCATION OF WATER RIGHT***(Points of Diversion: Click on Location to access PLAT Program.)*********MAP VIEWER***GOOGLE VIEW***

==========

FLOW: 0.443 cfs SOURCE: Winter Quarters Creek
COUNTY: Carbon COMMON DESCRIPTION:

POINT OF DIVERSION -- SURFACE:
(1) N 700 ft W 1400 ft from E4 cor, Sec 06, T 13S, R 7E, SLBM
Diverting Works:
Source:

Stream Alt Required?: No

==========

**USES OF WATER RIGHT******** *ELU -- Equivalent Livestock Unit (cow, horse, etc.) ******** EDU -- Equivalent Domestic Unit or 1 Family*

==========

SUPPLEMENTAL GROUP NO.: **615426.** Water Rights Appurtenant to the following use(s):
91-455(DIL),481(DIL),482(DIL),483(DEC)

.....

STOCKWATER: Sole Supply: UNEVALUATED ELUs Group Total: 162.0000
Div Limit: 2.63 acft. PERIOD OF USE: 05/01 TO 12/15

*==========

SUPPLEMENTAL GROUP NO.: **615702.**
91-483(DEC)

.....

IRRIGATION: Sole Supply: UNEVALUATED acres Group Total: 26.8
Div Limit: 107.2 acft. PERIOD OF USE: 03/01 TO 11/10

.....

###PLACE OF USE: *-------NORTH WEST QUARTER------*-------NORTH EAST QUARTER------*-------SOUTH WEST QUARTER------*-------SOUTH EAST QUARTER------*

| Section | NW | NE | SW | SE | NW | NE | SW | SE | Totals |
|---|---|---|---|---|---|---|---|---|---|
| Sec 05 T 13S R 7E SLBM | | 16.8000 | | | | | | 4.3000 | 5.7000 |
| | | | | | | | | | 26.8000 |

GROUP ACREAGE TOTAL: 26.8000

==========

**OTHER COMMENTS**********

Morse Decree, 1st Class.

**********E N D O F D A T A**********

# Exhibit 14

# Geotechnical Investigations

## RB&G Response to Comment R645-301-242.110 and R645-301-553.130

***The comment states:***

'……No specific recommendations for fill slopes were made, except that the sandy lean clay soils are collapsible and have a friction angle of 20 degrees…..'

***The reviewer is referred to the second paragraph of Page 17, which reads:***

'It is anticipated that fill slopes will be created with on-site material. If this material is placed and compacted in accordance with recommendations provided in Section IV, fill slopes as steep as 1.5H:1V will have a factor of safety of at least 1.3 if constructed of the native clayey soils. Fill slopes shown on Sections A-A, B-B, and F-F will likely be constructed of this clayey on-site fill. Test pits in the vicinity of the fill areas shown on Sections C-C, D-D, and E-E encountered significant amounts of medium-dense silty sand. Fill slopes as steep as 1.8H:1V constructed of this silty sand material have a computed factor of safety of at least 1.3. Plots of stability analyses for typical fill slopes are included in the appendix.'

Note that the Direct Shear test on the sample of sandy lean clay which had a friction angle of 20 degrees also had cohesion of 15 psi. Two Triaxial Shear tests performed on samples of the lean clay had total stress friction angles of 29.6 and 32.5 degrees with 2 psi cohesion and effective stress friction angles of 36.0 and 36.7 degrees with 2 psi cohesion.

## RB&G Response to Comment R645-301-534.130 and R645-301-121.200

***The comment states:***

'The Applicant must address the safety factor for roads within the text of the MRP.'

Recommendations provided in Section VI. SLOPE STABILITY of the Geotechnical Report are applicable to roadway cut and fills.

## RB&G Response to Comment R645-301-533.100 and 533.110

***The comment states:***

'The Applicant did not specifically state the safety factor for Sediment Pond 1.'

See Addendum No. 1 to the Geotechnical Report, attached hereto.

RB&G ENGINEERING, INC.

# KINNEY MINE
## Scofield, Utah

***Geotechnical Investigation***
*November 26, 2007*

## ADDENDUM NO. 1
*September 28, 2010*

***Add the following to the end of Section VI. SLOPE STABILITY***

Stability analyses were performed for the proposed Detention Pond for both Steady State and Sudden Drawdown conditions. The below ground pond was modeled with cut slopes of 3 horizontal to 1 vertical, extending 15 feet below the existing ground surface. It was assumed that the foundation soils will consist of native lean sandy clay. If fill is encountered in the excavation, it has been assumed that the cut will be over-excavated a distance of at least 10 feet into the side slope, and that this zone will be replaced with engineered fill as recommended in *Section V.I. – Detention Pond*. For the sudden drawdown condition, the phreatic surface was modeled to be within one foot of the slope surface 10 feet down-slope of the crest, exiting at the toe of the slope after full drawdown.

A factor of safety of 3.37 was obtained for the Steady State condition. For the Sudden Drawdown condition, the factor of safety reduces to 2.30.

1435 WEST 820 NORTH, PROVO, UTAH 84601-1343
PROVO 801-374-5771 SALT LAKE CITY 801-521-5771 FAX 801-374-5773

## RB&G Response to Comment R645-301-242.110 and R645-301-553.130

***The comment states:***

'……No specific recommendations for fill slopes were made, except that the sandy lean clay soils are collapsible and have a friction angle of 20 degrees…..'

***The reviewer is referred to the second paragraph of Page 17, which reads:***

'It is anticipated that fill slopes will be created with on-site material. If this material is placed and compacted in accordance with recommendations provided in Section IV, fill slopes as steep as 1.5H:1V will have a factor of safety of at least 1.3 if constructed of the native clayey soils. Fill slopes shown on Sections A-A, B-B, and F-F will likely be constructed of this clayey on-site fill. Test pits in the vicinity of the fill areas shown on Sections C-C, D-D, and E-E encountered significant amounts of medium-dense silty sand. Fill slopes as steep as 1.8H:1V constructed of this silty sand material have a computed factor of safety of at least 1.3. Plots of stability analyses for typical fill slopes are included in the appendix.'

Note that the Direct Shear test on the sample of sandy lean clay which had a friction angle of 20 degrees also had cohesion of 15 psi. Two Triaxial Shear tests performed on samples of the lean clay had total stress friction angles of 29.6 and 32.5 degrees with 2 psi cohesion and effective stress friction angles of 36.0 and 36.7 degrees with 2 psi cohesion.

## RB&G Response to Comment R645-301-534.130 and R645-301-121.200

***The comment states:***

'The Applicant must address the safety factor for roads within the text of the MRP.'

Recommendations provided in Section VI. SLOPE STABILITY of the Geotechnical Report are applicable to roadway cut and fills.

## RB&G Response to Comment R645-301-533.100 and 533.110

***The comment states:***

'The Applicant did not specifically state the safety factor for Sediment Pond 1.'

See Addendum No. 1 to the Geotechnical Report, attached hereto.

RB&G ENGINEERING, INC.

# KINNEY MINE
## Scofield, Utah

***Geotechnical Investigation***
*November 26, 2007*

## ADDENDUM NO. 1
*September 28, 2010*

***Add the following to the end of Section VI. SLOPE STABILITY***

Stability analyses were performed for the proposed Detention Pond for both Steady State and Sudden Drawdown conditions. The below ground pond was modeled with cut slopes of 3 horizontal to 1 vertical, extending 15 feet below the existing ground surface. It was assumed that the foundation soils will consist of native lean sandy clay. If fill is encountered in the excavation, it has been assumed that the cut will be over-excavated a distance of at least 10 feet into the side slope, and that this zone will be replaced with engineered fill as recommended in *Section V.I. – Detention Pond*. For the sudden drawdown condition, the phreatic surface was modeled to be within one foot of the slope surface 10 feet down-slope of the crest, exiting at the toe of the slope after full drawdown.

A factor of safety of 3.37 was obtained for the Steady State condition. For the Sudden Drawdown condition, the factor of safety reduces to 2.30.

1435 WEST 820 NORTH, PROVO, UTAH 84601-1343
PROVO 801-374-5771 SALT LAKE CITY 801-521-5771 FAX 801-374-5773

GEOTECHNICAL INVESTIGATION

# KINNEY MINE

Scofield, Utah

*Prepared for:*
*Carbon Resources LLC,*
*a New Mexico Limited Liability Company*

*November 2007*

RB&G
ENGINEERING, INC.

200701-045

RB&G
ENGINEERING, INC.

November 26, 2007

Carbon Resources LLC,
a New Mexico Limited Liability Company
c/o Greg Hunt
Geo-Hunt Consulting, Inc.
16577 Columbine Lane
Cedarredge, CO 81413

Subject: Kinney Mine, Scofield, Utah
Geotechnical Investigation

Gentlemen:

A Geotechnical Investigation has been completed for the proposed Kinney Mine in Scofield, Utah. The results of the study are summarized in the report transmitted herewith.

We appreciate the opportunity of providing this service for you. If there are any questions relating to the information contained herein, please call.

Sincerely,

RB&G ENGINEERING, INC.

Bradford E. Price, P.E.

bep/jal

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Geotechnical Investigation

# Kinney Mine

Scofield, Utah

*Prepared for:*
*Carbon Resources LLC,*
*a New Mexico Limited Liability Company*

*November 2007*

RB&G ENGINEERING, INC.

# KINNEY MINE
## Scofield, Utah

RB&G ENGINEERING, INC.

***Geotechnical Investigation***

## INTRODUCTION

This report outlines the results of a geotechnical investigation performed for the proposed Kinney Mine surface facilities to be located north-northeast of Scofield, Utah at the approximate location shown in Figure 1. The purpose of this investigation was to determine the characteristics of the subsurface material throughout the site so that satisfactory substructures and slopes can be designed to support the proposed facilities. The results of the investigation, along with pertinent recommendations for design, are outlined in the following sections of this report.

The information contained in the report is discussed under the following headings: (1) Geologic Setting and Existing Site Conditions, (2) Field and Laboratory Testing Procedures, (3) Subsurface Soil and Water Conditions, (4) Site Preparation and Compacted Fill Requirements, (5) Foundation Considerations and Recommendations, and (6) Slope Stability Analyses.

## I. GEOLOGIC SETTING AND EXISTING SITE CONDITIONS

The regional and site geology is being prepared by others and will be submitted under separate cover. The area is located in Seismic Zone 2B according to the 1997 edition of the Uniform Building Code. The site is located on the east side of Highway 96, rising to the east with the elevation ranging from about 7700 to 7900 feet. Adjacent to Highway 96, the southerly half of the site is relatively flat for a few hundred feet before rising to the east. This area has been used for mining activities in the past and has been reclaimed with topsoil overlying approximately 2 to 6 feet of coal and soil fill. The vegetative cover across the site consists of native grass and sagebrush with some aspen trees.

Scofield Reservoir is located 0.5 to 1 mile northwest of the site at about elevation 7620 feet. No major water conveyance facilities or other water bodies exist in the immediate vicinity, which would influence the groundwater level at this site. Other than the information provided above, no conditions appear to exist at this site which would adversely affect foundation performance.

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## II. FIELD AND LABORATORY TESTING PROCEDURES

The subsurface investigation was performed with borings and test pits. The borings were drilled using a Simco 2800 drill rig and continuous flight auger to advance the boring, and a Longyear 44 with H.Q. core to advance the boring. Where coring was performed in overburden, split spoon samples were obtained at select intervals. Sampling was generally performed in the overburden at five-foot intervals throughout the depth investigated. Disturbed samples were obtained by driving a 2-inch split spoon sampling tube through a distance of 18 inches using a 140-pound weight dropped from a distance of 30 inches. The number of blows to drive the sampling spoon through each 6 inches of penetration is shown on the boring logs. The sum of the last two blow counts, which represents the number of blows to drive the sampling spoon through 12 inches, is defined as the standard penetration value. The standard penetration value, corrected for overburden and hammer energy, provides a good indication of the in-place density of sandy material; however, it only provides an indication of the relative stiffness of the cohesive material, since the penetration resistance of materials of this type is a function of the moisture content. Considerable care must be exercised in interpreting the standard penetration value in gravelly-type soils, particularly where the size of the granular particle exceeds the inside diameter of the sampling spoon. If the spoon can be driven through the full 18 inches with a reasonable core recovery, the standard penetration value provides a good indication of the in-place density of gravelly-type material.

It will be noted that it was not possible to drive the sampling spoon through the full 18 inches at some sampling locations. Where the sampling tube could not be driven through the full 18 inches, the number of blows to drive the spoon through a given depth of penetration is shown on the boring logs.

Miniature vane shear tests, which provide an indication of the undrained shearing strength of cohesive materials, were performed on samples of the clay soil during the field investigations. The results of these tests are shown on the boring logs as the torvane value in tsf.

The test pits were excavated using a John Deere 160 trackhoe. During the subsurface investigation, the test pits were logged and sampling was performed at about three-foot intervals throughout the depth investigated. Both disturbed and undisturbed samples were obtained during the field investigations. The in-place dry unit weight and the natural moisture content was determined in the field using a Troxler nuclear density gauge at select sample locations with the samples delivered to the laboratory to verify moisture content. Undisturbed samples were obtained by trimming block samples of the cohesive material encountered in the soil profile.

Each sample obtained in the field was classified in the laboratory according to the Modified Unified Soil Classification System. The symbol designating the soil type according to this system, is presented on the logs. A description of the Modified Unified Soil Classification System is presented in the appendix, and the meaning of the various symbols, shown on the logs, can be obtained from this figure.

Laboratory tests performed during this investigation to define the characteristics of the subsurface material throughout the proposed site included in-place dry unit weight, natural moisture content, Atterberg Limits, mechanical analyses, unconfined compressive strength, pH, resistivity, sulfate, direct shear, triaxial shear, and consolidation tests. Testing was performed following procedures outlined in the American Society for Testing and Materials (ASTM) standards.

## III. SUBSURFACE SOIL AND WATER CONDITIONS

The characteristics of the subsurface material throughout the site were evaluated by drilling 6 borings to depths of between 25 and 76.5 feet and excavating 14 test pits to depths of between 8 and 19.5 feet at the approximate locations shown in Figure 2. The logs for the borings and test pits are presented in the appendix and the subsurface profile at each test hole location is included on the logs. Also included in the appendix are photos of the cores obtained in the borings.

No groundwater was encountered within the depth investigated at the time the field investigation was performed (August/September 2007).

The results of classification, density and moisture tests are presented on the test hole logs, and the results of all laboratory tests, with exception of the consolidation tests, are summarized in Tables 1 and 2 in the appendix. It will be noted from Table 1 that the in-place dry unit weight of the subsurface material varies from 86.6 to 118.5 pcf and that the natural moisture content of the cohesive soil ranges from 4.5 to 17.5%. The cohesive soil has 15 to 34% gravel, 19 to 42% sand, and 27 to 66% clay. The liquid limit of the lean clay and silt ranges from 19 to 42 and the plasticity index varies from 4 to 26. The non-plastic silty sand has 15 to 38% gravel size particles, 38 to 61% sand, and 9 to 28% silt. The gravelly material has 55 to 64% gravel, 23% sand, and 13 to 22% silt size particles. The unconfined compressive strength of the lean clay ranges from 2080 to 8280 psf.

One direct shear test was performed on a sample of the sandy lean clay obtained from Test Pit CV-5-1 at a depth of 12 feet. The results of this test are included in the appendix and summarized on Table 2. It will be noted that this sample has a friction angle of 20 degrees and a cohesion of 15 psi.

Two triaxial shear tests were performed on samples of the lean clay obtained from Boring CV-4-1 at a depth of 20 to 21.5 feet and from Boring SC-2 at 23 to 24 feet. The results of this test are also included in the appendix and summarized on Table 2. It will be observed that a friction angle of 29.6 and 32.5 degrees with 2 psi cohesion was obtained for the total stress envelopes.

In order to obtain an indication of the corrosive nature of the subsurface material at this site, four resistivity, pH, and sulfate tests were performed on samples obtained throughout the site. The results of these tests are presented on Table 2. It will be noted that the soils tested have relatively low corrosive characteristics. It is recommended that Type II cement be used for concrete in contact with soil.

The compressibility characteristics of the subsurface material were evaluated by performing eleven consolidation tests, and the results of these tests are also presented in the appendix. During the performance of the consolidation tests, each sample was loaded at the natural moisture content until a load intensity of 0.58 tsf had been reached. At this point in the loading cycle, each sample was permitted to absorb water without any increase in the load intensity. Soils having collapsible characteristics always settle without any increase in the load when they become wet or saturated, and expansive soils experience an increase in void ratio on absorbing water. It will be observed from these tests that five of the samples tested exhibited collapsible characteristics and that three of the samples showed expansive characteristics.

## IV. SITE PREPARATION AND COMPACTED FILL REQUIREMENTS

Included on Figure 2 are the location of preliminary cut and fill sections. These sections are presented in Figures 3 through 8. In areas where structures will be located, it is recommended that clearing and grubbing be performed to remove excess organic matter. It is anticipated that this will require stripping of the upper 6 inches and grubbing of tree and sagebrush roots. This action should also be performed in parking areas and borrow areas. Where cut and fill operations will take place, it is recommended that the excavated material be moisture conditioned to within 2% of optimum moisture content, placed in 8 inch (maximum) lifts and compacted to an in-place unit weight equal to at least 92% of the maximum laboratory density as determined by ASTM D 1557 for fills outside of building areas and 95% for fills where structures will be located. A sheeps-foot or tamping-type roller should be used for compacting the clay soils.

## V. FOUNDATION CONSIDERATIONS AND RECOMMENDATIONS

It is recommended that exterior structural foundations be located at a depth below finished grade sufficient to provide frost protection, which is about 4.5 feet in this area. If the foundations for

the proposed facilities are designed in accordance with the recommendations outlined below, the maximum settlement of any footing should not exceed one inch and differential settlement throughout the structure should not exceed 0.5 inch. It is generally recognized that the tolerable differential settlement for steel and concrete structures is about 0.002 times the column spacing. This criterion is tantamount to a differential settlement of about 0.5 inch for column spacings of 20 feet and 0.7 inch for column spacings of 30 feet. Since it is not anticipated that the column spacing for this structure will be less than 20 feet, a differential settlement of 0.5 inch should be satisfactory for the proposed facility. Additional potential settlement associated with collapsible type soil layers is discussed where applicable.

## A. MINE DRY / OFFICE – (Test Pits MDF-1, MDF-2, & MDF-3)

Test Pits MDF-1, 2 and 3 define the characteristics of the subsurface profile in the vicinity of the Mine Dry / Office facility. It will be noted from the test pit logs that the soil profile for Test Pit MDF-1 consists of stiff lean clay throughout the depth investigated (15 feet). Test Pit MDF-2 encountered clayey sand with gravel and silty sand with gravel, cobbles and boulders to a depth of 9 feet, followed by stiff lean clay to a depth of 18 feet. Test Pit MDF-3 encountered 3 feet of coal fill, followed by silty sand and gravel with cobbles and boulders to a depth of 15 feet. Lean clay with sand was encountered from 15 feet to the bottom of the test pit at 20 feet.

It is our understanding that the floor level for this structure will be at about elevation 7727 feet. Tabulated below is the ground elevation at the three test pit locations:

| | |
|---|---|
| MDF-1 | 7720.4 feet |
| MDF-2 | 7729.6 feet |
| MDF-3 | 7744.0 feet |

It is apparent that about 7 feet of fill will be required to meet final grade on the westerly side of the building site (MDF-1), and that 17 feet of cut will be required on the easterly side of the building site (MDF-3). The native lean clay has relatively high dry strength; however, this material has collapsible characteristics and will experience significant settlement if it becomes wet.

Options for foundation support include (1) supporting the structure on spread footings and providing partial mitigation against settlement associated with collapsible soils, and (2) supporting the structure on deep foundations extending below the collapsible lean clay layers.

*(1) Spread Footings*

As indicated above, the native lean clay has relatively high dry strength. If these soils become wet, the soil matrix will collapse and settlement will occur. Up to 20 inches of settlement is possible under saturated conditions. If precautions are taken to prevent the native lean clay from becoming wet, the structure can be supported on spread footings. These precautions should include providing positive drainage away from the building and installing an impervious membrane extending at least 6 feet beyond the outside footings. While this action will reduce the risk of moisture entering the subgrade clay, the owner should be made aware that significant settlement will occur if these soils become wet.

An allowable soil bearing capacity of 2500 psf can be used for spread footings supported on the native lean clay and fill compacted to the recommendations outlined in Section IV. Shallow foundation support will be satisfactory provided that the native lean clay does not become wet during the design life of the structure.

*(2) Deep Foundations*

It is our opinion that drilled shafts represent the most efficient deep foundation option for this structure. To minimize downdrag forces if the collapsible soils become wet, it is recommended that 2 foot diameter drilled shafts be used with the ends belled for increased capacity. It is recommended that the shafts extend to elevation 7700 feet. Shown in the following table are allowable capacities for end bearing drilled shafts terminating in the stiff lean clay at a depth of about 27 feet below the finished pad level.

Procedures outlined in FHWA-H1-88-042, "*Drilled Shafts: Construction Procedures and Design Methods*" have been used to determine size and load capacities. It has been assumed that high quality construction, good specifications and excellent inspection will exist for the structure. The capacities are based upon end bearing only, and it is, therefore, essential that the base of the shafts be cleaned to remove all loose debris.

Based upon these assumptions, a factor of safety of 2.5 has been selected. The shafts can be belled to achieve the required base diameter.

Tabulated below are capacities for compression loading for various diameters of shafts.

| Shaft Diameter (ft) | Total Compressive Capacity (kips) | Allowable Compressive Capacity (kips) – f.s. = 2.5 |
|---|---|---|
| 2 | 40 | 16 |
| 3 | 89 | 35 |
| 4 | 158 | 63 |
| 5 | 247 | 99 |

The design of rebar and concrete should follow established guidelines. If this option is used, it is recommended that inspection of the shaft excavations be made by the soils engineer prior to placement of concrete.

## B. SHOP / WAREHOUSE – (Test Pits WSF-1, WSF-2, & WSF-3)

Test Pits WSF-1, 2 and 3 define the characteristics of the subsurface profile in the vicinity of the proposed Shop / Warehouse structure. It will be noted from the test pit logs that the soil profile includes a 1 foot sandy lean clay layer underlain by 3 to 5 feet of coal fill. In Test Pit WSF-1 a 2 foot layer of sandy clay was encountered below the coal fill, followed by highly weathered sandstone to the bottom of the test hole at 13 feet. Test Pit WSF-2 encountered loose silty sand with gravel below the coal fill from 3.5 to 8.5 feet. The silty sand was followed by layers of sandy clay and clayey sand from 8.5 to 12 feet, then gravel with cobbles and boulders to the bottom of the test pit at 16 feet. The profile in Test Pit WSF-3 consists of loose silty sand with gravel below the coal fill from 3 to 9 feet, followed by a 2.5 foot layer of sandy clay to 11.5 feet, then medium dense silty sand from 11.5 to 15 feet.

It is our understanding that the floor level for this structure will be at about elevation 7728 feet. Tabulated below is the ground elevation at the three test pit locations:

| | |
|---|---|
| MSF-1 | 7719.5 feet |
| MSF-2 | 7721.6 feet |
| MSF-3 | 7718.7 feet |

It is apparent that 6 to 9.5 feet of fill will be required to meet final grade throughout the building site. It is recommended that the loose coal fill be removed from beneath the building area prior to placement of fill. Assuming that the native soils (including lean clay, sand, and gravel) are used to establish final grade, and that compaction requirements outlined in Section IV are complied with, footings can be designed using an allowable soil bearing capacity of 3500 psf, except that in no case should the width of any footing be less than 2 feet.

Up to 3 feet of collapsible soils were encountered in Test Pits WSF-2 and 3. The sample from 9 feet in Test Pit WSF-3 experienced about 3% settlement upon wetting. It is estimated that 1 inch of additional settlement may occur if these soils become saturated.

## C. COVERED STORAGE AND FUEL STRUCTURE – (Test Pits CS-1 and F-1)

Test Pits CS-1 and F-1 define the characteristics of the subsurface profile in the vicinity of the proposed Covered Storage and Fuel Structure sites. It will be noted from the test pit logs that the soil profile includes a 0.5 to 1 foot sandy lean clay layer underlain by 7 to 8.5 feet of loose fill consisting of coal, and layers of coal and clayey sand with gravel. In Test Pit CS-1, sandy lean clay was encountered below the coal fill, extending from 8.5 to 16 feet, followed by a 2 foot layer of sandy gravel. The lean clay exhibits collapse characteristics. Test Pit F-1 encountered 4 feet of sandy clay and clayey sand layers below the 7 feet of loose fill, followed by sand and gravel from 11 to 16 feet.

It is our understanding that the floor level for these structures will be at about elevation 7728 feet. Tabulated below is the ground elevation at the two test pit locations:

| | |
|---|---|
| CS-1 | 7716.6 feet |
| F-1 | 7724.0 feet |

It is apparent that 4 to 11 feet of fill will be required to meet final grade throughout the building sites. It is recommended that the loose coal fill be removed from beneath the building areas prior to placement of fill. Assuming that the native soils (including lean clay, sand, and gravel) are used to establish final grade, and that compaction requirements outlined in Section IV are complied with, footings can be designed using an allowable soil bearing capacity of 3500 psf, except that in no case should the width of any footing be less than 2 feet.

Up to 5 feet of collapsible soils were encountered in Test Pit CS-1 between 10 and 16 feet below the existing ground surface. It is estimated that up to 2 inches of additional settlement may occur if these soils become saturated. Since the moisture sensitive soils will be about 20 feet below final grade, it is our opinion that the risk of saturation and collapse of this layer once the structures are in place is relatively low.

## D. CONVEYOR SECTION–1 (Boring Portal 1 and Test Pit TT-1-2)

Boring Portal-1 and Test Pit TT-1-2 were placed along the alignment for Conveyor Section-1. It will be noted from the boring log that the subsurface profile in the portal area consists of interbedded siltstone and sandstone gravels and cobbles in a sandy silt matrix with occasional clay layers to a depth of about 18 feet (elev. 7873'). A 4 foot coal layer was encountered between elevation 7873 and 7869 feet, followed by 6 inches of highly weathered mudstone; then relatively competent sandstone to the bottom of the boring at 25 feet (elev. 7865').

The ground elevation at Test Pit TT-1-2 was 7873.1 feet, and the profile consists predominantly of silty clay with gravel to a depth of 4 feet (elev. 7869'), followed by clayey gravel with cobbles to the bottom of the test pit at a depth of 8 feet (elev. 7865').

It is our understanding that the portal pad elevation will be at 7869 feet. Structures contemplated along this section include the portal entrance, conveyor supports and the transfer tower. At elevation 7869 feet, the portal excavation will extend into bedrock. It is recommended that supports not be founded on the coal or the highly weathered mudstone. We recommend that foundation support areas extend through these materials and into the underlying sandstone. It is recommended that the sandstone be treated as a very dense sand to evaluate allowable bearing capacity for footings. For footings located on the sandstone or granular fill overlying the sandstone and compacted to an in-place density equal to at least 95% of the maximum laboratory density as determined by ASTM D 1557, we recommend that footings be designed using the allowable bearing capacities shown in the following table:

| FOOTING WIDTH (ft) | ALLOWABLE BEARING CAPACITY (psf) (assumes factor of safety = 2.5) |
|---|---|
| 2 | 5800 |
| 3 | 6900 |
| 4 | 7950 |
| 5 | 9050 |
| 6 | 10,100 |
| 7 | 9,800 |
| 8 | 9,500 |
| 12 | 8,800 |
| 16 | 8,500 |

The above capacities assume a minimum embedment depth of 2 feet and a maximum total settlement of 1 inch with differential settlement less than 0.5 inch.

The clay encountered in Test Pit TT-1-2 to elevation 7869 feet has collapsible characteristics and we recommend that no foundations be supported on this material. It appears that foundations for the conveyor section will extend into the gravelly clay and clayey gravel with cobbles and boulders below an elevation of 7869 feet. If the conveyor is supported using spread footings, it is recommended that an allowable bearing capacity of 2500 psf be used for the clay soils.

For this conveyor section, capacities for drilled shafts extending 8 to 10 feet into the gravelly clay and clayey gravel are shown in the following table:

| Shaft Diameter (ft) | Total Compressive Capacity (kips) | Allowable Compressive Capacity (kips) – f.s. = 2.5 |
|---|---|---|
| 2 | 42 | 17 |
| 3 | 84 | 34 |
| 4 | 141 | 56 |
| 5 | 211 | 84 |

It is recommended that lateral bearing be determined using procedures outlined in Section 1804 and 1805 of the 2006 edition of the International Building Code (IBC). It is recommended that Material Class 5 (CL) be used with a lateral bearing of 100 psf per foot. L-Pile Parameters can be provided upon request for specific locations.

It is apparent from Figures 2 and 8 that the transfer tower will be located on compacted fill. It is anticipated that the collapsible clay layer, which extended to a depth of about 4 feet, will also exist in the area where the transfer tower is planned. If the transfer tower is supported on spread footings, it is recommended that the collapsible clay layer be excavated prior to placement of fill. Under this scenario, the footings placed on compacted fill can be designed using an allowable bearing capacity of 3500 psf, following recommendations outlined in Section V.B.

## E. CONVEYOR SECTION–2 (Test Pit CV-2-1, Boring CV-2-2, & Test Pit CV-2-3)

Test Pit CV-2-1, Boring CV-2-2, and Test Pit CV-2-3 were placed along the alignment for Conveyor Section-2. The soil profile for each of these test holes is discussed separately below:

***Test Pit CV-2-1***

This test pit encountered stiff lean clay with gravel and cobbles to a depth of 3.5 feet, followed by 6 inches of coal. Below the coal, the profile consists of cobbles and boulders in a silty sand matrix to a depth of 14 feet, followed by competent sandstone to the bottom of the boring at 19 feet.

***Boring CV-2-2***

The boring encountered sandy clay to a depth of 3 feet, followed by medium dense to dense silty sand with gravel to 24 feet. A layer of lean clay was encountered between 24 and 30 feet. The clay was underlain by dense silty sand with gravel to the bottom of the boring at 32 feet.

*Test Pit CV-2-3*

This test pit encountered stiff sandy lean clay with gravel fill to a depth of 6.5 feet, underlain by 6 inches of coal. Native very stiff sandy clay with gravel was encountered between a depth of 6 and 11 feet, followed by sandstone to the bottom of the test pit at 15 feet.

Foundations for this conveyor section can be designed using the recommendations provided for Conveyor Section 1 in Section V., except that no footings should be located on the existing clay fill. Where fill is encountered, it is recommended that the foundations either extend below the fill, or that the fill be excavated and replaced as compacted fill under controlled conditions.

## F. CONVEYOR SECTION–3 (Borings NS-1 and S-1)

Borings NS-1 and S-1 were placed along the alignment for Conveyor Section-3. It will be noted from the boring logs that the subsurface profile at each of these locations consists predominantly of very stiff sandy lean clay with some gravel and occasional cobbles and boulders lower in the profile. The borings extended to a depth of about 50 feet, terminating at elevation 7735 feet.

It will be noted from Figure 4 that a significant excavation will be required on the westerly side of the stockpile area and that some filling will be required on the easterly side to provide the pad elevation at 7780 feet. The ground elevation at the boring locations is at about 7785 feet. Some samples of the clay in the upper 5 feet have a pinhole type structure characteristic of collapsible soils. Samples deeper in the profile between elevation 7730 and 7715 feet exhibited expansive characteristics for load intensities less than about 2 tsf. The allowable bearing capacity for spread footings located between elevation 7775 and 7755 feet will be controlled by the stiff lean clay.

It is recommended that spread footings be designed using an allowable bearing capacity of 2500 psf. The magnitude of large area loads associated with the coal stockpiles are not known as of the preparation of this report. If the area loads exceed 500 psf, it is recommended that an analysis be performed to evaluate the settlement associated with large area loads.

## G. CONVEYOR SECTION–4 (Borings CV-4-1 and SC-2)

Borings CV-4-1 and SC-2 were placed along the alignment for Conveyor Section-4, with SC-2 located at the location of the proposed screening and crushing facility. Boring CV-4-1 was

located at elevation 7776 feet and encountered lean clay with gravel and occasional cobbles and boulders throughout the depth investigated, terminating at a depth of 71 feet (elev. 7705'). Boring SC-2 was located at ground elevation 7741 feet and extended to a depth of about 31 feet (elev. 7710'). It will be noted from the boring log that no sampling was performed in the upper 19 feet. At the time drilling was performed, it was assumed that this material would be removed.

It will be noted from Figure 2 that the pad elevation for the Screening and Crushing facility is at 7742 feet. It is recommended that this structure be supported on drilled shafts extending to a depth of at least 25 feet. Recommendations provided in Section V.A. Mine Dry / Office *(2) Deep Foundations* are applicable to this site.

It is recommended that foundations for the conveyor along this section also be supported on drilled shafts extending to a depth of 8 to 10 feet in the vicinity of Boring CV-4-1 and 25 feet in Boring SC-2. Foundations for this conveyor section can be designed using the recommendations provided for Conveyor Section 1 in Section V., except that no footings should be located on the existing clay fill.

## H. CONVEYOR SECTION–5 (Test Pits CV-5-1 and CV-5-2)

Test Pits CV-5-1 and CV-5-2 were placed along the alignment for Conveyor Section-5. Each of the test pits encountered fill consisting of lean clay with layers of coal and silt to a depth of 5 feet in Test Pit CV-5-1 and 11.5 feet in Test Pit CV-5-2. The fill was underlain by sandy lean clay which exhibited a pinhole structure characteristic of collapsible-type soils. The sample obtained at a depth of 9 feet in Test Pit CV-5-1 settled approximately 8% when saturated. The sample obtained at a depth of 12 feet in Test Pit CV-5-2 exhibited a 2% swell when saturated.

The proposed pad elevation for this area is at 7232 feet. The elevation of the two test pits are as follows:

| | |
|---|---|
| CV-5-1 | 7737.7 feet |
| CV-5-2 | 7749.8 feet |

It will be noted that Test Pit CV-5-2 located near the Truck Loadout only extended to elevation 7730 feet, 2 feet below the pad level. It is recommended that foundations for the Truck Loadout facility bypass the moisture sensitive clay in the upper portion of the soil profile. Based upon the two test pits, it appears that these clays extend to at least elevation 7715 feet. We recommend that the structure be supported on drilled shafts extending to an estimated depth of 30 feet below the pad level, to about elevation 7702 feet. We recommend

that an additional boring be located at the Truck Loadout site to evaluate the characteristics of the subsurface soil. We recommend that the conveyor system also be supported on drilled shafts extending to a depth of 8 to 10 feet below the pad level.

Recommendations provided in Section V.A. Mine Dry / Office (2) Deep Foundations are applicable to this area.

## I. DETENTION POND

It is our understanding that a below ground detention pond is planned at the north side of the property at the approximate location shown in Figure 2. We understand that the pond will be sized to hold between 2.5 and 2.7 acre feet with the bottom 12 to 15 feet below the existing ground surface. No test holes were located in the detention pond area; however, test pits CV-5-1 and CV-5-2 located a few hundred feet south of the area both encountered fill to depths varying from 5 to 12 feet. The fill has interbedded layers of coal, sandy gravel and lean clay. It is recommended that the excavation side slopes be cut at 3 horizontal to 1 vertical. If fill is encountered, it is recommended that the cut be over-excavated a distance of at least 10 feet into the side slope, and that this zone be replaced with engineered fill. On site material can be used as engineered fill provided that it is placed in lifts not exceeding 8 inches, moisture conditioned and compacted in accordance with the recommendations provided in Section IV of this report. It is also recommended that the detention pond be lined with 18 inches of compacted lean clay obtained from on-site excavations and that a 6 inch layer of sandy gravel be placed over the liner to protect the clay from cracking.

## J. ROADWAYS

The project will require cuts and fills for roadway construction throughout the development. For shallow cuts less than 20 feet in the native clayey soils, we recommend that slopes of 1.25H:1V or flatter be used. Fill slopes less than 20 feet high and constructed of clayey soils may slope as steeply at 1.5H:1V. Fill slopes constructed of sandy soils should be sloped at 1.8H:1V or flatter. Slopes for roadway fills and cuts with heights or depths greater than 20 feet should be designed in conformance with the slope stability recommendations in Section VI of this report.

## K. SEISMIC CONSIDERATIONS

As indicated earlier in this report, the site is located in Seismic Zone 2B according to the 1997 edition of the Uniform Building Code. Soil profile type $S_D$ should be used for structural

seismic design, with the Uniform Building Code. The site is classified as Site Class D, as per Section 1613 of the 2006 International Building Code.

The site is located at latitude 39.7330° North and longitude 111.1535° West. Probabilistic peak ground acceleration (PGA) values are tabulated below:

Probabilistic ground motion values in %g.

| | 10%PE in 50 yr | 2%PE in 50 yr |
|---|---|---|
| PGA | 12.19 | 27.94 |
| 0.2 sec SA | 28.21 | 64.33 |
| 1.0 sec SA | 9.46 | 21.94 |

The allowable soil bearing pressure indicated above may be increased by one-third where seismic forces are involved in the structural loads. If the passive pressures associated with footings and walls are used to resist seismic forces, and if backfilling is performed using granular material, we recommend that the passive pressures be calculated from the lateral earth pressure equation using an earth pressure coefficient of 2.0. If the frictional resistance of the footings and floor slabs are used to resist seismic forces, we recommend a coefficient of friction of 0.40 be used to calculate these forces.

Since the groundwater level is at a substantial depth below the ground surface and since the subsurface soil profile consists predominantly of lean clay and gravel, problems associated with liquefaction during a seismic event are unlikely at this location, and no special mitigation of the foundation soils is required.

## VI. SLOPE STABILITY

The proposed development will require earthwork to establish roadways, level structure areas, and a detention basin on the hillside. Figures 3 through 8 show sections cut at locations as shown in Figure 2. The purpose of these sections is to evaluate the stability of the proposed cut and fill slopes.

It will be noted from the section drawings that the proposed fill slopes range from about 1.5H:1V to 2H:1V. The proposed cut slopes are steeper, varying from about 0.8H:1V to 1.4H:1V. The section drawings also show the locations of test holes performed in the vicinity of the section lines. The holes applicable to each section are summarized on the table below, along with the predominant soil types and brief descriptions of the proposed earthwork in the area.

| Section | Earthwork Description (as shown on sections) | Test Hole No. | Depth (ft) | Soil / Rock Description |
|---|---|---|---|---|
| A-A | Cut Slopes 0.8H:1V to 1.4H1V Fill Slope 1.5H:1V | CV-5-1 TH | 19.5 | Stiff Sandy Lean Clay |
| | | CV-4-1 DRL | 71.5 | Stiff Sandy and Gravelly Lean Clay |
| | | SC-2 DRL | 30.5 | Stiff Sandy Lean Clay (not sampled above 19') |
| B-B | Cut Slope 0.8H:1V File Slope 1.5H:1V | NS-1 DRL | 50 | Stiff Lean Clay, with some dense Sand and Gravel layers |
| | | S-1 DRL | 76.5 | Stiff Sandy Lean Clay |
| C-C | Cut Slope 0.8H:1V Fill Slope 1.8H:1V | CV-2-2 DRL | 31.5 | Silty Clay to 3', Silty Sand from 3' to 24' Stiff Lean Clay from 24' to 30.5', then Sand |
| D-D | Cut Slope 1.25H:1V Fill Slope 2H:1V | WSF-3 TH | 19.5 | Silty Sand and Lean Clay layers, some coal in upper 3' |
| | | WSF-2 TH | 16 | Silty Sand and Lean Clay layers, some coal in upper 3', gravel below 12' |
| E-E | Cut Slope 1H:1V Fill Slopes 2H:1V | MDF-1 TH | 19.5 | Stiff Sandy Lean Clay |
| | | MDF-2 TH | 19.5 | Stiff Sandy Lean Clay with Silty Sand layer |
| | | MDF-3 TH | 19.5 | Silty Sand, Gravel and Lean Clay layers, some coal in upper 2' |
| F-F | Cut Slope 0.8H:1V Fill Slope 1.8H:1V | TT-1-2 TH | 8 | Silty Clay to 4', then Gravel with Clay |
| | | Portal-1 DRL | 25 | Silty Gravel with some Clay layers to 14' Sandstone, Mudstone, Coal from 14' to 25' |

Stability analyses were performed using the computer program Slope/W. Spencer's method, which satisfies both force and moment equilibrium requirements, was used to compute factors of safety. Potential circular failure surfaces were evaluated using a grid and radius approach.

Stability analyses were performed primarily for Sections A-A, B-B and F-F. At Sections A-A and B-B, the predominant soil type was assumed to be stiff lean clay. Based on the results of field and laboratory testing, this material was assigned an internal friction angle of 30 degrees with cohesion of 250 psf. At Section F-F, the portal drill hole encountered gravelly material in a silty matrix in the upper 10 to 15 feet, underlain by lean clay and rock. This gravelly material was modeled using a friction angle of 35 degrees and 100 psf cohesion.

At Sections A-A, B-B and F-F, the cut slopes were initially modeled as shown on the section drawings, with slopes as steep as 0.8H:1V. For these slopes, the computed factors of safety were in the range of 1.0 to 1.2. Following the initial stability analyses, additional calculations were performed to estimate factors of safety for flatter cut slopes. A summary of computed factors of safety is shown below, and the critical failure surfaces are shown in the appendix.

| Section | Cut Slope | Approximate Depth of Cut (ft) | Factor of Safety |
|---|---|---|---|
| A-A | 0.8H:1V | 35 | 1.17 |
| | 1H:1V | 39 | 1.24 |
| | 1.25H:1V | 44 | 1.35 |
| | 1.5H:1V | 56 | 1.41 |
| | 1.75H:1V | 67 | 1.50 |
| B-B | 0.8H:1V | 69 | 0.91 |
| | 1H:1V | 75 | 1.00 |
| | 1.25H:1V | 88 | 1.10 |
| | 1.5H:1V | 113 | 1.19 |
| | 1.75H:1V | 153 | 1.29 |
| F-F | 0.8H:1V | 23 | 1.07 |
| | 1H:1V | 30 | 1.19 |
| | 1.25H:1V | 35 | 1.32 |
| | 1.5H:1V | 40 | 1.45 |
| | 1.75H:1V | 45 | 1.57 |

The acceptable factor of safety for a given slope depends upon several factors, including the level of certainty and conservatism of model parameters, as well as the nature of the slope and potential consequences of failure. For static, long-term conditions, required minimum factors of safety typically range from about 1.3 to 1.5, with the 1.5 factor used for more critical facilities. For Sections A-A and F-F, an estimated factor of safety of 1.3 or better is achieved for slopes of 1.25H:1V. To achieve an estimated factor of safety of 1.5, the slopes would have to be flattened to about 1.75H:1V. It will be noted that the deep cut on Section B-B has a factor of safety of almost 1.3 only if flattened to 1.75H:1V.

We recommend that permanent cut slopes greater than 10 feet deep in the native silty gravel and lean clay materials be no steeper than 1.25H:1V, in order to provide an estimated factor of safety of 1.3. A greater factor of safety may be required by regulatory agencies, policies, or the facility owner, and can be achieved by further flattening the cut slopes.

It is likely that cut slopes for the pads on the easterly side of the development will be located on the upthrown side of the fault which runs through the site. It appears that the borings throughout this area were located on the downthrown side of the fault. The geology report for the project (prepared by others) references sandstone outcrops and prior boring logs which show a dominance of sandstone to be the norm in the area. Near-vertical sandstone outcrops were observed east of the borings on the north end of the site by RB&G's geologist during field exploration work.

Where the proposed cuts encounter bedrock, they can be performed at near vertical angles in sandstone, and at relatively steep overall angles in interbedded sandstone/mudstone without jeopardizing overall slope stability. Problems associated with the interbedded degradable clay/mudstone layers limit the steepness of the cut, however. It is recommended that the overall

cut slope at these locations be no steeper than 0.8H:1V. It is also recommended that horizontal benches be constructed at the top of degradable clay and mudstone layers, such that a resultant slope in these layers of 1.5H:1V can be achieved without undercutting the overlying ledge rock. If the horizontal benches are not feasible, long term maintenance associated with ledge rock fall should be planned as the mudstone weathers and degrades, resulting in undercutting of the ledges.

It is anticipated that fill slopes will be created with on-site material. If this material is placed and compacted in accordance with recommendations provided in Section IV, fill slopes as steep as 1.5H:1V will have a factor of safety of at least 1.3 if constructed of the native clayey soils. Fill slopes shown on Sections A-A, B-B, and FF will likely be constructed of this clayey on-site fill. Test pits in the vicinity of the fill areas shown on Sections C-C, D-D, and E-E encountered significant amounts of medium-dense silty sand. Fill slopes as steep as 1.8H:1V constructed of this silty sand material have a computed factor of safety of at least 1.3. Plots of stability analyses for typical fill slopes are included in the appendix.

Cut and fill slopes will be susceptible to erosion and shallow surficial failures – particularly for slopes steeper than 2H:1V. We recommend that soil slopes be seeded and erosion control blankets provided where necessary to minimize such problems on bare slopes.

## VII. LIMITATIONS

The conclusions and recommendations presented in this report are based upon the results of the field and laboratory tests. It should be recognized that soil materials are inherently heterogeneous and that conditions may exist throughout this site which could not be defined during this investigation. Since the bearing capacity for foundation design and slope stability are dependent upon adequate compaction of fill, it is requested that testing of the fill be performed under the direct supervision of the soils engineer.

It is recommended that a soils engineer observe the foundation excavations prior to placement of footings. If during construction, conditions are encountered which appear to be different than those presented in this report, it is requested that we be advised in order that appropriate action may be taken.

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# Figures

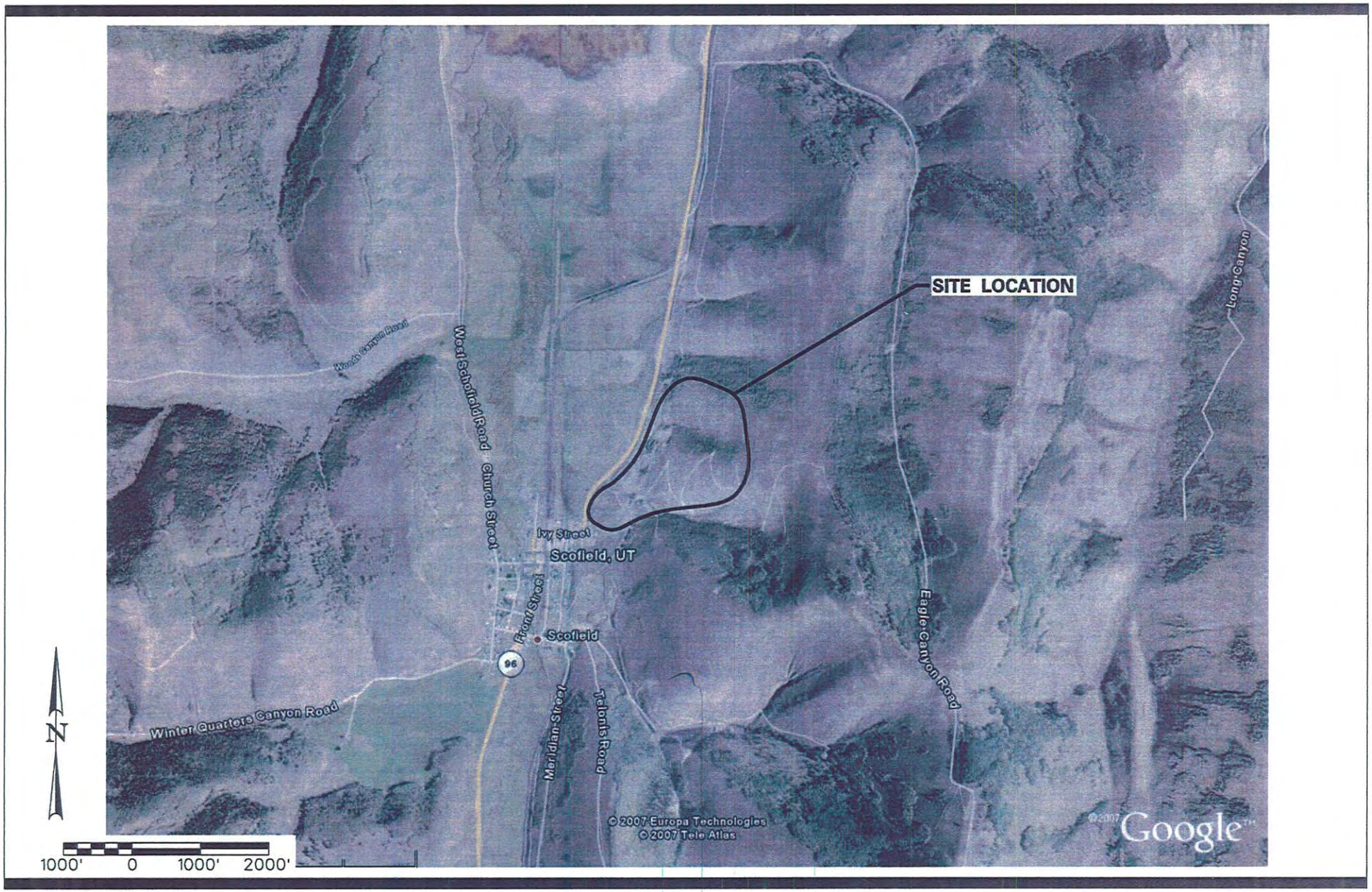


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Figure 1 VICINITY MAP

*Kinney Mine*

*Scofield, Utah*

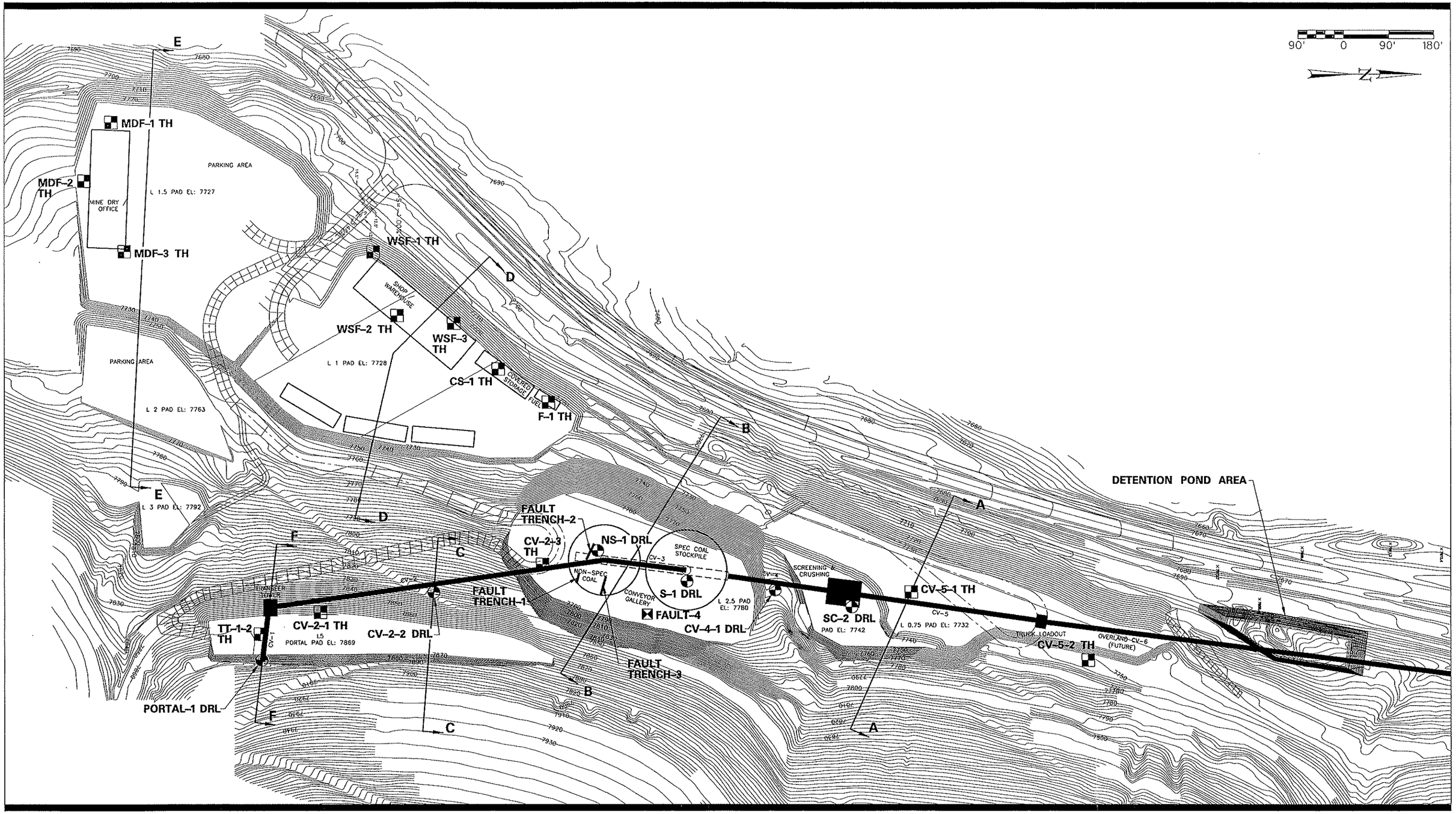


Figure 2

RB&G ENGINEERING INC.
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KINNEY MINE
Scofield, Utah

Site Plan Wth Test Hole & Section Locations

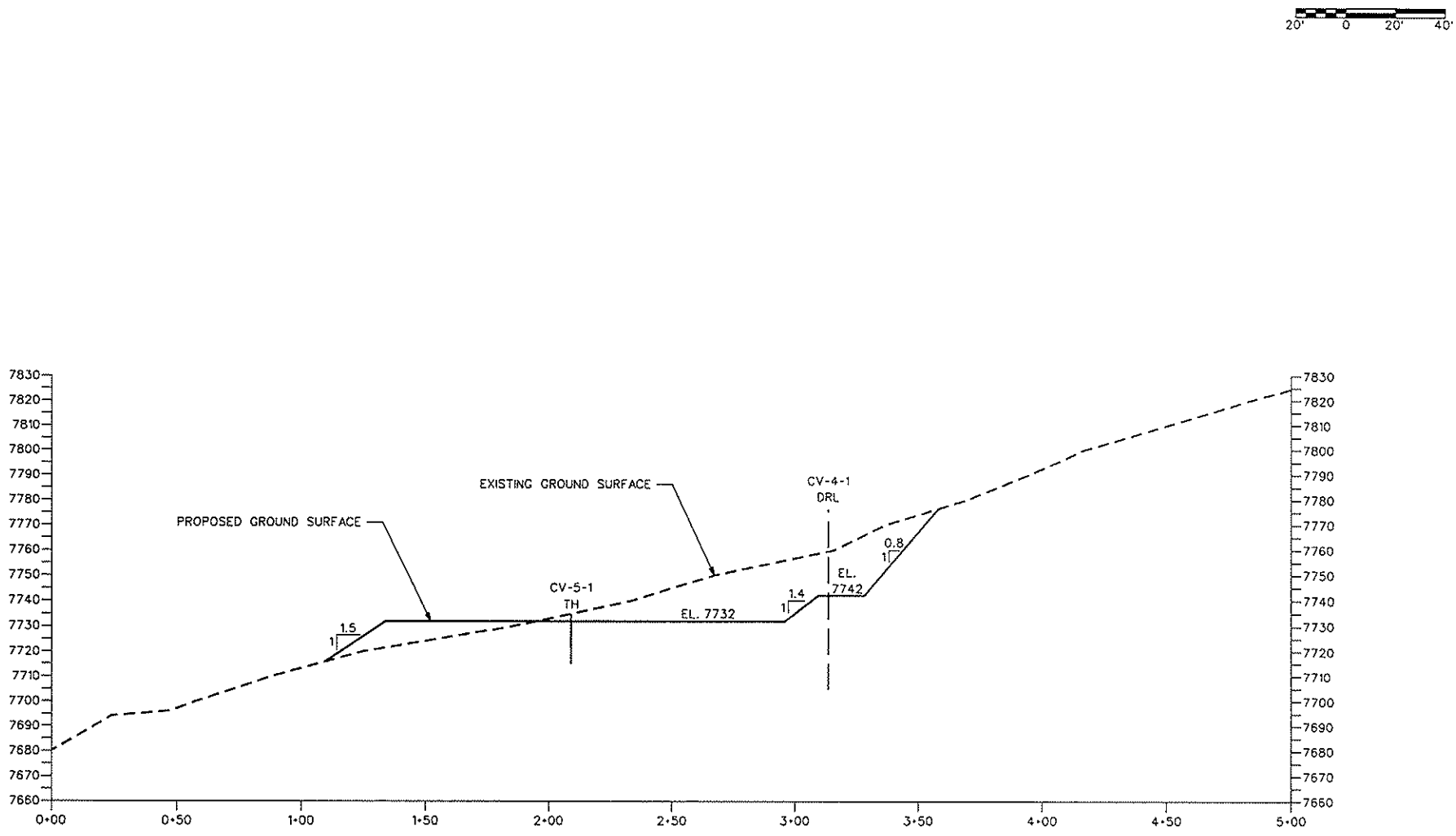


Figure 3

RB&G ENGINEERING INC.
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Kinney Mine
Scofield, Utah

Section A–A

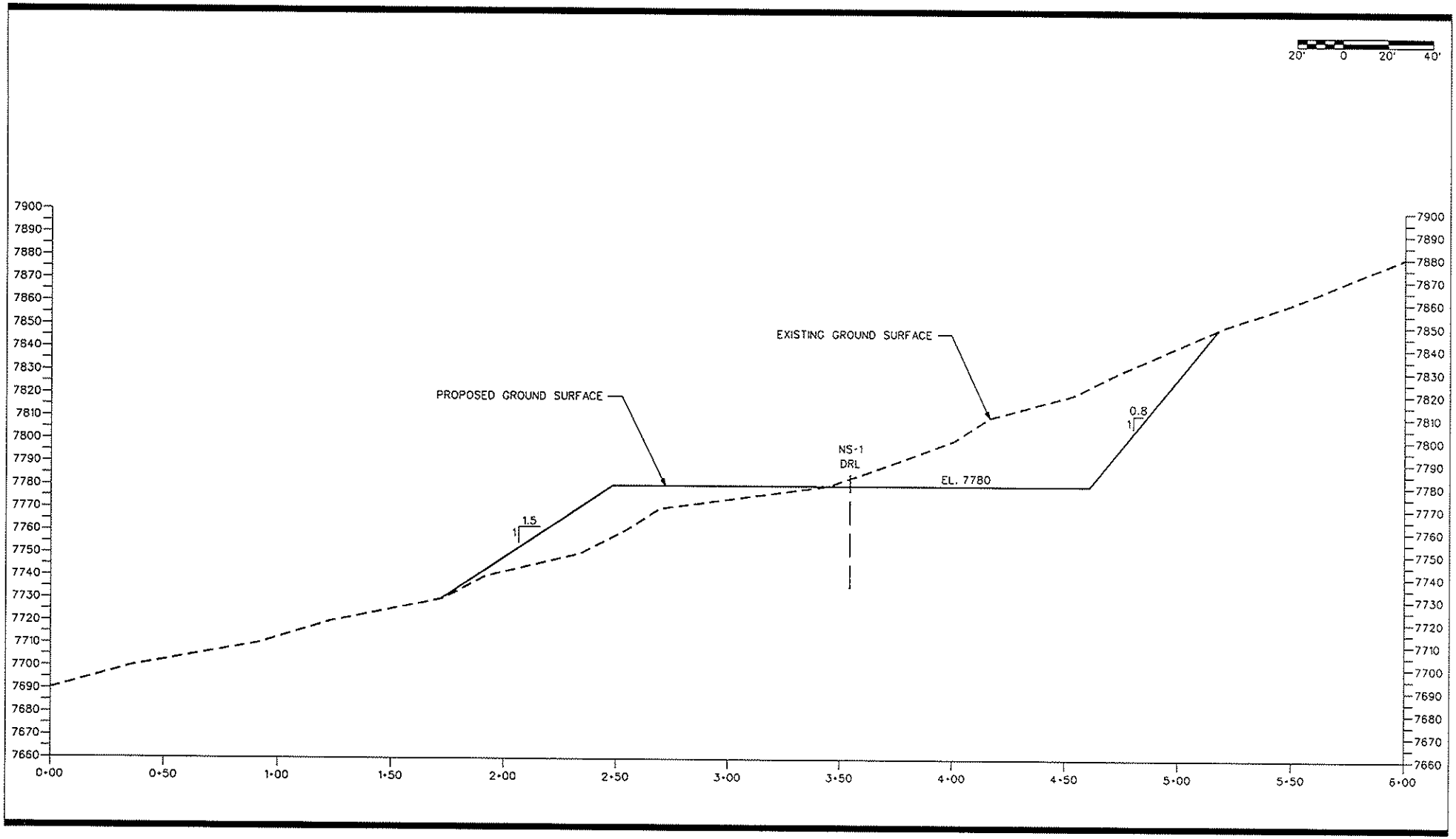


Figure 4

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Kinney Mine
Scofield, Utah

Section B-B

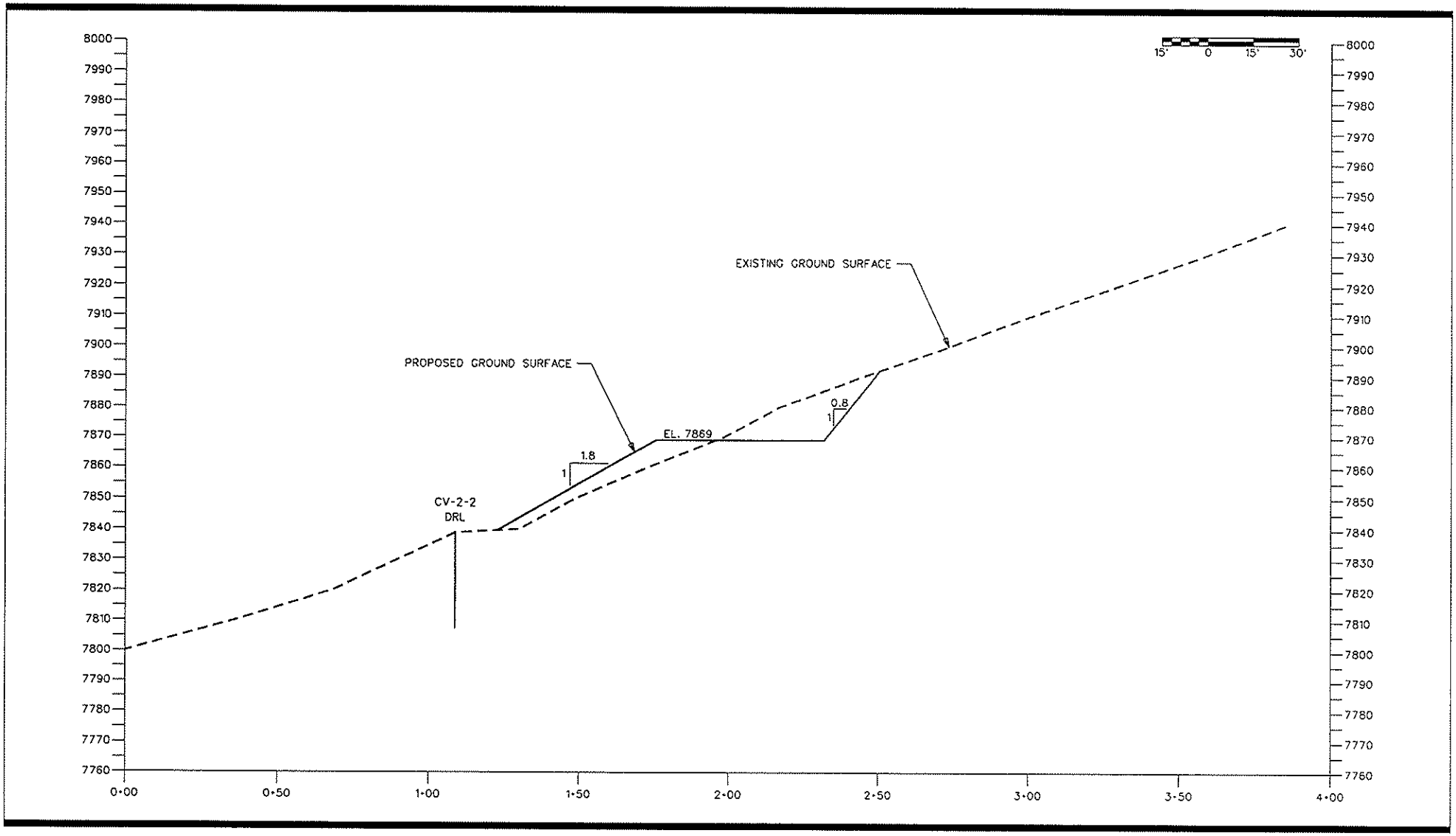


Figure 5

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Kinney Mine
Scofield, Utah

Section C-C

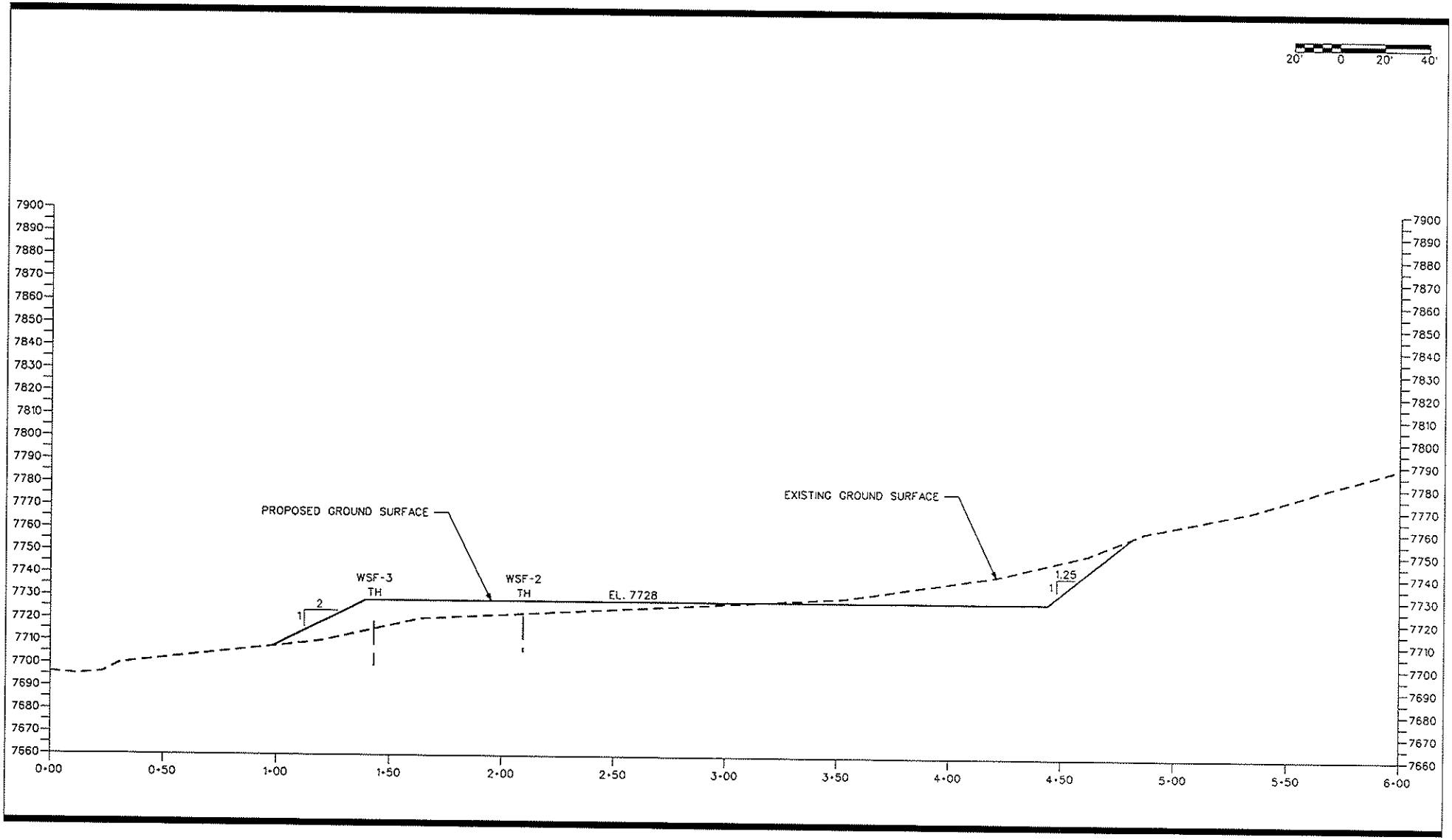


Figure 6

RB&G ENGINEERING INC.
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Kinney Mine
Scofield, Utah

Section D–D

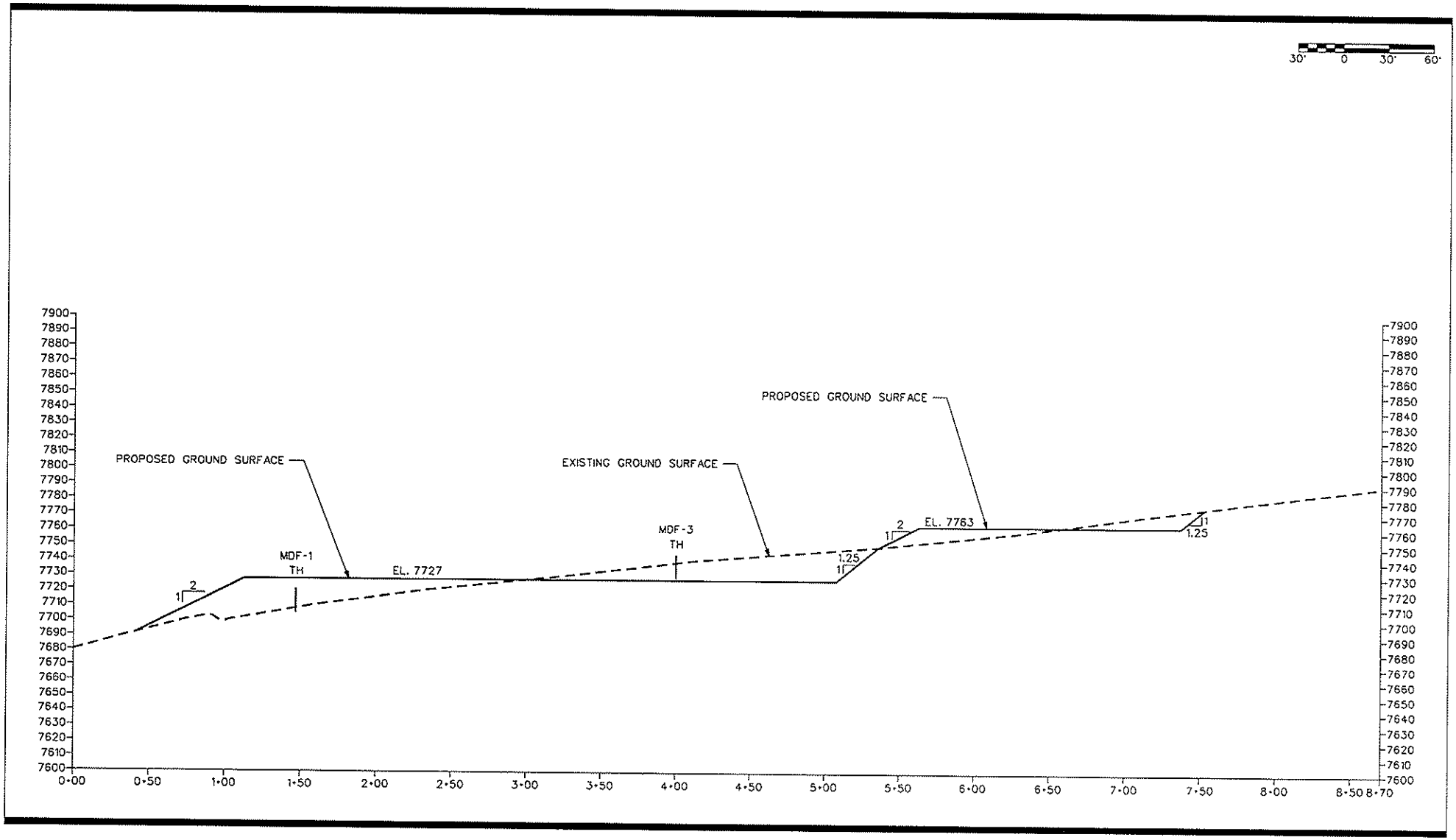


Figure 7

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Kinney Mine
Scofield, Utah

Section E–E

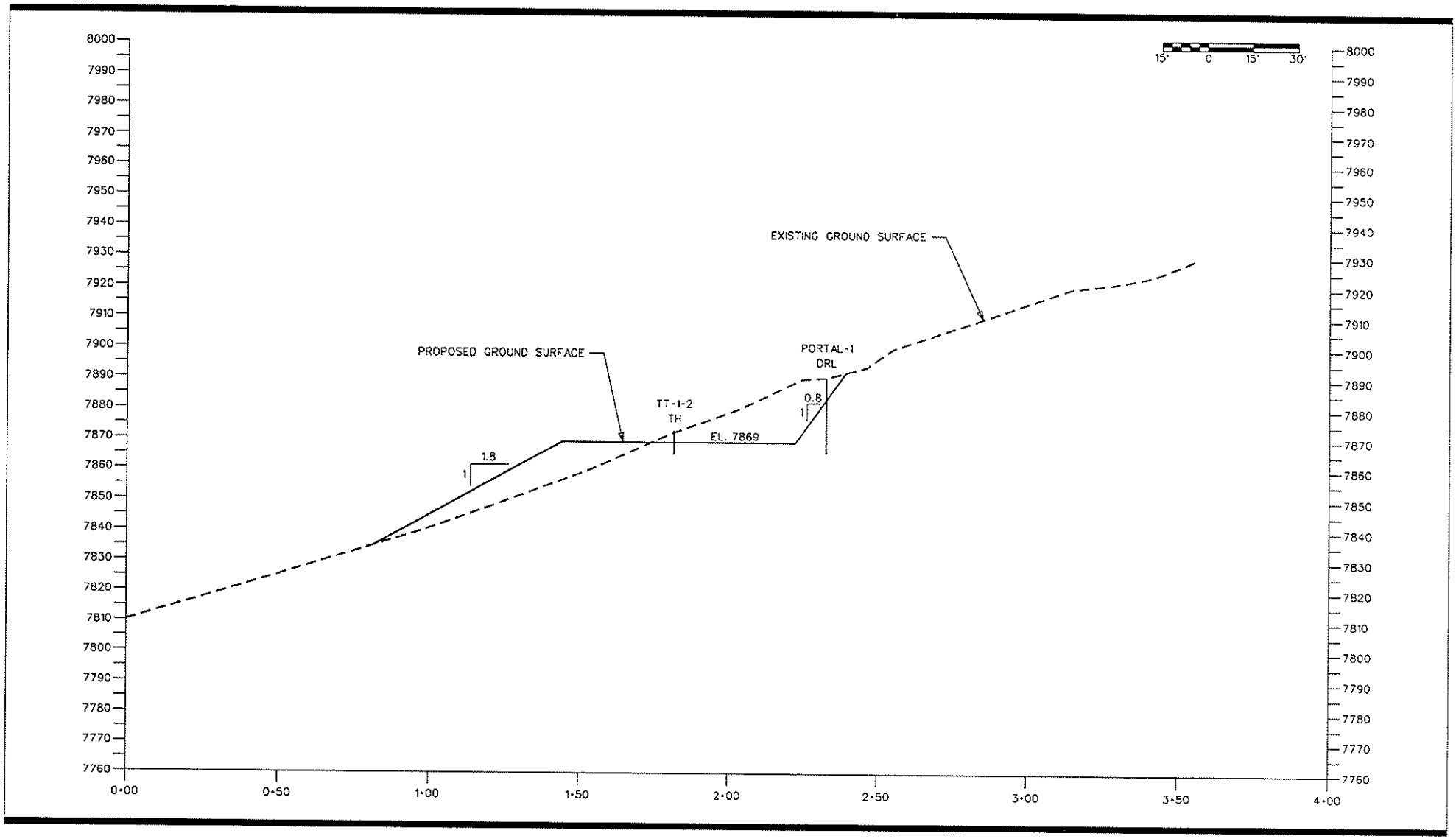


Figure 8

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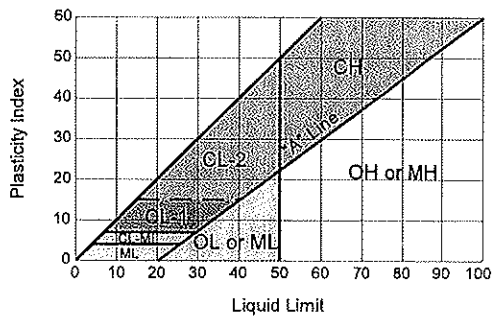
Kinney Mine
Scofield, Utah

Section F–F

# Appendix

# Unified Soil Classification System

| Major Divisions | | | Group Symbols | | Typical Names | Laboratory Classification Criteria | | |
|---|---|---|---|---|---|---|---|---|
| COARSE-GRAINED SOILS *more than half of material is larger than No. 200 sieve* | Gravels *more than half of coarse fraction is larger than No. 4 sieve size* | Clean Gravels *little or no fines* | GW | | Well graded gravels, gravel-sand mixtures, little or no fines | *For laboratory classification of coarse-grained soils* | $C_u = \frac{D_{60}}{D_{10}}$ Greater than 4<br>$C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3 | |
| | | | GP | | Poorly graded gravels, gravel-sand mixtures, little or no fines | | Not meeting all gradation requirements for GW | |
| | | Gravels With Fines *appreciable amount of fines* | GM* | d<br>u | Silty gravels, poorly graded gravel-sand-silt mixtures | Determine percentage of gravel and sand from grain-size curve.<br>Depending on percentage of fines *(fraction smaller than No. 200 sieve size)*, coarse-grained soils are classified as follows:<br>Less than 5% GW, GP, SW, SP<br>More than 12% GM, GC, SM, SC<br>5% to 12% Borderline cases requiring use of dual symbols** | Atterberg limits below "A" line, or PI less than 4 | Above "A" line with PI between 4 and 7 are borderline cases requiring uses of dual symbols |
| | | | GC | | Clayey gravels, poorly graded gravel-sand-clay mixtures | | Atterberg limits above "A" line, or PI greater | |
| | Sands *more than half of coarse fraction is smaller than No. 4 sieve size* | Clean Sands *little or no fines* | SW | | Well graded sands, gravelly sands, little or no fines | | $C_u = \frac{D_{60}}{D_{10}}$ Greater than 6<br>$C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ Between 1 and 3 | |
| | | | SP | | Poorly graded sands, gravelly sands, little or no fines | | Not meeting all gradation requirements for SW | |
| | | Sands with Fines *appreciable amount of fines* | SM* | d<br>u | Silty sands, poorly graded sand-silt mixtures | | Atterberg limits below "A" line, or PI less than 4 | Above "A" line with PI between 4 and 7 are borderline cases requiring uses of dual symbols |
| | | | SC | | Clayey sands, poorly graded sand-clay mixtures | | Atterberg limits above "A" line, or PI greater | |
| FINE-GRAINED SOILS *more than half of material is smaller than No. 200 sieve* | Silts and Clays *liquid limit is less than 50* | | ML | | Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity | *For laboratory classification of fine-grained soils* |  Plasticity Chart | |
| | | | CL | 1<br>2 | Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays | | | |
| | | | OL | | Organic silts and organic silt-clays of low plasticity | | | |
| | Silts and Clays *liquid limit is greater than 50* | | MH | | Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts | | | |
| | | | CH | | Inorganic clays of high plasticity, fat clays | | | |
| | | | OH | | Organic clays of medium to high plasticity, organic silts | | | |
| HIGHLY ORGANIC SOILS | | | Pt | | Peat and other highly organic soils | | | |

*NOTE: USCS Modified to include CL-type subcategories*

*Division of GM and SM groups into subdivisions of d and u for roads and airfields only. Subdivision is based on Atterberg limits; suffix d used when liquid limit is 28 or less and the PI is 6 or less, the suffix u used when liquid limit is greater than 28.

***Borderline classification*: Soils possessing characteristics of two groups are designated by combinations of group symbols. (For example GW-GC, well graded gravel-sand mixture with clay biner.)

# MINE DRY / OFFICE

TEST PITS MDF-1, MDF-2 & MDF-3

# TEST PIT LOG

## TEST PIT NO. MDF-1 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: MINE DRY FACILITY / N:73,774 E:37,860
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/6/07
DATE COMPLETED: 9/6/07
GROUND ELEVATION: 7720.4'
LOGGED BY: J. BOONE

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7720 | 0 | | | | | CL | brown, dry — SANDY LEAN CLAY | | | | | | | | |
| | | | | | | CL-ML | brown, slightly moist — GRAVELLY SILTY CLAY W/SAND | 102.7 | 4.9 | 20 | 4 | | | | CT |
| 7715 | 5 | | | | 0.70 | CL | brown, slightly moist, stiff | 94.8 | 9.9 | | | | | | |
| | | | | | 0.81 | CL-1 | brown, slightly moist, stiff | 86.6 | 8.4 | 25 | 11 | | | | CT |
| 7710 | 10 | | | | | | LEAN CLAY W/SAND<br>pinhole structure, ~10% cobbles | | | | | | | | |
| | | | | | 0.95 | CL | brown, moist, stiff | | | | | | | | |
| 7705 | 15 | | | | 0.87 | CL | brown, moist, stiff | | | | | | | | |
| | | | | | 0.69 | CL-1 | brown, moist, stiff — SANDY LEAN CLAY<br>pinhole structure | 108.7 | 10.8 | 23 | 10 | | | | CT |

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**

DISTURBED SAMPLE — Bucket ← Type of Sample; 0.45 ← Torvane (tsf)

UNDISTURBED SAMPLE

**OTHER TESTS**
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

# TEST PIT LOG

## TEST PIT NO. MDF-2 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: MINE DRY FACILITY / N:73,721 E:37,976
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/6/07
DATE COMPLETED: 9/6/07
GROUND ELEVATION: 7729.6'
LOGGED BY: J. BOONE

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | CL | brown, dry — SANDY LEAN CLAY W/GRAVEL | | | | | | | | |
| | | | | | | SC-SM | brown, slightly moist — SILTY CLAYEY SAND W/GRAVEL, >20% cobbles | 108.6 | 4.6 | 20 | 5 | 34 | 38 | 28 | |
| 7725 | 5 | | | | | SM | brown, slightly moist, med. dense — SILTY SAND W/GRAVEL, >30% cobbles & boulders | 118.5 | 3.8 | | NP | 38 | 47 | 15 | |
| 7720 | 10 | | | | 0.95 | CL | lt. brown, slightly moist, stiff | | | | | | | | |
| 7715 | 15 | | | | 0.88 | CL-1 | SANDY LEAN CLAY, gravel seams, pinhole structure — lt. brown, moist, stiff | 94.8 | 9.3 | 23 | 9 | 6 | 38 | 56 | CT |
| | | | | | 0.85 | CL | lt. brown, slightly moist, stiff | | | | | | | | |
| 7710 | | | | | | | | | | | | | | | |

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**
DISTURBED SAMPLE
UNDISTURBED SAMPLE
Bucket ← Type of Sample
0.45 ← Torvane (tsf)

**OTHER TESTS**
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

# TEST PIT LOG

## TEST PIT NO. MDF-3 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: MINE DRY FACILITY / N:73,800 E:38,115
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/6/07
DATE COMPLETED: 9/6/07
GROUND ELEVATION: 7744.0'
LOGGED BY: J. BOONE

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | CL | brown, dry — GRAVELLY LEAN CLAY W/SAND | | | | | | | | |
| | | | | | | - | COAL (fill) | | | | | | | | |
| | | | | | | CL | brown, dry, very stiff — LEAN CLAY W/SAND | | | | | | | | |
| 7740 | | | | | | SM | brown, slightly moist | 106.5 | 6.1 | | | | | | |
| | 5 | | | | | | SILTY SAND W/GRAVEL >30% cobbles & boulders | | | | | | | | |
| | | | | | | SM | brown, slightly moist | 102.9 | 5.8 | | NP | 34 | 39 | 27 | |
| 7735 | | | | | | GP-GM | brown, dry | | | | | | | | |
| | 10 | | | | | | GRAVEL W/SILT & SAND >50% cobbles & boulders | | | | | | | | |
| | | | | | | GP-GM | brown, dry | | | | | | | | |
| 7730 | | | | | | | | | | | | | | | |
| | 15 | | | | | | | | | | | | | | |
| | | | | | 0.99+ | CL-1 | lt. brown, slightly moist, stiff | | 7.5 | 22 | 10 | | | | |
| | | | | | | | LEAN CLAY W/SAND slight pinhole structure | | | | | | | | |
| 7725 | | | | | 0.99+ | CL-1 | lt. brown, slightly moist to dry, stiff | | 5.3 | 21 | 8 | | | | |

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**

DISTURBED SAMPLE — Bucket ← Type of Sample; 0.45 ← Torvane (tsf)

UNDISTURBED SAMPLE

**OTHER TESTS**
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

## Table 1

# SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

| HOLE NO. | DEPTH BELOW GROUND SURFACE (ft) | STANDARD PENETRATION BLOWS PER FOOT | IN-PLACE | | UNCONFINED COMPRESSIVE STRENGTH (psf) | ATTERBERG LIMITS | | | MECHANICAL ANALYSIS | | | UNIFIED SOIL CLASSIFICATION SYSTEM (modified) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DRY UNIT WEIGHT (pcf) | MOISTURE (%) | | LIQUID LIMIT (%) | PLASTIC LIMIT (%) | PLASTICITY INDEX (%) | PERCENT GRAVEL | PERCENT SAND | PERCENT SILT & CLAY | |
| CV-2-1 TH | 3 | Grab | 95.0 | 9.0 | | 32 | 15 | 17 | | | | CL-2 |
| | 6 | Grab | | 3.1 | | | | NP | 64 | 23 | 13 | GM |
| CV-2-3 TH | 3 | Grab | 106.1 | 7.6 | 4000+* | 25 | 13 | 12 | | | | CL-1 |
| | 6 | Grab | 88.6 | 6.5 | 4000+* | 23 | 17 | 6 | | | | CL-ML |
| | 9 | Grab | 97.1 | 4.8 | 4000+* | 19 | 15 | 4 | | | | CL-ML / SC-SM |
| CV-5-1 TH | 3 | Grab | 89.8 | 5.8 | 4000+* | 22 | 15 | 7 | | | | CL-1 |
| | 9 | Grab | 90.7 | 7.1 | 4000+* | 21 | 17 | 4 | | | | CL-ML |
| | 12 | Grab | 95.8 | 9.7 | 4000+* | 22 | 12 | 10 | | | | CL-1 |
| | 19 | Grab | | 9.6 | 4000+* | 23 | 13 | 10 | | | | CL-1 |
| CL-5-2 TH | 12 | Grab | 112.7 | 13.8 | 4000+* | 42 | 16 | 26 | | | | CL-2 |
| | 15 | Grab | | 14.1 | 4000+* | 33 | 15 | 18 | | | | CL-2 |
| WSF-1 TH | 6 | Grab | 97.9 | 4.5 | 2827 | 21 | 16 | 5 | | | | CL-ML |
| WSF-2 TH | 3 | Grab | 91.0 | 4.6 | | | | NP | 29 | 45 | 26 | SM |
| | 9 | Grab | | 4.7 | | 19 | 15 | 4 | | | | CL-ML / SC-SM |
| WSF-3 TH | 6 | Grab | 89.6 | 4.6 | | | | NP | 34 | 38 | 28 | SM |
| | 9 | Grab | 96.3 | 10.1 | 3000* | 22 | 14 | 8 | | | | CL-1 |
| | 12 | Grab | | 6.1 | 3320* | | | NP | 34 | 38 | 28 | SM |
| MDF-1 TH | 3 | Grab | 102.7 | 4.9 | | 20 | 16 | 4 | | | | CL-ML / SC-SM |
| | 9 | Grab | 86.6 | 8.4 | 3240* | 25 | 14 | 11 | | | | CL-1 |
| | 18.5 | Grab | 108.7 | 10.8 | 2760* | 23 | 13 | 10 | | | | CL-1 |
| MDF-2 TH | 3 | Grab | 108.6 | 4.6 | | 20 | 15 | 5 | 34 | 38 | 28 | SC-SM |
| | 6 | Grab | 118.5 | 3.8 | | | | NP | 38 | 47 | 15 | SM |
| | 15 | Grab | 94.8 | 9.3 | 3520* | 23 | 14 | 9 | | | | CL-1 |
| MDF-3 TH | 6 | Grab | 102.9 | 5.8 | | | | NP | 34 | 39 | 27 | SM |
| | 15 | Grab | | 7.5 | 4000+* | 22 | 12 | 10 | | | | CL-1 |
| | 18 | Grab | | 5.3 | 4000+* | 21 | 13 | 8 | | | | CL-1 |
| CS-1 TH | 6 | Grab | | | | | | | | | | Coal |
| | 9 | Grab | | 8.8 | 2080* | 23 | 14 | 9 | | | | CL-1 |
| | 12 | Grab | | 15.5 | 2240* | 24 | 16 | 8 | | | | CL-1 |
| F-1 TH | 6 | Grab | 91.3 | 5.6 | | 22 | 18 | 4 | 18 | 42 | 40 | SC-SM |
| | 9 | Grab | | 6.1 | | 21 | 16 | 5 | | | | CL-ML / SC-SM |

NP=Nonplastic
*Toravne value used to estimate unconfined compressive Strength.

# OTHER LABORATORY TESTING

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE

| CHEMICAL TESTS | | | | | |
|---|---|---|---|---|---|
| SAMPLE LOCATION | DEPTH BELOW GROUND SURFACE (ft) | pH | RESISTIVITY (ohm-cm) | SULFATE (%) | USCS (MODIFIED) / AASHTO CLASSIFICATION |
| 3-NS-1 | 6-7.5 | 8.0 | 6761 | 0.0031 | CL-1 |
| 11-MDF-2 | 3 | 8.2 | 7202 | 0.0064 | SC-SM |
| 9-WSF-1 | 6 | 7.3 | 3322 | 0.0195 | CL-ML |
| 13-WSF-2 | 3 | 7.8 | 6502 | 0.0315 | SM |

| DIRECT SHEAR TESTS CONSOLIDATED DRAINED | | | | | |
|---|---|---|---|---|---|
| SAMPLE LOCATION | DEPTH BELOW GROUND SURFACE (ft) | DRY DENSITY (pcf) | FRICTION ANGLE Φ (degrees) | COHESION c (psi) | USCS (MODIFIED) / AASHTO CLASSIFICATION |
| 07-CV-5-1 TH | 12 | 95.8 | 20 | 15 | CL-1 |

| TRIAXIAL SHEAR TESTS MULTI-STAGE CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENTS | | | | | | |
|---|---|---|---|---|---|---|
| SAMPLE LOCATION | DEPTH BELOW GROUND SURFACE (ft) | TOTAL STRESS | | EFFECTIVE STRESS | | USCS (MODIFIED) / AASHTO CLASSIFICATION |
| | | FRICTION ANGLE $\Phi_{(cu)}$ (degrees) | COHESION $c_{(cu)}$ (psi) | FRICTION ANGLE Φ (degrees) | COHESION c (psi) | |
| CV-4-1 DRL | 20-21.5 | 29.6 | 2 | 36.0 | 2 | CL |
| SC-2 DRL | 23-24 | 32.5 | 2 | 36.7 | 2 | CL-1 |

* Visual Classification
**Bulk Sample

RB&G ENGINEERING INC.
1435 West 820 North, Provo, Utah 84601
801 374-5771 Provo
801 521-5771 Salt Lake City

| | |
|---|---|
| PROJECT NO. | 200701.045 |
| REPORT NO. | - |

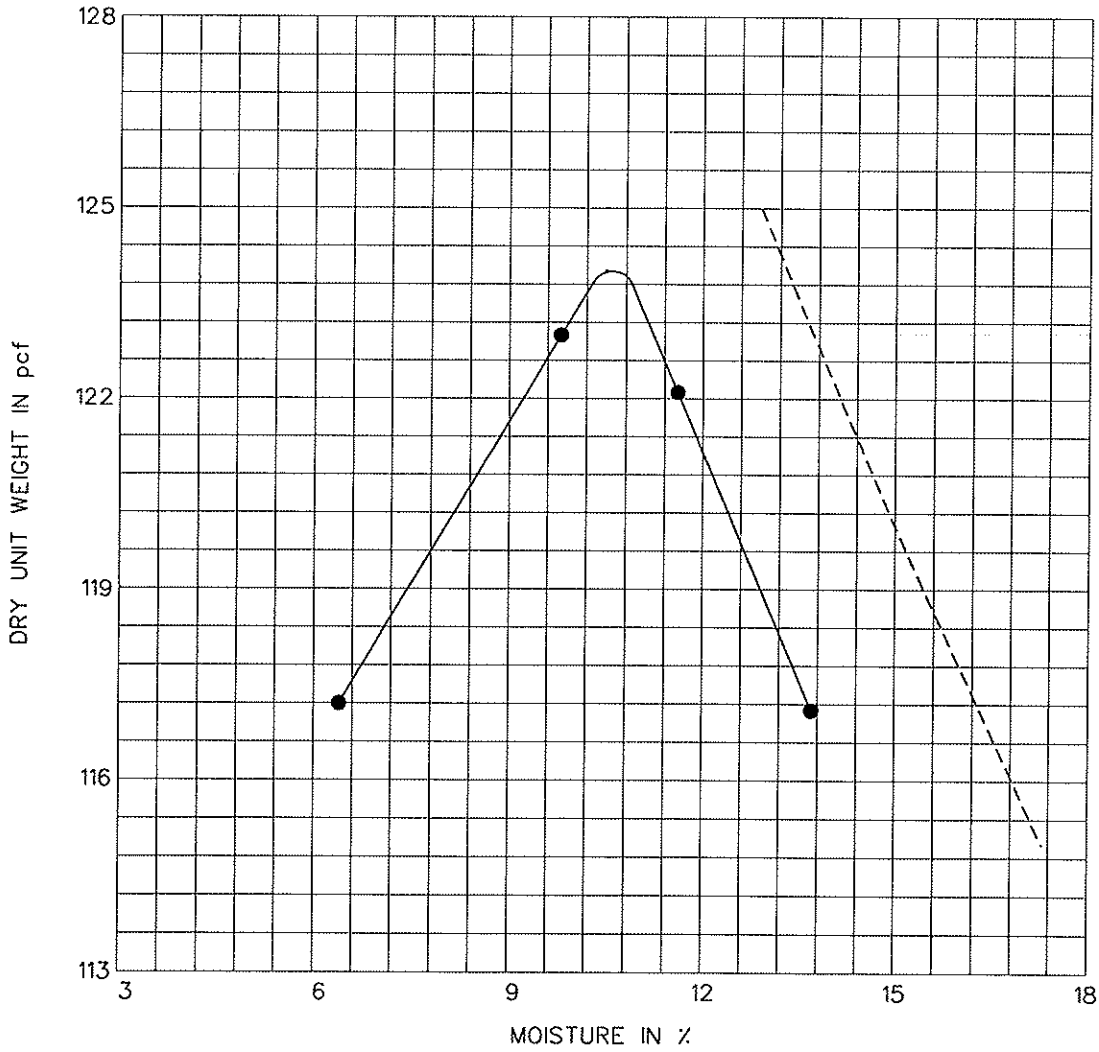
## MOISTURE-DENSITY RELATION (PROCTOR)

| | | | | | |
|---|---|---|---|---|---|
| Project | KINNEY MINE | | | Date | 9/6/07 |
| Location / No. | SCOFIELD, UTAH / MDF-1 TH AT 3'-10' | | | Technician | G. PEASLEE |
| Material Description | BROWN SANDY LEAN CLAY | USCS | CL | Method | ASTM D 1557 |

| | |
|---|---|
| Procedure Used[1] | B |
| Classification Procedure[2] | Visual |

[1] A-No. 4 Sieve, B-3/8" Sieve, C-3/4" Sieve
[2] Visual as per ASTM D 2488, Test as per ASTM D 2487

| | |
|---|---|
| Preparation Method | Moist |
| Rammer Used | Manual |
| As-Received Moisture Content (%) | 6.0 |




| | |
|---|---|
| Maximum Dry Density (pcf) | 124.0 |
| Optimum Moisture Content (%) | 10.5 |
| Corrected Maximum Density (pcf) | **124.0** |
| Corrected Optimum Moisture Content (%) | **10.5** |

– – – – – 100% Saturation Curve

| | | |
|---|---|---|
| Specific Gravity of Soil | 2.70 | Est. |

OVERSIZE CORRECTION-ASTM D 4718

| | | |
|---|---|---|
| Specific Gravity of Soil +3/4 | 2.70 | Est. |
| Percent Oversize | 0.0 | |

Type of Specific Gravity is BULK Unless Otherwise Indicated

RB&G ENGINEERING INC.
1435 West 820 North, Provo, Utah 84601
801 374-5771 Provo
801 521-5771 Salt Lake City

| | |
|---|---|
| PROJECT NO. | 200701.045 |
| REPORT NO. | - |

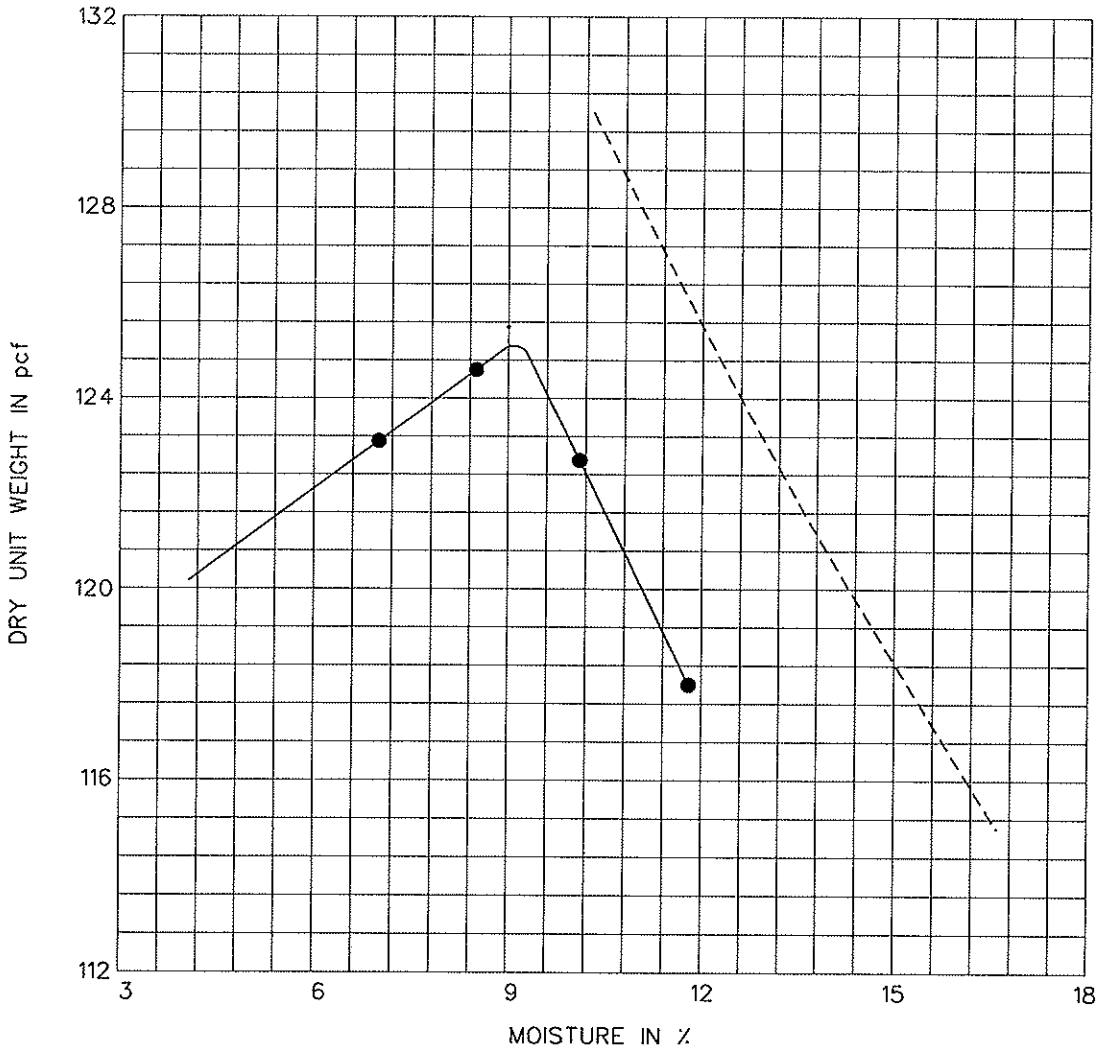
# MOISTURE-DENSITY RELATION (PROCTOR)

| | | | | | |
|---|---|---|---|---|---|
| Project | KINNEY MINE | | | Date | 9/6/07 |
| Location / No. | SCOFIELD, UTAH / WSF-2 TH AT 3'-8' | | | Technician | G. PEASLEE |
| Material Description | LT. BROWN SILTY SAND W/GRAVEL | USCS | SM | Method | ASTM D 1557 |

| | |
|---|---|
| Procedure Used[1] | C |
| Classification Procedure[2] | Visual |

[1] A-No. 4 Sieve, B-3/8" Sieve, C-3/4" Sieve
[2] Visual as per ASTM D 2488, Test as per ASTM D 2487

| | |
|---|---|
| Preparation Method | Moist |
| Rammer Used | Manual |
| As-Received Moisture Content (%) | 5.0 |




| | |
|---|---|
| Maximum Dry Density (pcf) | 125.5 |
| Optimum Moisture Content (%) | 9.0 |
| Corrected Maximum Density (pcf) | 128.0 |
| Corrected Optimum Moisture Content (%) | 8.5 |

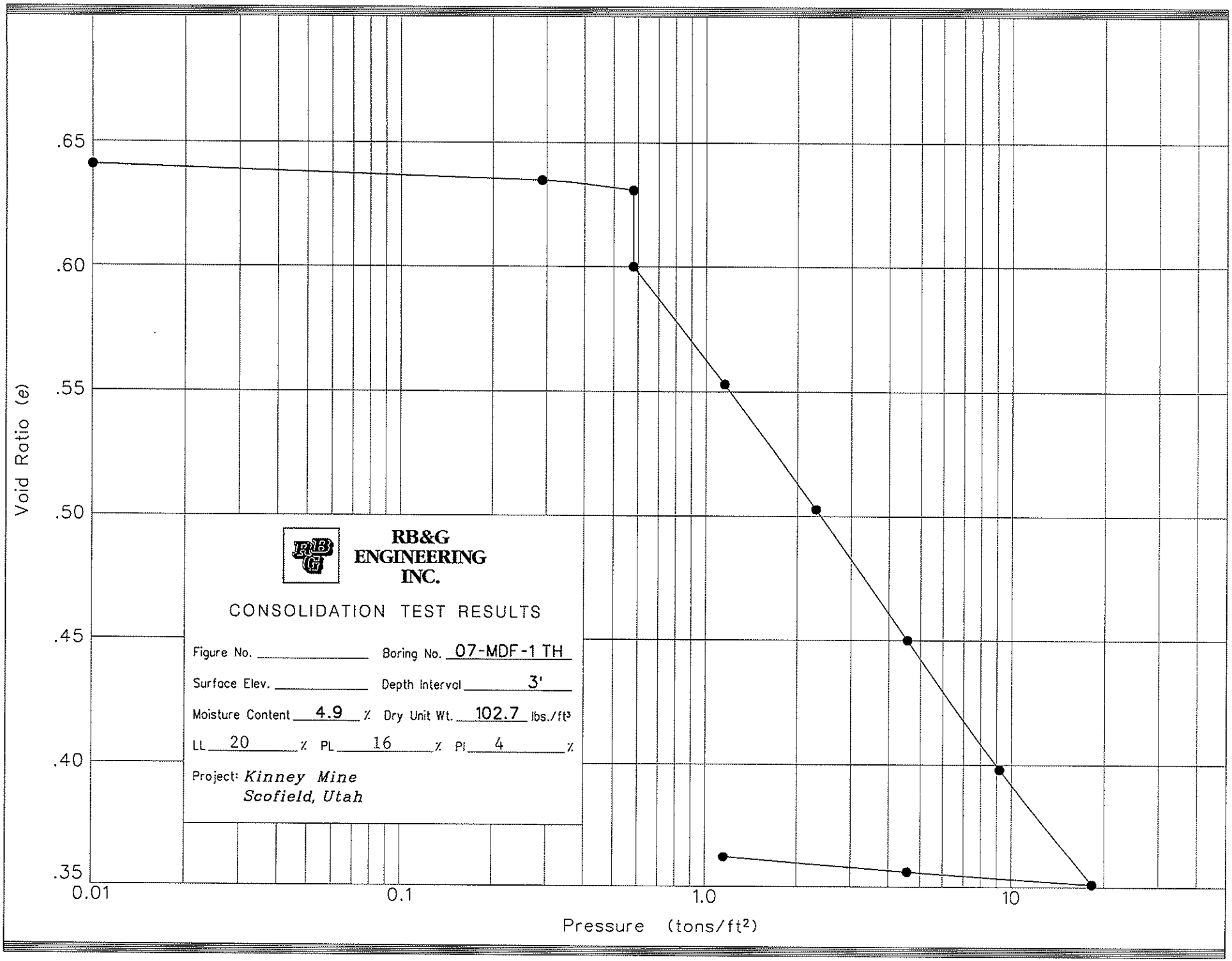
----- 100% Saturation Curve

| | | |
|---|---|---|
| Specific Gravity of Soil | 2.65 | Est. |

OVERSIZE CORRECTION-ASTM D 4718

| | | |
|---|---|---|
| Specific Gravity of Soil +3/4 | 2.65 | Est. |
| Percent Oversize | 10.0 | |

Type of Specific Gravity is BULK Unless Otherwise Indicated




**RB&G ENGINEERING INC.**

CONSOLIDATION TEST RESULTS

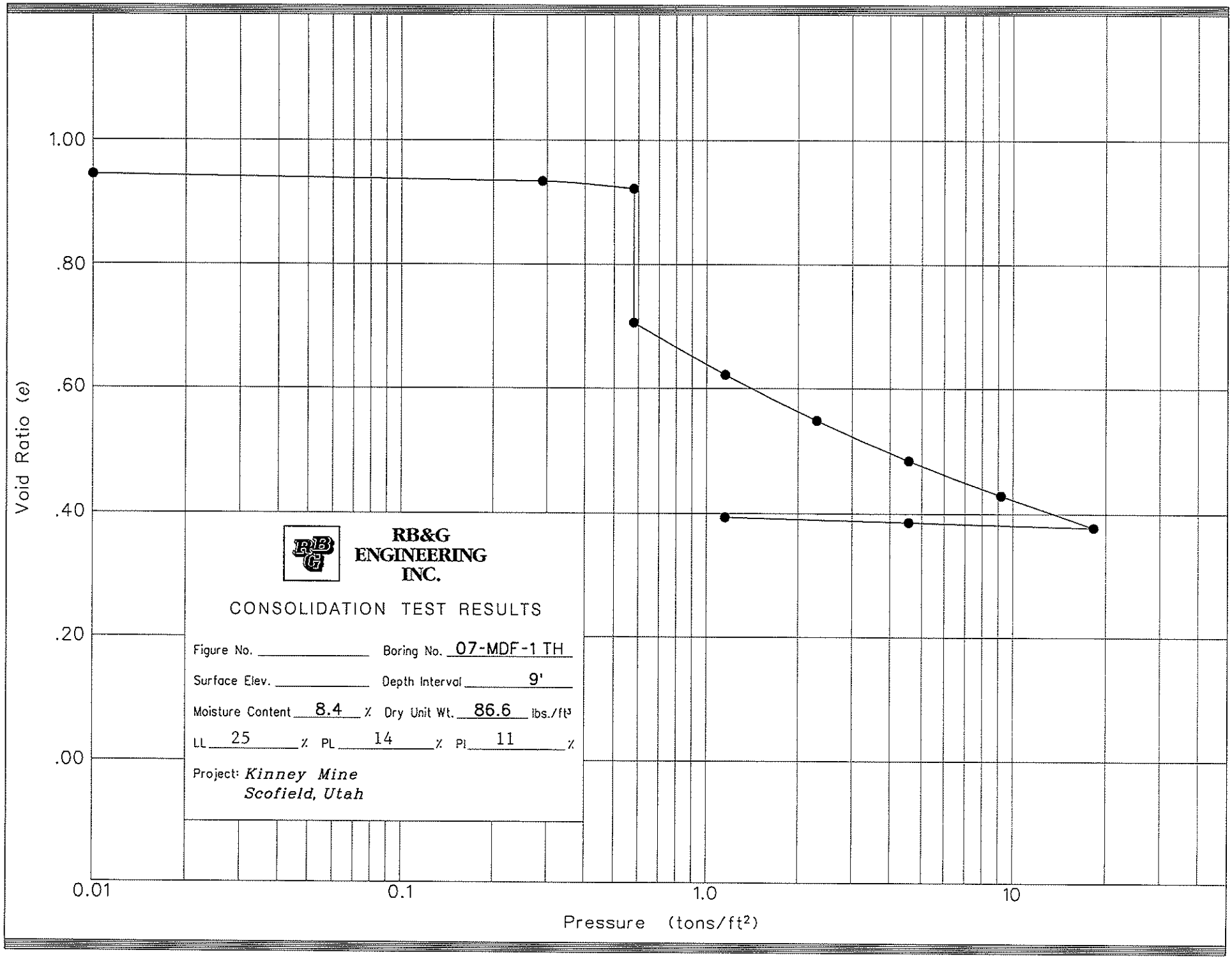
Figure No. _____ Boring No. 07-MDF-1 TH

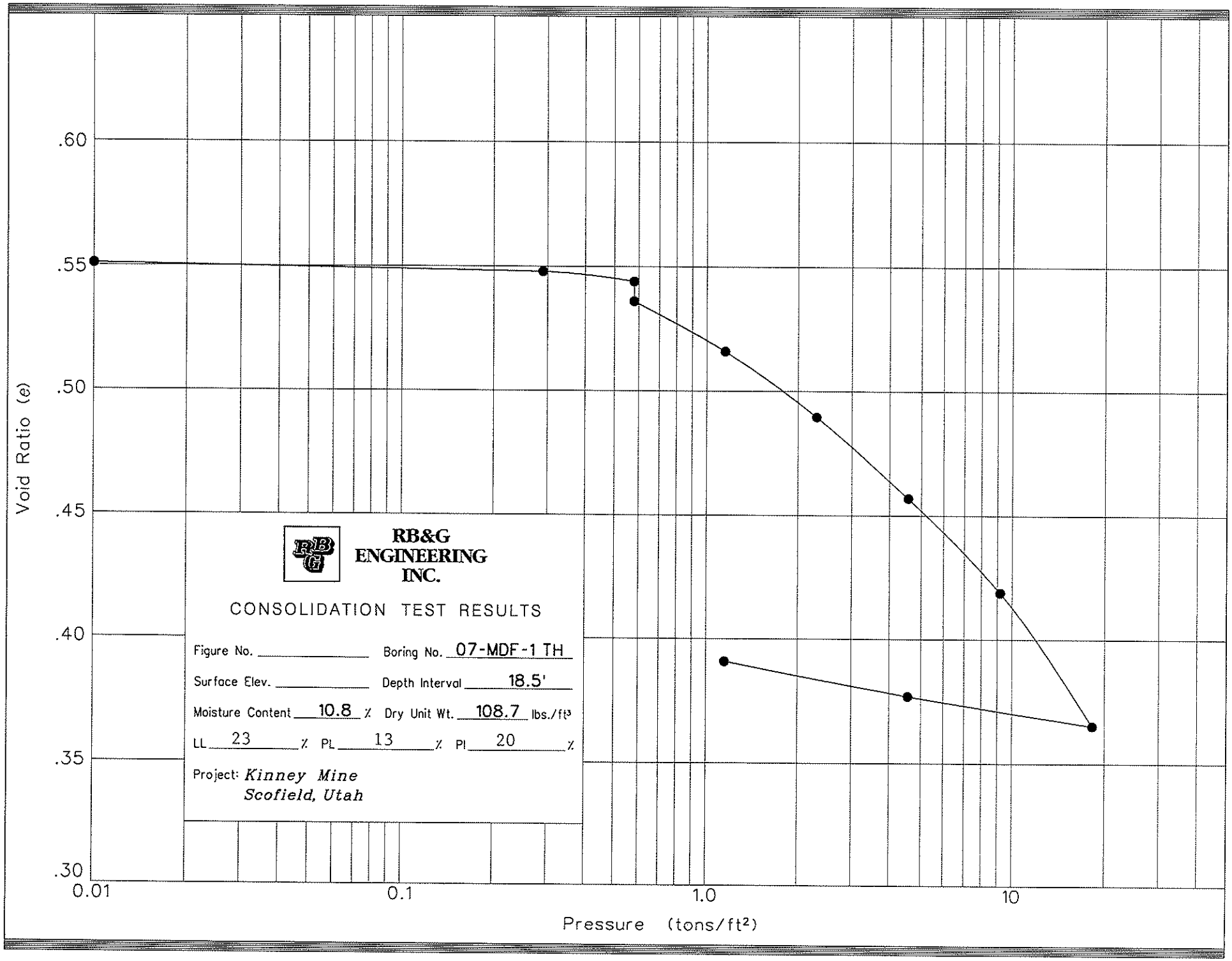
Surface Elev. _____ Depth Interval 3'

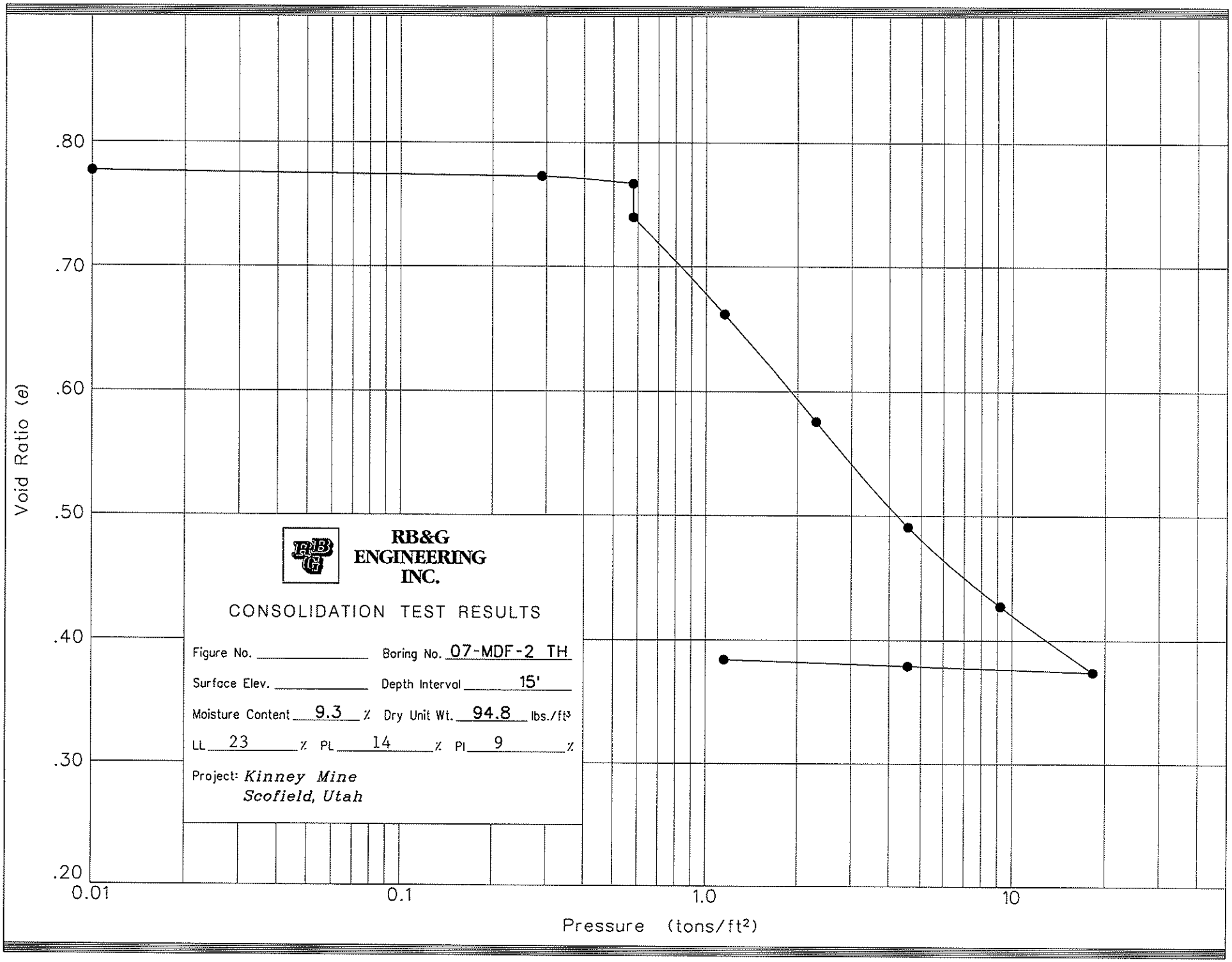
Moisture Content 4.9 % Dry Unit Wt. 102.7 lbs./ft³

LL 20 % PL 16 % PI 4 %

Project: *Kinney Mine*
*Scofield, Utah*


1.00
.80
.60
.40
.20
.00
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. 07-MDF-1 TH
Surface Elev. _____ Depth Interval 9'
Moisture Content 8.4 % Dry Unit Wt. 86.6 lbs./ft³
LL 25 % PL 14 % PI 11 %
Project: Kinney Mine
Scofield, Utah


.60
.55
.50
.45
.40
.35
.30
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. 07-MDF-1 TH
Surface Elev. _____ Depth Interval 18.5'
Moisture Content 10.8 % Dry Unit Wt. 108.7 lbs./ft³
LL 23 % PL 13 % PI 20 %
Project: Kinney Mine
Scofield, Utah


.80
.70
.60
.50
.40
.30
.20
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. 07-MDF-2 TH
Surface Elev. _____ Depth Interval 15'
Moisture Content 9.3 % Dry Unit Wt. 94.8 lbs./ft³
LL 23 % PL 14 % PI 9 %
Project: Kinney Mine
Scofield, Utah

# SHOP / WAREHOUSE

TEST PITS WSF-1, WSF-2 & WSF-3

# TEST PIT LOG

## TEST PIT NO. WSF-1 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: WARWEHOUSE & SHOP FACILITY / N:74,287 E:38,116
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/6/07
DATE COMPLETED: 9/6/07
GROUND ELEVATION: 7719.5'
LOGGED BY: J. BOONE

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7715 | 5 | | | | | CL-ML | brown, dry — SILTY SANDY CLAY (fill) | | | | | | | | |
| | | | | | | - | COAL (fill) | | | | | | | | |
| | | | | | +1.00 | CL-ML | SANDY SILTY CLAY — brown, dry, hard | 97.9 | 4.5 | 21 | 5 | | | | UC |
| 7710 | 10 | | | | | - | lt. brown, dry, dense — SANDSTONE very weathered, more competent w/depth | | | | | | | | |
| 7705 | 15 | | | | | | Trackhoe unable to excavate deeper | | | | | | | | |
| 7700 | | | | | | | | | | | | | | | |

TP_LOGV1_KINNEYMINE_TP.GPJ_US_EVAL.GDT 10/29/07

**LEGEND:**

DISTURBED SAMPLE
UNDISTURBED SAMPLE
Bucket ← Type of Sample
0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

RB&G ENGINEERING INC.
PROVO, UTAH

# TEST PIT LOG

## TEST PIT NO. WSF-2 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE

CLIENT: GEO-HUNT CONSULTING, LLC

LOCATION: WARWEHOUSE & SHOP FACILITY / N:74,287 E:38,116

DIGGING METHOD: JOHN DEERE 160 TRACKHOE

OPERATOR:

DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045

DATE STARTED: 9/7/07

DATE COMPLETED: 9/7/07

GROUND ELEVATION: 7721.6'

LOGGED BY: J. LINDO

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | CL | dk. brown, dry — SANDY LEAN CLAY | | | | | | | | |
| 7720 | | | | | | - | black, dry — COAL (fill) | | | | | | | | |
| | | | | | | SM | dk. brown, slightly moist, loose | 91 | 4.6 | | NP | 29 | 45 | 26 | |
| | 5 | | | | | SM | dk. brown, slightly moist, loose — SILTY SAND W/GRAVEL occasional cobbles | 89.4 | 6.5 | | | | | | |
| 7715 | | | | | | CL-ML/ SC-SM | brown, slightly moist — SANDY SILTY CLAY TO SILTY CLAYEY SAND slight pinhole structure | | 4.7 | 19 | 4 | | | | |
| 7710 | 10 | | | | | GM | lt. brown, dry — SILTY GRAVEL W/SAND cobbles & boulders increasing w/depth | | | | | | | | |
| | 15 | | | | | GM | lt. brown, dry | | | | | | | | |
| 7705 | | | | | | | Bottom of excavation very rocky, trackhoe unable to excavate deeper | | | | | | | | |

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**

DISTURBED SAMPLE

UNDISTURBED SAMPLE

Bucket ← Type of Sample
0.45 ← Torvane (tsf)

**OTHER TESTS**
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

# TEST PIT LOG

## TEST PIT NO. WSF-3 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: WARWEHOUSE & SHOP FACILITY / N:74,287 E:38,116
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/7/07
DATE COMPLETED: 9/7/07
GROUND ELEVATION: 7718.7'
LOGGED BY: J. LINDO

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | CL | dk. brown, dry — SANDY LEAN CLAY | | | | | | | | |
| | | | | | | - | black, dry — COAL (fill) | | | | | | | | |
| 7715 | 5 | | | | | SM | dk. brown, very moist, loose — SILTY SAND W/GRAVEL | 84.7 | 18 | | | | | | |
| | | | | | | SM | dk. brown, slightly moist, loose | 89.6 | 4.6 | | NP | 34 | 38 | 28 | |
| 7710 | 10 | | | | 0.75 | CL-1 | lt. brown, slightly moist, stiff — SANDY LEAN CLAY W/GRAVEL slight pinhole structure | 96.3 | 10.1 | 22 | 8 | | | | CT |
| | | | | | 0.83 | SM | lt. brown, moist, med. dense — SILTY SAND clay layers to 4" thick | | 6.1 | | NP | 34 | 38 | 28 | |
| 7705 | 15 | | | | 0.70 | CL | lt. brown, moist, stiff — SANDY LEAN CLAY W/GRAVEL >20% cobbles & boulders | | | | | | | | |
| 7700 | | | | | +1.00 | CL | lt. brown, moist, very stiff | | | | | | | | |

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**
DISTURBED SAMPLE
UNDISTURBED SAMPLE
Bucket ← Type of Sample
0.45 ← Torvane (tsf)

**OTHER TESTS**
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

Table 1

# SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

| HOLE NO. | DEPTH BELOW GROUND SURFACE (ft) | STANDARD PENETRATION BLOWS PER FOOT | IN-PLACE | | UNCONFINED COMPRESSIVE STRENGTH (psf) | ATTERBERG LIMITS | | | MECHANICAL ANALYSIS | | | UNIFIED SOIL CLASSIFICATION SYSTEM (modified) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DRY UNIT WEIGHT (pcf) | MOISTURE (%) | | LIQUID LIMIT (%) | PLASTIC LIMIT (%) | PLASTICITY INDEX (%) | PERCENT GRAVEL | PERCENT SAND | PERCENT SILT & CLAY | |
| CV-2-1 TH | 3 | Grab | 95.0 | 9.0 | | 32 | 15 | 17 | | | | CL-2 |
| | 6 | Grab | | 3.1 | | | | NP | 64 | 23 | 13 | GM |
| CV-2-3 TH | 3 | Grab | 106.1 | 7.6 | 4000+* | 25 | 13 | 12 | | | | CL-1 |
| | 6 | Grab | 88.6 | 6.5 | 4000+* | 23 | 17 | 6 | | | | CL-ML |
| | 9 | Grab | 97.1 | 4.8 | 4000+* | 19 | 15 | 4 | | | | CL-ML / SC-SM |
| CV-5-1 TH | 3 | Grab | 89.8 | 5.8 | 4000+* | 22 | 15 | 7 | | | | CL-1 |
| | 9 | Grab | 90.7 | 7.1 | 4000+* | 21 | 17 | 4 | | | | CL-ML |
| | 12 | Grab | 95.8 | 9.7 | 4000+* | 22 | 12 | 10 | | | | CL-1 |
| | 19 | Grab | | 9.6 | 4000+* | 23 | 13 | 10 | | | | CL-1 |
| CL-5-2 TH | 12 | Grab | 112.7 | 13.8 | 4000+* | 42 | 16 | 26 | | | | CL-2 |
| | 15 | Grab | | 14.1 | 4000+* | 33 | 15 | 18 | | | | CL-2 |
| WSF-1 TH | 6 | Grab | 97.9 | 4.5 | 2827 | 21 | 16 | 5 | | | | CL-ML |
| WSF-2 TH | 3 | Grab | 91.0 | 4.6 | | | | NP | 29 | 45 | 26 | SM |
| | 9 | Grab | | 4.7 | | 19 | 15 | 4 | | | | CL-ML / SC-SM |
| WSF-3 TH | 6 | Grab | 89.6 | 4.6 | | | | NP | 34 | 38 | 28 | SM |
| | 9 | Grab | 96.3 | 10.1 | 3000* | 22 | 14 | 8 | | | | CL-1 |
| | 12 | Grab | | 6.1 | 3320* | | | NP | 34 | 38 | 28 | SM |
| MDF-1 TH | 3 | Grab | 102.7 | 4.9 | | 20 | 16 | 4 | | | | CL-ML / SC-SM |
| | 9 | Grab | 86.6 | 8.4 | 3240* | 25 | 14 | 11 | | | | CL-1 |
| | 18.5 | Grab | 108.7 | 10.8 | 2760* | 23 | 13 | 10 | | | | CL-1 |
| MDF-2 TH | 3 | Grab | 108.6 | 4.6 | | 20 | 15 | 5 | 34 | 38 | 28 | SC-SM |
| | 6 | Grab | 118.5 | 3.8 | | | | NP | 38 | 47 | 15 | SM |
| | 15 | Grab | 94.8 | 9.3 | 3520* | 23 | 14 | 9 | | | | CL-1 |
| MDF-3 TH | 6 | Grab | 102.9 | 5.8 | | | | NP | 34 | 39 | 27 | SM |
| | 15 | Grab | | 7.5 | 4000+* | 22 | 12 | 10 | | | | CL-1 |
| | 18 | Grab | | 5.3 | 4000+* | 21 | 13 | 8 | | | | CL-1 |
| CS-1 TH | 6 | Grab | | | | | | | | | | Coal |
| | 9 | Grab | | 8.8 | 2080* | 23 | 14 | 9 | | | | CL-1 |
| | 12 | Grab | | 15.5 | 2240* | 24 | 16 | 8 | | | | CL-1 |
| F-1 TH | 6 | Grab | 91.3 | 5.6 | | 22 | 18 | 4 | 18 | 42 | 40 | SC-SM |
| | 9 | Grab | | 6.1 | | 21 | 16 | 5 | | | | CL-ML / SC-SM |

NP=Nonplastic
*Toravne value used to estimate unconfined compressive Strength.

# OTHER LABORATORY TESTING

PROJECT Kinney Mine
LOCATION Scofield, Utah

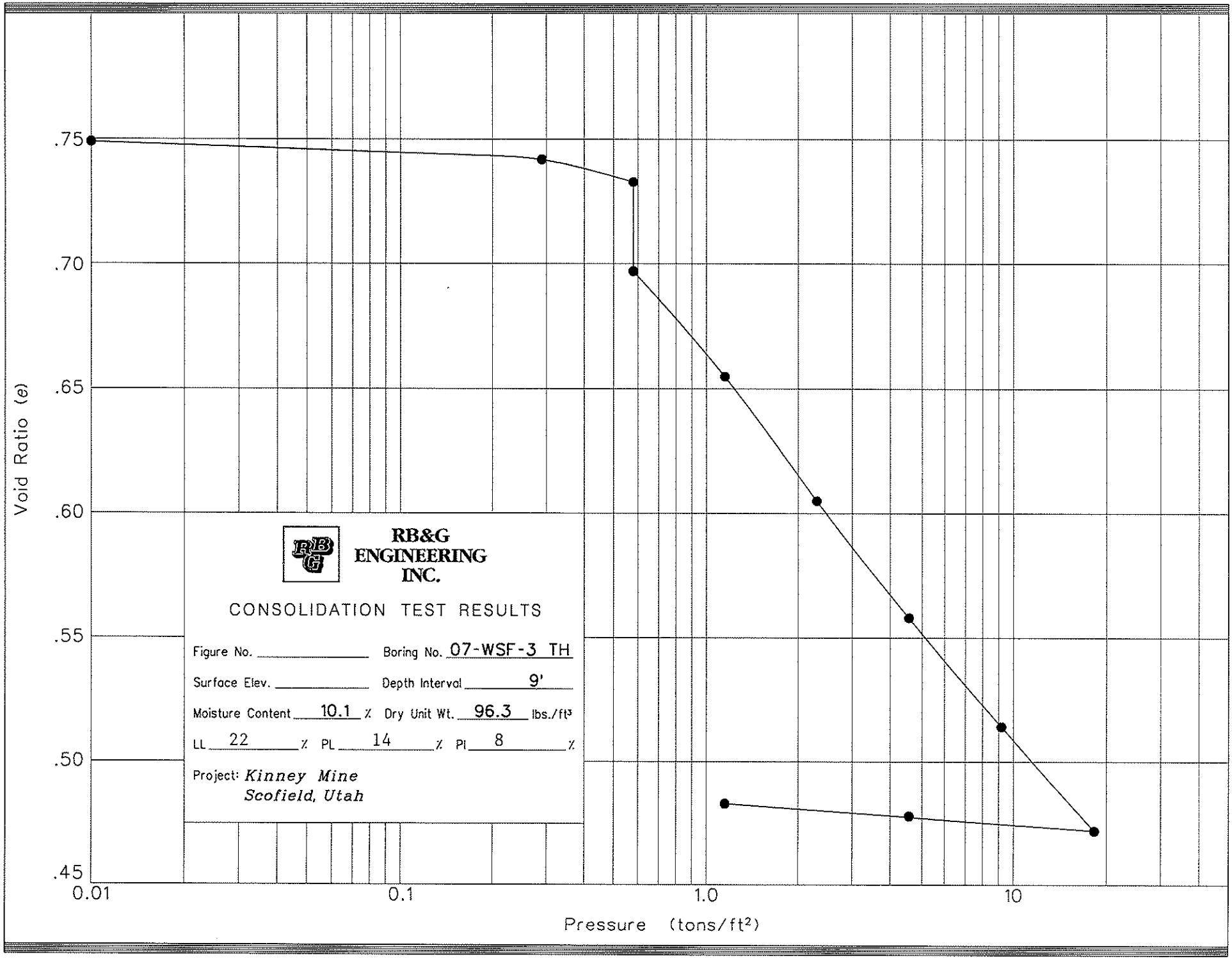
PROJECT NO. 200701-045
FEATURE

| CHEMICAL TESTS | | | | | |
|---|---|---|---|---|---|
| SAMPLE LOCATION | DEPTH BELOW GROUND SURFACE (ft) | pH | RESISTIVITY (ohm-cm) | SULFATE (%) | USCS (MODIFIED) / AASHTO CLASSIFICATION |
| 3-NS-1 | 6-7.5 | 8.0 | 6761 | 0.0031 | CL-1 |
| 11-MDF-2 | 3 | 8.2 | 7202 | 0.0064 | SC-SM |
| 9-WSF-1 | 6 | 7.3 | 3322 | 0.0195 | CL-ML |
| 13-WSF-2 | 3 | 7.8 | 6502 | 0.0315 | SM |

| DIRECT SHEAR TESTS CONSOLIDATED DRAINED | | | | | |
|---|---|---|---|---|---|
| SAMPLE LOCATION | DEPTH BELOW GROUND SURFACE (ft) | DRY DENSITY (pcf) | FRICTION ANGLE Φ (degrees) | COHESION c (psi) | USCS (MODIFIED) / AASHTO CLASSIFICATION |
| 07-CV-5-1 TH | 12 | 95.8 | 20 | 15 | CL-1 |

| TRIAXIAL SHEAR TESTS MULTI-STAGE CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENTS | | | | | | |
|---|---|---|---|---|---|---|
| SAMPLE LOCATION | DEPTH BELOW GROUND SURFACE (ft) | TOTAL STRESS | | EFFECTIVE STRESS | | USCS (MODIFIED) / AASHTO CLASSIFICATION |
| | | FRICTION ANGLE $\Phi_{(cu)}$ (degrees) | COHESION $c_{(cu)}$ (psi) | FRICTION ANGLE Φ (degrees) | COHESION c (psi) | |
| CV-4-1 DRL | 20-21.5 | 29.6 | 2 | 36.0 | 2 | CL |
| SC-2 DRL | 23-24 | 32.5 | 2 | 36.7 | 2 | CL-1 |

* Visual Classification
**Bulk Sample


.75
.70
.65
.60
.55
.50
.45
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. 07-WSF-3 TH
Surface Elev. _____ Depth Interval 9'
Moisture Content 10.1 % Dry Unit Wt. 96.3 lbs./ft³
LL 22 % PL 14 % PI 8 %
Project: Kinney Mine
Scofield, Utah

# COVERED STORAGE & FUEL STRUCTURE

TEST PITS CS-1 & F-1

# TEST PIT LOG

## TEST PIT NO. CS-1 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: COVERED STORAGE / N:74,530 E:38,348
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/6/07
DATE COMPLETED: 9/6/07
GROUND ELEVATION: 7716.6'
LOGGED BY: J. BOONE

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | CL | dk. brown, dry — SANDY LEAN CLAY W/GRAVEL | | | | | | | | |
| 7715 | | | | | | - | black, dry | | | | | | | | |
| | 5 | | | | | | COAL<br>fine grained, occasional gravel layer<br>(fill) | | | | | | | | |
| 7710 | | | | | | - | black, dry | | | | | | | | |
| | | | | | 0.52 | CL-1 | dk. brown, slightly moist, stiff — SANDY LEAN CLAY<br>(fill?) | | 8.8 | 23 | 9 | | | | |
| | 10 | | | | | | | | | | | | | | |
| 7705 | | | | | 0.56 | CL-1 | orange-brown, moist, stiff | | 15.5 | 24 | 8 | | | | |
| | | | | | | | SANDY LEAN CLAY W/GRAVEL<br>pinhole structure | | | | | | | | |
| | 15 | | | | 0.55 | CL | orange-brown, moist, stiff | | | | | | | | |
| 7700 | | | | | | GM | orange-brown, moist — SILTY GRAVEL W/SAND | | | | | | | | |
| | | | | | 0.85 | CL | lt. brown, moist, stiff — LEAN CLAY W/SAND | | | | | | | | |

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**
DISTURBED SAMPLE — Bucket ← Type of Sample; 0.45 ← Torvane (tsf)
UNDISTURBED SAMPLE

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

# TEST PIT LOG

## TEST PIT NO. F-1 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: FUEL / N:74,629 E:38,415
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/7/07
DATE COMPLETED: 9/7/07
GROUND ELEVATION: 7724.0'
LOGGED BY: J. LINDO

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | CL | dk. brown, dry — SANDY LEAN CLAY | | | | | | | | |
| 7720 | 5 | | | | | SC-SM | brown, slightly moist, loose — SILTY CLAYEY SAND W/GRAVEL coal layers (fill) | 89.3 | 6.2 | | | | | | |
| | | | | | | SC-SM | brown, slightly moist, loose | 91.3 | 5.6 | 22 | 4 | 18 | 42 | 40 | |
| 7715 | 10 | | | | | CL-ML/ SC-SM | dk. brown, slightly moist — SANDY SILTY CLAY TO SILTY CLAYEY SAND | | 6.1 | 21 | 5 | | | | |
| | | | | | | SM | lt. brown, slightly moist — SILTY SAND W/GRAVEL more gravel w/depth | | | | | | | | |
| 7710 | 15 | | | | | GM | lt. brown, slightly moist, dense — SILTY GRAVEL W/SAND | | | | | | | | |
| 7705 | | | | | | | | | | | | | | | |

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**

DISTURBED SAMPLE — Bucket ← Type of Sample; 0.45 ← Torvane (tsf)

UNDISTURBED SAMPLE

**OTHER TESTS**
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

Table 1

# SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

| HOLE NO. | DEPTH BELOW GROUND SURFACE (ft) | STANDARD PENETRATION BLOWS PER FOOT | IN-PLACE | | UNCONFINED COMPRESSIVE STRENGTH (psf) | ATTERBERG LIMITS | | | MECHANICAL ANALYSIS | | | UNIFIED SOIL CLASSIFICATION SYSTEM (modified) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DRY UNIT WEIGHT (pcf) | MOISTURE (%) | | LIQUID LIMIT (%) | PLASTIC LIMIT (%) | PLASTICITY INDEX (%) | PERCENT GRAVEL | PERCENT SAND | PERCENT SILT & CLAY | |
| CV-2-1 TH | 3 | Grab | 95.0 | 9.0 | | 32 | 15 | 17 | | | | CL-2 |
| | 6 | Grab | | 3.1 | | | | NP | 64 | 23 | 13 | GM |
| CV-2-3 TH | 3 | Grab | 106.1 | 7.6 | 4000+* | 25 | 13 | 12 | | | | CL-1 |
| | 6 | Grab | 88.6 | 6.5 | 4000+* | 23 | 17 | 6 | | | | CL-ML |
| | 9 | Grab | 97.1 | 4.8 | 4000+* | 19 | 15 | 4 | | | | CL-ML / SC-SM |
| CV-5-1 TH | 3 | Grab | 89.8 | 5.8 | 4000+* | 22 | 15 | 7 | | | | CL-1 |
| | 9 | Grab | 90.7 | 7.1 | 4000+* | 21 | 17 | 4 | | | | CL-ML |
| | 12 | Grab | 95.8 | 9.7 | 4000+* | 22 | 12 | 10 | | | | CL-1 |
| | 19 | Grab | | 9.6 | 4000+* | 23 | 13 | 10 | | | | CL-1 |
| CL-5-2 TH | 12 | Grab | 112.7 | 13.8 | 4000+* | 42 | 16 | 26 | | | | CL-2 |
| | 15 | Grab | | 14.1 | 4000+* | 33 | 15 | 18 | | | | CL-2 |
| WSF-1 TH | 6 | Grab | 97.9 | 4.5 | 2827 | 21 | 16 | 5 | | | | CL-ML |
| WSF-2 TH | 3 | Grab | 91.0 | 4.6 | | | | NP | 29 | 45 | 26 | SM |
| | 9 | Grab | | 4.7 | | 19 | 15 | 4 | | | | CL-ML / SC-SM |
| WSF-3 TH | 6 | Grab | 89.6 | 4.6 | | | | NP | 34 | 38 | 28 | SM |
| | 9 | Grab | 96.3 | 10.1 | 3000* | 22 | 14 | 8 | | | | CL-1 |
| | 12 | Grab | | 6.1 | 3320* | | | NP | 34 | 38 | 28 | SM |
| MDF-1 TH | 3 | Grab | 102.7 | 4.9 | | 20 | 16 | 4 | | | | CL-ML / SC-SM |
| | 9 | Grab | 86.6 | 8.4 | 3240* | 25 | 14 | 11 | | | | CL-1 |
| | 18.5 | Grab | 108.7 | 10.8 | 2760* | 23 | 13 | 10 | | | | CL-1 |
| MDF-2 TH | 3 | Grab | 108.6 | 4.6 | | 20 | 15 | 5 | 34 | 38 | 28 | SC-SM |
| | 6 | Grab | 118.5 | 3.8 | | | | NP | 38 | 47 | 15 | SM |
| | 15 | Grab | 94.8 | 9.3 | 3520* | 23 | 14 | 9 | | | | CL-1 |
| MDF-3 TH | 6 | Grab | 102.9 | 5.8 | | | | NP | 34 | 39 | 27 | SM |
| | 15 | Grab | | 7.5 | 4000+* | 22 | 12 | 10 | | | | CL-1 |
| | 18 | Grab | | 5.3 | 4000+* | 21 | 13 | 8 | | | | CL-1 |
| CS-1 TH | 6 | Grab | | | | | | | | | | Coal |
| | 9 | Grab | | 8.8 | 2080* | 23 | 14 | 9 | | | | CL-1 |
| | 12 | Grab | | 15.5 | 2240* | 24 | 16 | 8 | | | | CL-1 |
| F-1 TH | 6 | Grab | 91.3 | 5.6 | | 22 | 18 | 4 | 18 | 42 | 40 | SC-SM |
| | 9 | Grab | | 6.1 | | 21 | 16 | 5 | | | | CL-ML / SC-SM |

NP=Nonplastic
*Toravne value used to estimate unconfined compressive Strength.

# CONVEYOR SECTION-1

BORING PORTAL-1 & TEST PIT TT-1-2

# DRILL HOLE LOG

**BORING NO. PORTAL-1 DRL**

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: TRANSFER TOWER / N:74,072 E:38,924
DRILLING METHOD: SIMCO 2800 / C.F. AUGER & H.Q. CORE W/AIR
DRILLER: S. MCCRAKEN
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 8/31/07
DATE COMPLETED: 8/31/07
GROUND ELEVATION: 7890.6'
LOGGED BY: M. HANSEN

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7890 | | | | | | | | | | | | | | | |
| | | | | 10 | 6,10 | CL-ML | lt. brown, dry — SANDY SILTY CLAY | | | | | | | | |
| | | | | | | GM | lt. brown, dry | | | | | | | | |
| | 5 | | | 13 | Core 55,0 | GM | yellow & lt. brown, dry | | | | | | | | |
| 7885 | | | | | | | INTERBEDDED SILTSTONE & SANDSTONE GRAVELS & COBBLES IN A SANDY SILT MATRIX occasional clay layers to 1" thick | | | | | | | | |
| | | | | 13 | Core 28,0 | GM | yellow & lt. brown, dry | | | | | | | | |
| | 10 | | | | | | | | | | | | | | |
| 7880 | | | | 10 | 5,10,7 | GM | yellow & lt. brown, dry, loose | | 5 | | NP | 55 | 23 | 22 | |
| | | | | 0 | Core 0,0 | - | | | | | | | | | |
| | | | | 9 | 9,5,2 0.39 | CL | gray-brown, slightly moist, firm — LEAN CLAY W/SAND | | | | | | | | |
| | 15 | | | 0 | Core 0,0 | - | | | | | | | | | |
| 7875 | | | | | | | SILTY SANDSTONE VERY HIGHLY WEATHERED | | | | | | | | |
| | | | | 2 | 14,11,10 | GM | yellow, dry | | | | | | | | |
| | | | | | 1.88 | CL | dk. brown, very stiff — LEAN CLAY | | | | | | | | |
| | | | | 18 | Core 100,0 | OH | black, dry | | | | | | | | |
| | 20 | | | 11 | 4,6,10 | OH | black, dry, med. dense — COAL very highly weathered | | 72 | 78 | 4 | 0 | 41 | 59 | |
| 7870 | | | | | | | | | | | | | | | |
| | | | | 0 | Core 0,0 | - | | | | | | | | | |
| | | | | | | | CLAYEY MUDSTONE very highly weathered | | | | | | | | |
| | | | | 42 | Core 117,50 | GM | lt. brown, dry — SANDSTONE more competent w/depth | | | | | | | | |

DH_LOGV3 KINNEYMINE_DH.GPJ US EVAL.GDT 11/1/07

**RB&G ENGINEERING INC.**
PROVO, UTAH

**LEGEND:**

DISTURBED SAMPLE: 2,3,2 ← Blow Count per 6"; 0.45 ← Torvane (tsf)
CORE: CORE 95,60 ← Rock Quality Designation (% RQD); ← Percent Sample Recovery
UNDISTURBED SAMPLE: PUSHED; 0.45 ← Torvane (tsf)

**OTHER TESTS**
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

# TEST PIT LOG

## TEST PIT NO. TT-1-2 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: TRANSFER TOWER / N:74,070 E:38,873
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/5/07
DATE COMPLETED: 9/5/07
GROUND ELEVATION: 7873.1'
LOGGED BY: M.N.H.

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | ML | lt. brown w/some green, dry — SANDY SILT W/ORGANICS | | | | | | | | |
| 7870 | | | | | | CL-ML | lt. brown, dry — SILTY CLAY W/GRAVEL some pinhole structure, flagstone cobbles of sandstone | | | | | | | | |
| | 5 | | | | | GC | dry — COBBLES & GRAVEL W/CLAY | | | | | | | | |
| | | | | | | CL/GC | lt. brown, dry — GRAVELLY CLAY TO CLAYEY GRAVEL | | | | | | | | |
| | | | | | | CL-ML | dk. brown, dry — SILTY CLAY W/GRAVEL | | | | | | | | |
| 7865 | | | | | | GC | lt. brown, dry — GRAVEL W/CLAY cobbles & boulders | | | | | | | | |

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**
DISTURBED SAMPLE
UNDISTURBED SAMPLE
Bucket ← Type of Sample
0.45 ← Torvane (tsf)

**OTHER TESTS**
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

TT-1-DH

## Table 1

# SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

| HOLE NO. | DEPTH BELOW GROUND SURFACE (ft) | STANDARD PENETRATION BLOWS PER FOOT | IN-PLACE | | UNCONFINED COMPRESSIVE STRENGTH (psf) | ATTERBERG LIMITS | | | MECHANICAL ANALYSIS | | | UNIFIED SOIL CLASSIFICATION SYSTEM (modified) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DRY UNIT WEIGHT (pcf) | MOISTURE (%) | | LIQUID LIMIT (%) | PLASTIC LIMIT (%) | PLASTICITY INDEX (%) | PERCENT GRAVEL | PERCENT SAND | PERCENT SILT & CLAY | |
| Portal 1-DRL | 10-11.5 | 17 | | 5.0 | | | | NP | 55 | 23 | 22 | GM |
| | 19-20.5 | 16 | | 72.0 | | 78 | 74 | 4 | 0 | 41 | 59 | OH |
| CV-2-2 DRL | 3-4.5 | 52 | | 3.6 | | | | NP | 15 | 59 | 26 | SM |
| | 9-10.5 | 11 | | 4.9 | | | | NP | 17 | 61 | 22 | SM |
| | 15-16.5 | 19 | | 4.4 | | | | NP | 42 | 49 | 9 | SP-SM |
| | 25-26.5 | 19 | | 10.7 | | 31 | 15 | 16 | | | | CL-2 |
| NS-1 DRL | 6-7.5 | 28 | | 5.3 | | 22 | 13 | 9 | | | | CL-1 |
| | 9-10.5 | 52 | | 6.1 | | 26 | 13 | 13 | | | | CL-1 |
| | 15-16.5 | 46 | | 5.3 | | | | NP | 6 | 25 | 69 | ML |
| | 22.5-24 | 23 | | 11.8 | | 26 | 13 | 13 | | | | CL-1 |
| | 31.5-31.9 | | 109.6 | 18.8 | | | | | | | | CL |
| S-1 DRL | 10-11.5 | 23 | | 7.8 | | 28 | 14 | 14 | | | | CL-1 |
| | 20-21.5 | 19 | | 12.9 | | 24 | 14 | 10 | | | | CL-1 |
| | 30-31.5 | 27 | | 12.8 | | 26 | 14 | 12 | | | | CL-1 |
| | 40-41.5 | 25 | | 17.5 | 6280* | 28 | 15 | 13 | | | | CL-1 |
| | 50-51.5 | 29 | | 16.2 | 5840* | 34 | 15 | 19 | | | | CL-2 |
| | 57 | | 113.9 | 16.3 | | | | | | | | |
| | 66 | | 103.4 | 18.1 | | | | | | | | CL |
| | 70-71.5 | 35 | | 17.2 | 8280* | 35 | 14 | 21 | | | | CL-2 |
| CV-4-1 DRL | 5-6.5 | 21 | | 10.0 | | 25 | 18 | 7 | | | | CL-1 |
| | 10.5-15 | Core | | 9.2 | | 20 | 13 | 7 | 24 | 24 | 52 | CL-1 |
| | 15-16.5 | 55 | | 10.2 | | 21 | 11 | 10 | | | | CL-1 |
| | 21.5-25 | Core | | 11.9 | 3600* | 22 | 12 | 10 | | | | CL-1 |
| | 25-26.5 | 22 | | 13.8 | 2240* | 26 | 10 | 16 | | | | CL-2 |
| | 31.5-35 | Core | | 10.5 | 2220* | 21 | 10 | 11 | | | | CL-1 |
| | 35-36.5 | 9 | | 17.1 | 3200* | 21 | 11 | 10 | | | | CL-1 |
| | 41.5-45 | Core | | 17.1 | | 29 | 13 | 16 | | | | CL-2 |
| | 45-46.5 | 74 | | 14.6 | 3320* | 30 | 14 | 16 | | | | CL-2 |
| | 55-60 | Core | | 12.6 | 4000* | 21 | 14 | 7 | | | | CL-1 |
| | 66.5-70 | Core | | 12.6 | 4000* | 29 | 11 | 18 | 15 | 19 | 66 | CL-2 |
| SC-2 DRL | 23-24 | | | | | 24 | 12 | 12 | | | | CL-1 |

NP=Nonplastic
*Torvane value used to estimate unconfined compressive strength.

# CONVEYOR SECTION-2

TEST PIT CV-2-1, BORING CV-2-2, & TEST PIT CV-2-3

# TEST PIT LOG

## TEST PIT NO. CV-2-1 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: CONVEYOR BENT / N:74,184 E:38,833
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/5/07
DATE COMPLETED: 9/5/07
GROUND ELEVATION: 7862.7'
LOGGED BY: J. BOONE

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | SANDY LEAN CLAY W/GRAVEL ~30% cobbles & boulders | | | | | | | | |
| 7860 | | | | | | CL-2 | brown, slightly moist, stiff | 95 | 9 | 32 | 17 | | | | |
| | | | | | | | COAL | | | | | | | | |
| | 5 | | | | | GM | lt. brown, dry, dense | | 3.1 | | NP | 64 | 23 | 13 | |
| 7855 | | | | | | | COBBLES & BOULDERS IN SILTY SAND MATRIX >80% gravel, cobbles & boulders; fractured & weathered sandstone | | | | | | | | |
| | 10 | | | | | GM | lt. brown, dry, dense | | | | | | | | |
| 7850 | | | | | | | | | | | | | | | |
| | 15 | | | | | - | lt. brown, dry | | | | | | | | |
| | | | | | | | SANDSTONE competent, trackhoe able to excavate w/difficulty | | | | | | | | |
| 7845 | | | | | | | | | | | | | | | |

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**

DISTURBED SAMPLE — Bucket ← Type of Sample; 0.45 ← Torvane (tsf)

UNDISTURBED SAMPLE

**OTHER TESTS**
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

# DRILL HOLE LOG

## BORING NO. CV-2-2 DRL

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: CONVEYOR BENT / N:74,404 E:38,793
DRILLING METHOD: SIMCO 2800 / C.F. AUGER
DRILLER: S. MCCRAKEN
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/1/07
DATE COMPLETED: 9/1/07
GROUND ELEVATION: 7841.2'
LOGGED BY: M. HANSEN

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7840 | 0 | | | | | | | | | | | | | | |
| | | | | 18 | 4,5,5 | CL-ML | gray-brown, dry, firm — SANDY SILTY CLAY | | | | | | | | |
| | | | | | | CL-ML | lt. brown, dry | | | | | | | | |
| | | | | 16 | 9,27,25 | SM | yellow-brown, dry, very dense | | 3.6 | | NP | 15 | 59 | 26 | |
| 7835 | 5 | | | 12 | 30,21,12 | SM | yellow-brown, dry, dense — SILTY SAND W/GRAVEL very highly weathered sandstone | | | | | | | | |
| | | | | 18 | 4,5,6 | SM | yellow-brown, dry, med. dense | | 4.9 | | NP | 17 | 61 | 22 | |
| 7830 | 10 | | | 11 | 3,6,7 | SM | yellow-brown, dry, med. dense | | | | | | | | |
| | | | | 12 | 11,9,10 | SP-SM | lt. brown, dry, med. dense — SAND W/SILT & GRAVEL very highly weathered sandstone | | 4.4 | | NP | 42 | 49 | 9 | |
| 7825 | 15 | | | | | | | | | | | | | | |
| | | | | 11 | 4,5,7 | SP-SM | lt. brown, dry, med. dense | | | | | | | | |
| 7820 | 20 | | | | | | | | | | | | | | |
| | | | | 15 | 4,7,12 | CL-2 | gray-brown, slightly moist, stiff — LEAN CLAY W/SAND very highly weathered mudstone | | 10.7 | 31 | 16 | | | | |
| 7815 | 25 | | | | | | | | | | | | | | |
| | | | | | | CL | yellow-brown, slightly moist, stiff | | | | | | | | |
| | 30 | | | 12 | 7,11,36 | SM | yellow-brown — SILTY SAND W/GRAVEL very highly weathered sandstone | | | | | | | | |
| 7810 | | | | | | | | | | | | | | | |

DH_LOGV3_KINNEYMINE_DH.GPJ_US EVAL.GDT 11/1/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**

DISTURBED SAMPLE — 2,3,2 ← Blow Count per 6" ; 0.45 ← Torvane (tsf)

UNDISTURBED SAMPLE — PUSHED ; 0.45 ← Torvane (tsf)

**OTHER TESTS**
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

# TEST PIT LOG

## TEST PIT NO. CV-2-3 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: CONVEYOR BENT / N:74,617 E:38,738
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/5/07
DATE COMPLETED: 9/5/07
GROUND ELEVATION: 7805.2'
LOGGED BY: J. BOONE

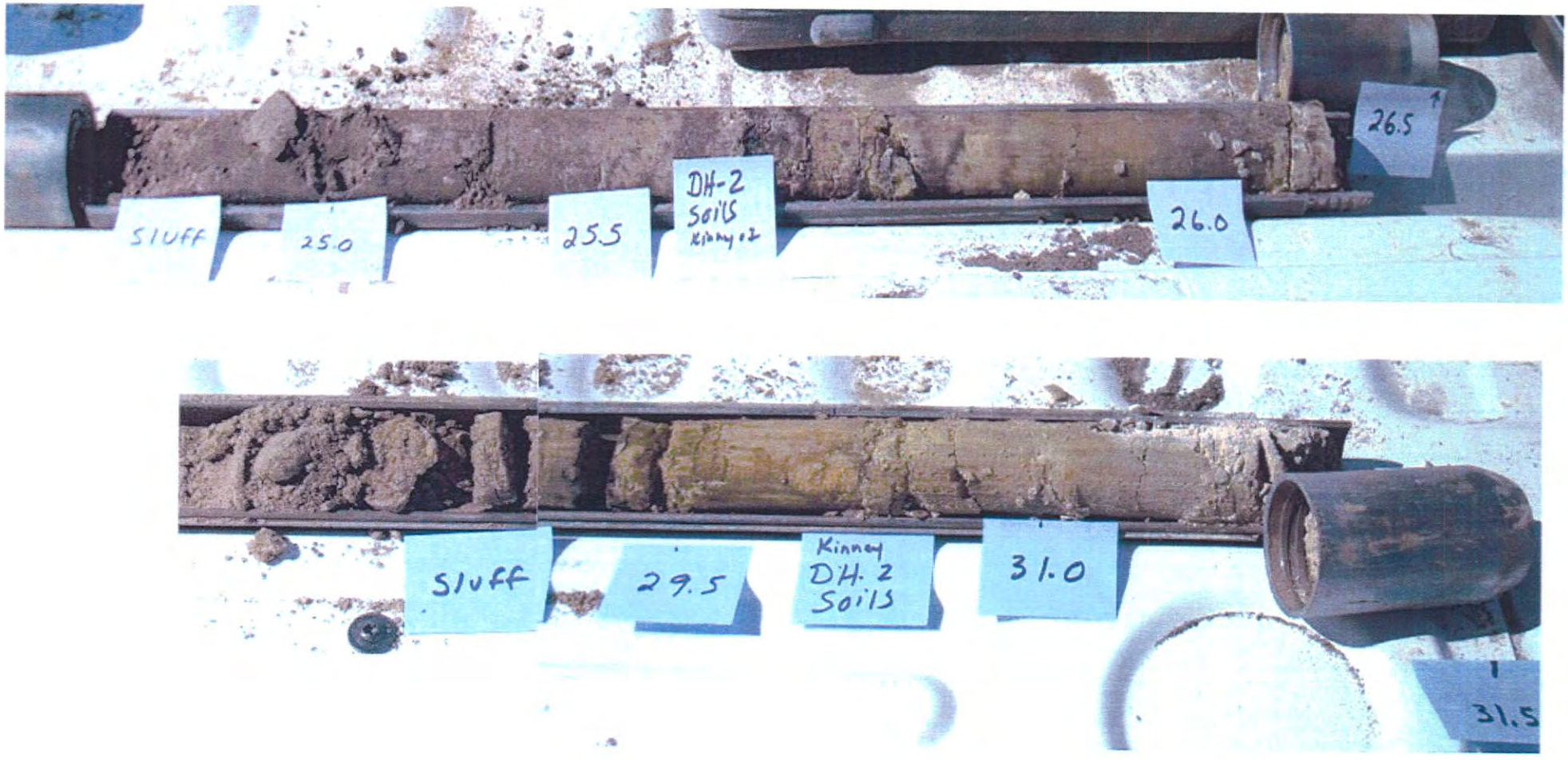
| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7805 | | | | | | | | | | | | | | | |
| | | | | | +1.00 | CL-1 | dk. brown, dry to slightly moist, very stiff — SANDY LEAN CLAY W/GRAVEL (fill) | 106.1 | 7.6 | 25 | 12 | | | | |
| 7800 | 5 | | | | | | COAL & ORGANIC LAYER | | | | | | | | |
| | | | | | +1.00 | CL-ML | lt. brown, dry, very stiff — SANDY SILTY CLAY W/GRAVEL very blocky | 88.6 | 6.5 | 23 | 6 | | | | |
| | | | | | +1.00 | CL-ML/ SC-SM | lt. brown, dry, very stiff — SANDY SILTY CLAY TO SILTY CLAYEY SAND pinhole structure | 97.1 | 4.8 | 19 | 4 | | | | |
| 7795 | 10 | | | | | - | lt. brown, dry, dense — SANDSTONE weathered, becomes more competent w/depth | | | | | | | | |
| 7790 | 15 | | | | | | | | | | | | | | |

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**
DISTURBED SAMPLE
UNDISTURBED SAMPLE
Bucket ← Type of Sample
0.45 ← Torvane (tsf)

**OTHER TESTS**
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio


SIUFF
25.0
25.5
DH-2
SOILS
26.0
26.5
SIUFF
29.5
Kinney
DH. 2
SOILS
31.0
31.5

CV-2

## Table 1

# SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

| HOLE NO. | DEPTH BELOW GROUND SURFACE (ft) | STANDARD PENETRATION BLOWS PER FOOT | IN-PLACE | | UNCONFINED COMPRESSIVE STRENGTH (psf) | ATTERBERG LIMITS | | | MECHANICAL ANALYSIS | | | UNIFIED SOIL CLASSIFICATION SYSTEM (modified) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DRY UNIT WEIGHT (pcf) | MOISTURE (%) | | LIQUID LIMIT (%) | PLASTIC LIMIT (%) | PLASTICITY INDEX (%) | PERCENT GRAVEL | PERCENT SAND | PERCENT SILT & CLAY | |
| Portal 1-DRL | 10-11.5 | 17 | | 5.0 | | | | NP | 55 | 23 | 22 | GM |
| | 19-20.5 | 16 | | 72.0 | | 78 | 74 | 4 | 0 | 41 | 59 | OH |
| CV-2-2 DRL | 3-4.5 | 52 | | 3.6 | | | | NP | 15 | 59 | 26 | SM |
| | 9-10.5 | 11 | | 4.9 | | | | NP | 17 | 61 | 22 | SM |
| | 15-16.5 | 19 | | 4.4 | | | | NP | 42 | 49 | 9 | SP-SM |
| | 25-26.5 | 19 | | 10.7 | | 31 | 15 | 16 | | | | CL-2 |
| NS-1 DRL | 6-7.5 | 28 | | 5.3 | | 22 | 13 | 9 | | | | CL-1 |
| | 9-10.5 | 52 | | 6.1 | | 26 | 13 | 13 | | | | CL-1 |
| | 15-16.5 | 46 | | 5.3 | | | | NP | 6 | 25 | 69 | ML |
| | 22.5-24 | 23 | | 11.8 | | 26 | 13 | 13 | | | | CL-1 |
| | 31.5-31.9 | | 109.6 | 18.8 | | | | | | | | CL |
| S-1 DRL | 10-11.5 | 23 | | 7.8 | | 28 | 14 | 14 | | | | CL-1 |
| | 20-21.5 | 19 | | 12.9 | | 24 | 14 | 10 | | | | CL-1 |
| | 30-31.5 | 27 | | 12.8 | | 26 | 14 | 12 | | | | CL-1 |
| | 40-41.5 | 25 | | 17.5 | 6280* | 28 | 15 | 13 | | | | CL-1 |
| | 50-51.5 | 29 | | 16.2 | 5840* | 34 | 15 | 19 | | | | CL-2 |
| | 57 | | 113.9 | 16.3 | | | | | | | | |
| | 66 | | 103.4 | 18.1 | | | | | | | | CL |
| | 70-71.5 | 35 | | 17.2 | 8280* | 35 | 14 | 21 | | | | CL-2 |
| CV-4-1 DRL | 5-6.5 | 21 | | 10.0 | | 25 | 18 | 7 | | | | CL-1 |
| | 10.5-15 | Core | | 9.2 | | 20 | 13 | 7 | 24 | 24 | 52 | CL-1 |
| | 15-16.5 | 55 | | 10.2 | | 21 | 11 | 10 | | | | CL-1 |
| | 21.5-25 | Core | | 11.9 | 3600* | 22 | 12 | 10 | | | | CL-1 |
| | 25-26.5 | 22 | | 13.8 | 2240* | 26 | 10 | 16 | | | | CL-2 |
| | 31.5-35 | Core | | 10.5 | 2220* | 21 | 10 | 11 | | | | CL-1 |
| | 35-36.5 | 9 | | 17.1 | 3200* | 21 | 11 | 10 | | | | CL-1 |
| | 41.5-45 | Core | | 17.1 | | 29 | 13 | 16 | | | | CL-2 |
| | 45-46.5 | 74 | | 14.6 | 3320* | 30 | 14 | 16 | | | | CL-2 |
| | 55-60 | Core | | 12.6 | 4000* | 21 | 14 | 7 | | | | CL-1 |
| | 66.5-70 | Core | | 12.6 | 4000* | 29 | 11 | 18 | 15 | 19 | 66 | CL-2 |
| SC-2 DRL | 23-24 | | | | | 24 | 12 | 12 | | | | CL-1 |

NP=Nonplastic
*Torvane value used to estimate unconfined compressive strength.

Table 1

# SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

| HOLE NO. | DEPTH BELOW GROUND SURFACE (ft) | STANDARD PENETRATION BLOWS PER FOOT | IN-PLACE | | UNCONFINED COMPRESSIVE STRENGTH (psf) | ATTERBERG LIMITS | | | MECHANICAL ANALYSIS | | | UNIFIED SOIL CLASSIFICATION SYSTEM (modified) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DRY UNIT WEIGHT (pcf) | MOISTURE (%) | | LIQUID LIMIT (%) | PLASTIC LIMIT (%) | PLASTICITY INDEX (%) | PERCENT GRAVEL | PERCENT SAND | PERCENT SILT & CLAY | |
| CV-2-1 TH | 3 | Grab | 95.0 | 9.0 | | 32 | 15 | 17 | | | | CL-2 |
| | 6 | Grab | | 3.1 | | | | NP | 64 | 23 | 13 | GM |
| CV-2-3 TH | 3 | Grab | 106.1 | 7.6 | 4000+* | 25 | 13 | 12 | | | | CL-1 |
| | 6 | Grab | 88.6 | 6.5 | 4000+* | 23 | 17 | 6 | | | | CL-ML |
| | 9 | Grab | 97.1 | 4.8 | 4000+* | 19 | 15 | 4 | | | | CL-ML / SC-SM |
| CV-5-1 TH | 3 | Grab | 89.8 | 5.8 | 4000+* | 22 | 15 | 7 | | | | CL-1 |
| | 9 | Grab | 90.7 | 7.1 | 4000+* | 21 | 17 | 4 | | | | CL-ML |
| | 12 | Grab | 95.8 | 9.7 | 4000+* | 22 | 12 | 10 | | | | CL-1 |
| | 19 | Grab | | 9.6 | 4000+* | 23 | 13 | 10 | | | | CL-1 |
| CL-5-2 TH | 12 | Grab | 112.7 | 13.8 | 4000+* | 42 | 16 | 26 | | | | CL-2 |
| | 15 | Grab | | 14.1 | 4000+* | 33 | 15 | 18 | | | | CL-2 |
| WSF-1 TH | 6 | Grab | 97.9 | 4.5 | 2827 | 21 | 16 | 5 | | | | CL-ML |
| WSF-2 TH | 3 | Grab | 91.0 | 4.6 | | | | NP | 29 | 45 | 26 | SM |
| | 9 | Grab | | 4.7 | | 19 | 15 | 4 | | | | CL-ML / SC-SM |
| WSF-3 TH | 6 | Grab | 89.6 | 4.6 | | | | NP | 34 | 38 | 28 | SM |
| | 9 | Grab | 96.3 | 10.1 | 3000* | 22 | 14 | 8 | | | | CL-1 |
| | 12 | Grab | | 6.1 | 3320* | | | NP | 34 | 38 | 28 | SM |
| MDF-1 TH | 3 | Grab | 102.7 | 4.9 | | 20 | 16 | 4 | | | | CL-ML / SC-SM |
| | 9 | Grab | 86.6 | 8.4 | 3240* | 25 | 14 | 11 | | | | CL-1 |
| | 18.5 | Grab | 108.7 | 10.8 | 2760* | 23 | 13 | 10 | | | | CL-1 |
| MDF-2 TH | 3 | Grab | 108.6 | 4.6 | | 20 | 15 | 5 | 34 | 38 | 28 | SC-SM |
| | 6 | Grab | 118.5 | 3.8 | | | | NP | 38 | 47 | 15 | SM |
| | 15 | Grab | 94.8 | 9.3 | 3520* | 23 | 14 | 9 | | | | CL-1 |
| MDF-3 TH | 6 | Grab | 102.9 | 5.8 | | | | NP | 34 | 39 | 27 | SM |
| | 15 | Grab | | 7.5 | 4000+* | 22 | 12 | 10 | | | | CL-1 |
| | 18 | Grab | | 5.3 | 4000+* | 21 | 13 | 8 | | | | CL-1 |
| CS-1 TH | 6 | Grab | | | | | | | | | | Coal |
| | 9 | Grab | | 8.8 | 2080* | 23 | 14 | 9 | | | | CL-1 |
| | 12 | Grab | | 15.5 | 2240* | 24 | 16 | 8 | | | | CL-1 |
| F-1 TH | 6 | Grab | 91.3 | 5.6 | | 22 | 18 | 4 | 18 | 42 | 40 | SC-SM |
| | 9 | Grab | | 6.1 | | 21 | 16 | 5 | | | | CL-ML / SC-SM |

NP=Nonplastic
*Toravne value used to estimate unconfined compressive Strength.

# CONVEYOR SECTION-3

BORINGS NS-1 & S-1

# DRILL HOLE LOG

## BORING NO. NS-1 DRL

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: NON-SPEC COAL STOCKPILE / N:74,729 E:74,72938,707
DRILLING METHOD: SIMCO 2800 / C.F. AUGER & H.Q. CORE
DRILLER: S. MCCRAKEN
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 8/30/07
DATE COMPLETED: 9/1/07
GROUND ELEVATION: 7785.2'
LOGGED BY: M.N.H., G.L.H.

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 11 | 13,16,16 | CL-ML | gray-brown, dry, very stiff | | | | | | | | |
| | | | | 13 | 7,7,10 | CL-ML | dk. brown, dry, stiff, slight pinhole structure; SANDY SILTY CLAY occasional cobbles | | | | | | | | |
| 7780 | 5 | | | | | | | | | | | | | | |
| | | | | 11 | 11,13,15 | CL-1 | mottled rust & brown, dry, very stiff | | 5.3 | 22 | 9 | | | | |
| | | | | | | | SANDY LEAN CLAY | | | | | | | | |
| 7775 | 10 | | | 15 | 9,24,28 | CL-1 | mottled gray-brown, dry, hard | | 6.1 | 26 | 13 | | | | |
| | | | | 9 | 32,50/3" | GC-GM | gray-brown, dry, dense; SILTY CLAYEY GRAVEL W/SAND possible cobbles | | | | | | | | |
| 7770 | 15 | | | | | OH | black, dry; COAL very highly weathered | | | | | | | | |
| | | | | 13 | 11,19,27 | ML | lt. brown, dry, dense; SANDY SILT very highly weathered siltstone | | 5.3 | | NP | 6 | 25 | 69 | |
| | | | | 5 | 19,50/3" | SM | lt. brown, dry, dense | | | | | | | | |
| | | | | 6 | Core 50,30 | SM | lt. brown, dry; SILTY SAND W/GRAVEL very highly weathered sandstone, more competent w/depth | | | | | | | | |
| 7765 | 20 | | | 0 | Core 0,0 | - | | | | | | | | | |
| | | | | 0 | 0,0 | - | | | | | | | | | |
| | | | | 15 | Core 0,0 | CL-1 | brown, slightly moist, stiff | | 11.8 | 26 | 13 | | | | |
| | | | | | 7,10,13 | | | | | | | | | | |
| 7760 | 25 | | | 2 | 0.80 10,10,14 | CL | brown, slightly moist, stiff; SANDY LEAN CLAY W/GRAVEL | | | | | | | | |
| 7755 | 30 | | | 18 | 5,10,12 | CL | lt. brown, yellow-brown & gray, moist, very stiff | | | | | | | | |
| | | | | 0 | 0.90+ Core 0,0 | - | | 109.6 | 18.8 | | | | | | CT |
| | | | | 30 | Core 1.78 50,0 | CL | lt. brown & yellow-brown, moist, very stiff | | | | | | | | |
| 7750 | 35 | | | 42 | Core 100,0 | CL,GM | tan, dk. gray & yellow-brown, slightly moist, very stiff | | | | | | | | |
| 7745 | 40 | | | 35 | Core 100,0 | CL,GM | lt. brown & yellow-brown, slightly moist; SANDY LEAN CLAY W/GRAVEL sandstone cobbles and/or boulders | | | | | | | | |
| | | | | 25 | Core 72,0 | CL,GM | lt. brown, gray & yellow-brown, slightly moist | | | | | | | | |
| 7740 | 45 | | | 19 | Core 76,0 | CL,GM | lt. brown, rust & gray, slightly moist | | | | | | | | |
| | | | | 36 | Core 97,0 | CL,GM | lt. brown, gray & yellow-brown, slightly moist | | | | | | | | |

DH_LOGV3 KINNEYMINE_DH.GPJ US EVAL.GDT 12/13/07

**RB&G ENGINEERING INC.**
PROVO, UTAH

**LEGEND:**

DISTURBED SAMPLE — 2,3,2 ← Blow Count per 6"; 0.45 ← Torvane (tsf)

CORE — CORE 95,60 ← Rock Quality Designation (% RQD); ← Percent Sample Recovery

UNDISTURBED SAMPLE — PUSHED 0.45 ← Torvane (tsf)

**OTHER TESTS**
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

# DRILL HOLE LOG

## BORING NO. S-1 DRL



PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: SPEC COAL STOCKPILE / N:74,730 E:38,707
DRILLING METHOD: LONGYEAR 44 & CME-2800 / C.F. AUGER & H.Q. CORE
DRILLER: S. MCCRAKEN
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/2/07
DATE COMPLETED: 9/12/07
GROUND ELEVATION: 7784.6'
LOGGED BY: G.L.H., M.N.H

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | Sample USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 12 | 12,16,21 | CL-ML | dk. brown to black, dry, very stiff | | | | | | | | |
| | | | | 18 | 10,11,15 | CL-ML | brown, dry, very stiff, slight pinhole structure | | | | | | | | |
| 7780 | 5 | | | | | | SANDY SILTY CLAY coal & sandstone gravels, occasional cobbles | | | | | | | | |
| 7775 | 10 | | | 18 | 10,13,26 | CL-1 | dk. gray to brown, dry to slightly moist, hard | | 7.8 | 28 | 14 | | | | |
| 7770 | 15 | | | 13 | 10,16,20 | CL | dk. gray to lt. gray-brown, dry to slightly moist, hard | | | | | | | | |
| 7765 | 20 | | | 18 | 7,10,9 | CL-1 | lt. brown to gray, slightly moist, very stiff | | 12.9 | 24 | 10 | | | | |
| 7760 | 25 | | | 18 | 13,10,10 | CL | dk. gray to brown, slightly moist, very stiff | | | | | | | | |
| | | | | | | | SANDY LEAN CLAY W/GRAVEL sandstone cobbles & boulders, sand layers to 3" thick | | | | | | | | |
| 7755 | 30 | | | 18 | 7,10,17 | CL-1 | lt. brown, slightly moist, very stiff | | 12.8 | 26 | 12 | | | | |
| | | | | 34 | Core 2.20 100,0 | CL | lt. orange-brown, slightly moist, very stiff | | | | | | | | |
| 7750 | 35 | | | 0 | Core - | | | | | | | | | | |
| | | | | 2 | 0,0 14,10,11 | CL | rust-brown, very moist, very stiff | | | | | | | | |
| | | | | 22 | Core 1.45 51,29 | CL | gray-brown, moist, very stiff | | | | | | | | |
| 7745 | 40 | | | 8 | 7,13,12 1.57 | CL-1 | orange-brown, moist, very stiff | | 17.5 | 28 | 13 | | | | |
| | | | | 41 | Core 1.63 97,86 | CL | gray-brown, moist, very stiff | | | | | | | | |
| 7740 | 45 | | | 2 | 4,6,7 0.91 | CL | gray, moist, stiff | | | | | | | | |
| | | | | 24 | Core 0.85 57,57 | CL | gray to lt. brown, moist, stiff to very stiff | | | | | | | | |
| 7735 | | | | | | | | | | | | | | | |

DH_LOGV3 KINNEYMINE_DH.GPJ US EVAL.GDT 12/13/07

**LEGEND:**

DISTURBED SAMPLE — 2,3,2 ← Blow Count per 6"; 0.45 ← Torvane (tsf)

CORE — CORE 95,60 ← Rock Quality Designation (% RQD); ← Percent Sample Recovery

UNDISTURBED SAMPLE — PUSHED 0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

RB&G ENGINEERING INC.
PROVO, UTAH

# DRILL HOLE LOG

## BORING NO. S-1 DRL

SHEET 2 OF 2

PROJECT: KINNEY MINE

CLIENT: GEO-HUNT CONSULTING, LLC — PROJECT NUMBER: 200701.045

LOCATION: SPEC COAL STOCKPILE / N:74,730 E:38,707 — DATE STARTED: 9/2/07

DRILLING METHOD: LONGYEAR 44 & CME-2800 / C.F. AUGER & H.Q. CORE — DATE COMPLETED: 9/12/07

DRILLER: S. MCCRAKEN — GROUND ELEVATION: 7784.6'

DEPTH TO WATER - INITIAL: ▽ DRY' — AFTER 24 HOURS: ▼ N.M. — LOGGED BY: G.L.H., M.N.H

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 18 | 8,13,16<br>*1.46* | CL-2 | lt. gray-brown, moist, very stiff | | 16.2 | 34 | 19 | | | | |
| | | | | 42 | Core<br>*100,0* | CL | lt. orange-brown, moist, very stiff<br>SANDY LEAN CLAY W/GRAVEL sandstone cobbles & boulders, sand layers to 3" thick | | | | | | | | |
| 7730 | 55 | | | 18 | 8,19,24<br>*0.90+* | CL | lt. brown, moist, very stiff to hard | | | | | | | | |
| | | | | 42 | Core<br>*1.37*<br>*100,63* | CL | gray to rusty-brown & lt. brown, moist, hard | 113.9 | 16.3 | | | | | | CT |
| 7725 | 60 | | | 22 | Core<br>*0.90*<br>*36,0* | CL | yellow-brown to brown, moist, stiff | | | | | | | | |
| 7720 | 65 | | | 62 | Core<br>*2.37*<br>*104,100* | CL | SANDY LEAN CLAY W/GRAVEL sandstone & mudstone cobbles & boulders<br>gray-brown & yellow-brown, moist, hard | 103.4 | 18.1 | | | | | | CT |
| 7715 | 70 | | | 18 | 10,17,18<br>*2.07* | CL-2 | brown, moist, hard | | 17.2 | 35 | 21 | | | | |
| | | | | 42 | Core<br>*2.14*<br>*100,100* | CL | brown, moist, hard | | | | | | | | |
| 7710 | 75 | | | 18 | 10,19,20<br>*0.90+* | CL | brown to lt. brown, moist, hard | | | | | | | | |
| 7705 | 80 | | | | | | | | | | | | | | |
| 7700 | 85 | | | | | | | | | | | | | | |
| 7695 | 90 | | | | | | | | | | | | | | |
| 7690 | 95 | | | | | | | | | | | | | | |
| 7685 | | | | | | | | | | | | | | | |

DH_LOGV3 KINNEYMINE_DH.GPJ US EVAL.GDT 12/13/07

**LEGEND:**

DISTURBED SAMPLE — 2,3,2 ← Blow Count per 6"; *0.45* ← Torvane (tsf)

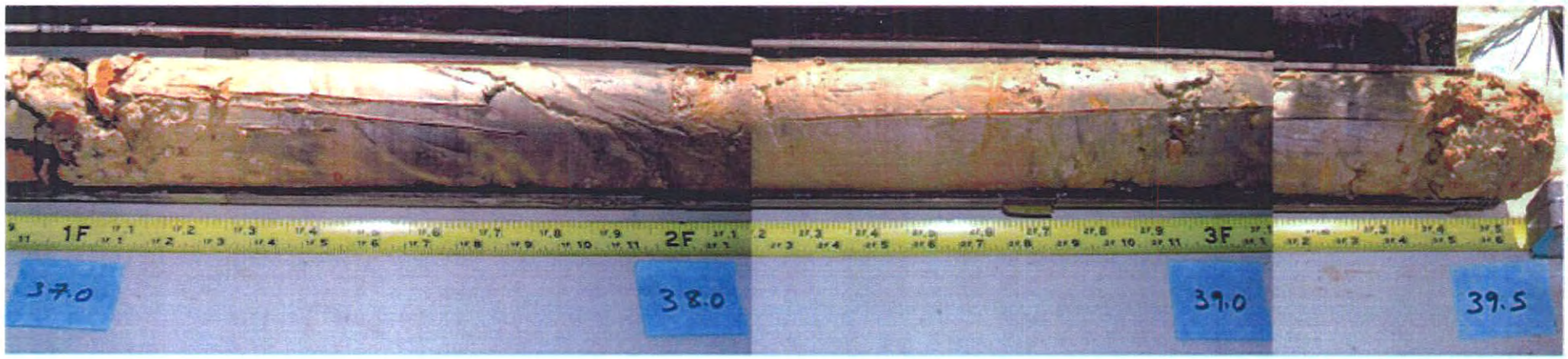
CORE — CORE *95,60* ← Rock Quality Designation (% RQD); Percent Sample Recovery

UNDISTURBED SAMPLE — PUSHED; *0.45* ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

RB&G ENGINEERING INC.
PROVO, UTAH

Photo Loss

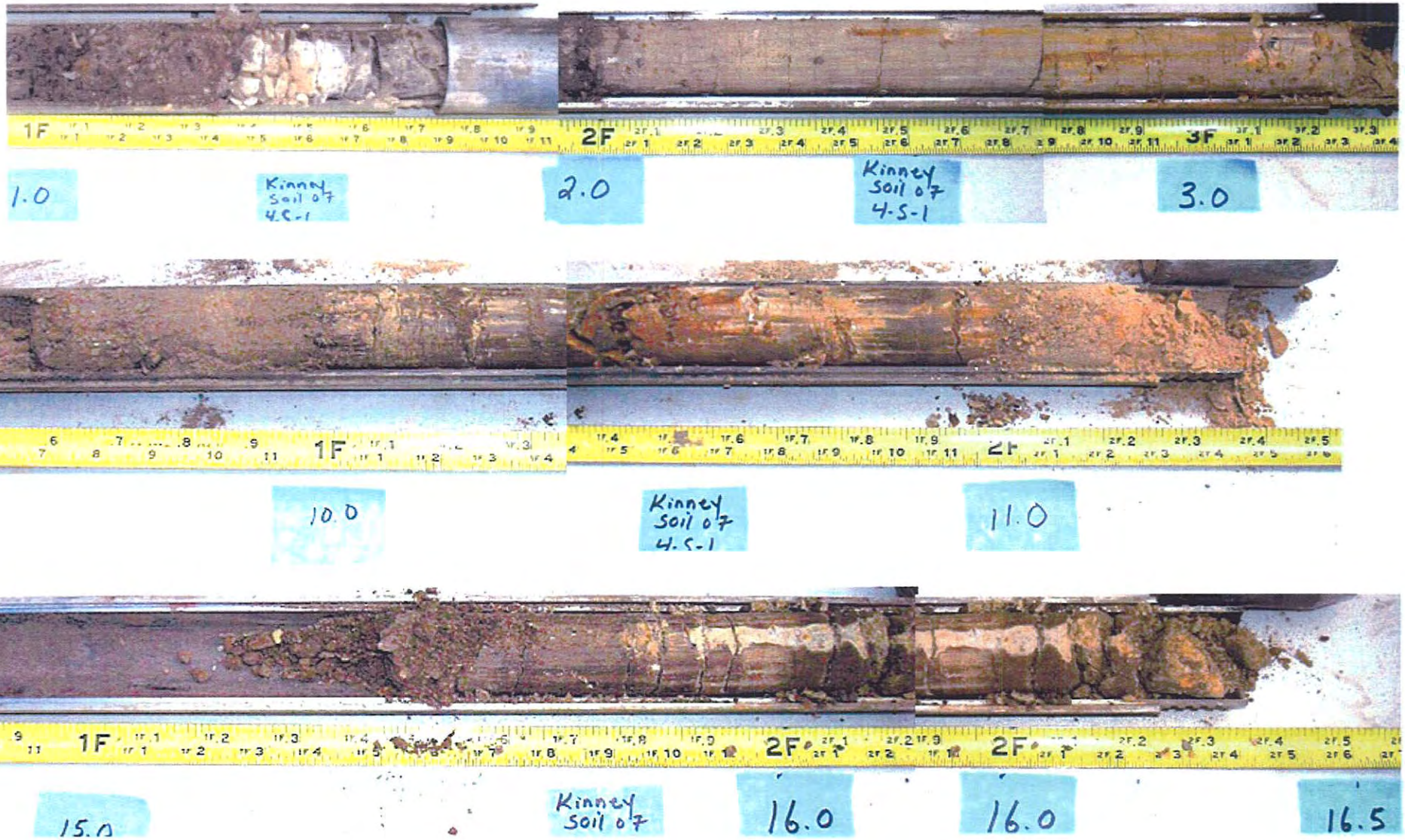


1F
Kinney Soil
3-NS-1

2F
3F
47.0
Kinney Soil 07
3-NS-1
48.0

3F
4F
48.0
Kinney Soil 07
3-NS-1
49.0

4F
5F
9.0
Kinney Soil 07
3-NS-1
50.0


1F
2F
3F
1.0
Kinney Soil 07 4-S-1
2.0
Kinney Soil 07 4-S-1
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2F
10.0
Kinney Soil 07 4-S-1
11.0
1F
2F
2F
15.0
Kinney Soil 07
16.0
16.0
16.5

20.0
Kinney
Soil 07
4-S-1
21.0
21.5
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Kinney
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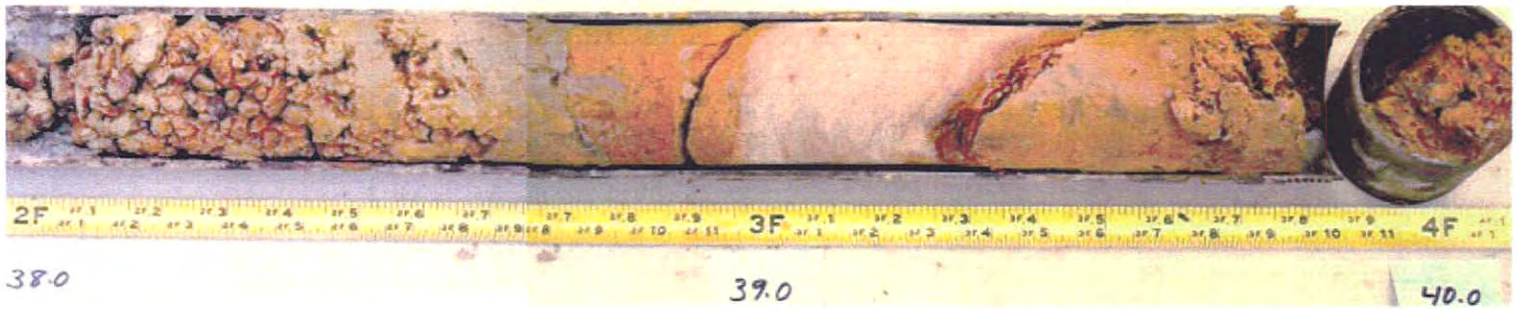
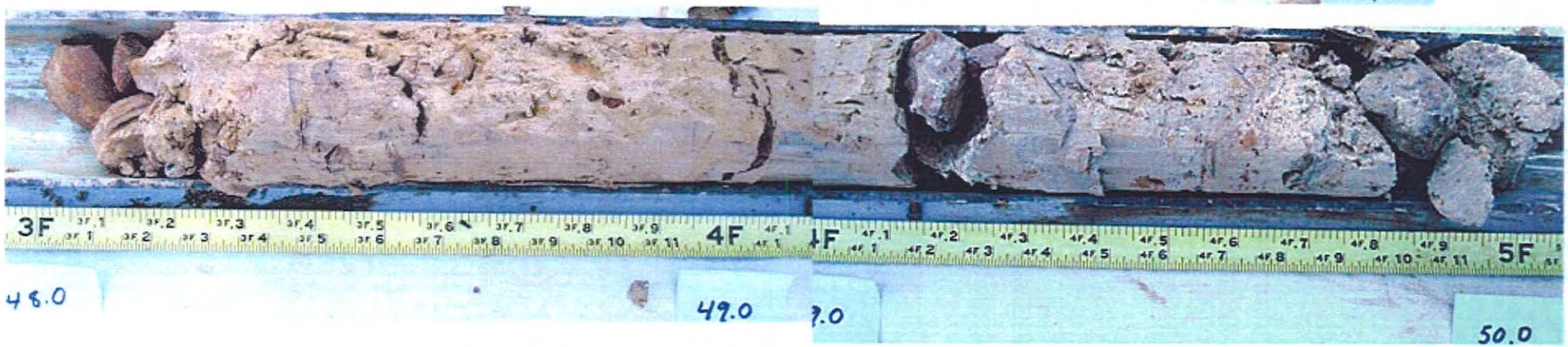
Kinney
Soil 07
4-S-1
31.0
31.5




40.0 - 41.5 Core Loss

Core Loss

Core Loss



51.0
Re-Blast
1F
2F
3F
52.0
53.0

3F
4F
5F
53.0
4-S-1
54.0
55.0

Core Loss

1F
1F
2F
56.5
57.0
57.0
4-S-1
58.0

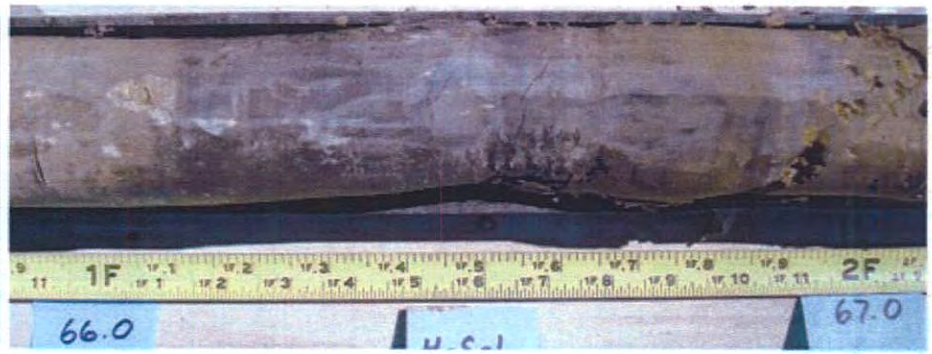
2F
3F
58.0
4-S-1
59.0

3F
4F
59.0
4-S-1
60.0

1F
60.0
4-S-1
61.0

1F
2F
61.0
4-S-1
61.8
Missing
61.8-6

1F
65.0
66.0


1F
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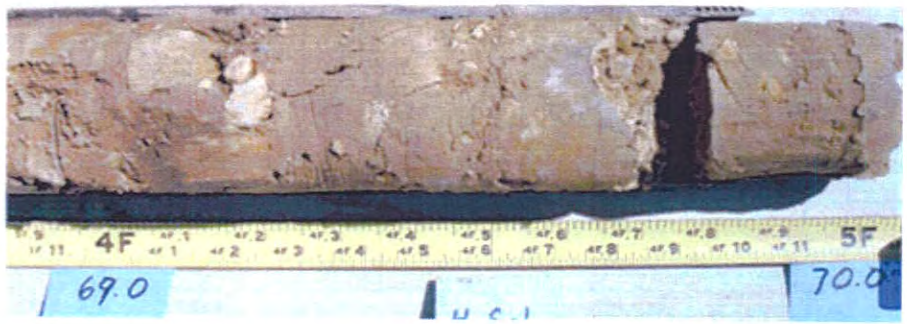
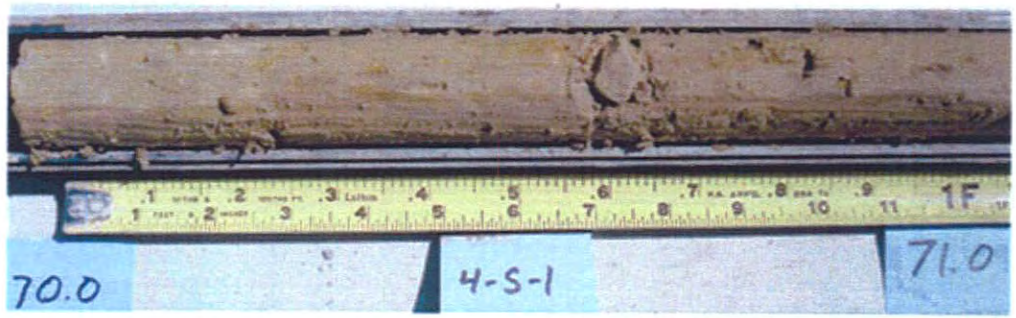
3F
67.0
4-S-1
68.0

3F
4F
68.0
69.0


4F
5F
69.0
70.0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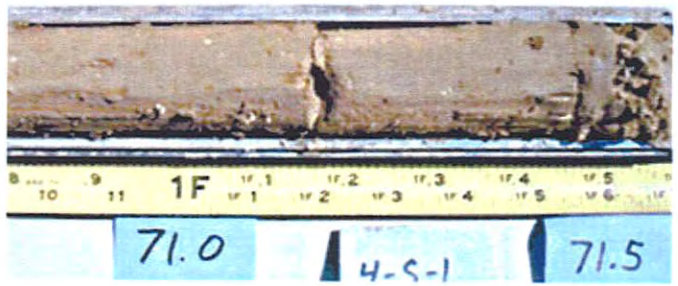
4-S-1
71.0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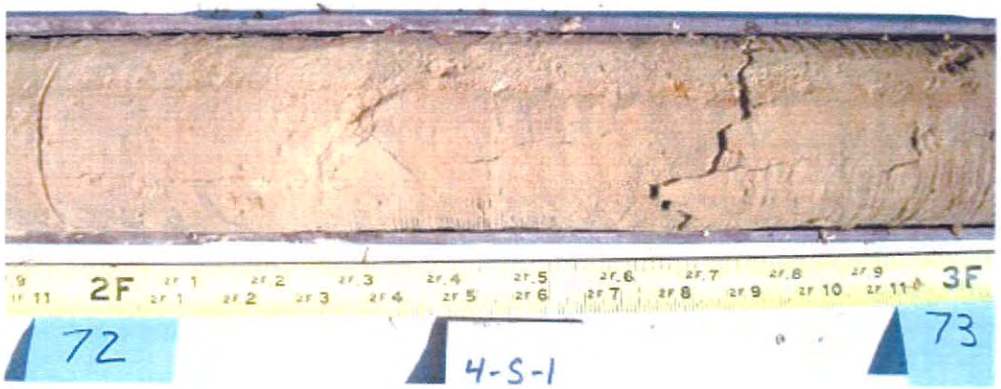
2F
71.5
72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4-S-1
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3F
4F
73
4-S-1
74

4F
5F
74
4-S-1
75.0

1F
75.0
4-S-1
76.0

1F
76.0
4-S-1
76.5

TD

## Table 1

# SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

| HOLE NO. | DEPTH BELOW GROUND SURFACE (ft) | STANDARD PENETRATION BLOWS PER FOOT | IN-PLACE | | UNCONFINED COMPRESSIVE STRENGTH (psf) | ATTERBERG LIMITS | | | MECHANICAL ANALYSIS | | | UNIFIED SOIL CLASSIFICATION SYSTEM (modified) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DRY UNIT WEIGHT (pcf) | MOISTURE (%) | | LIQUID LIMIT (%) | PLASTIC LIMIT (%) | PLASTICITY INDEX (%) | PERCENT GRAVEL | PERCENT SAND | PERCENT SILT & CLAY | |
| Portal 1-DRL | 10-11.5 | 17 | | 5.0 | | | | NP | 55 | 23 | 22 | GM |
| | 19-20.5 | 16 | | 72.0 | | 78 | 74 | 4 | 0 | 41 | 59 | OH |
| CV-2-2 DRL | 3-4.5 | 52 | | 3.6 | | | | NP | 15 | 59 | 26 | SM |
| | 9-10.5 | 11 | | 4.9 | | | | NP | 17 | 61 | 22 | SM |
| | 15-16.5 | 19 | | 4.4 | | | | NP | 42 | 49 | 9 | SP-SM |
| | 25-26.5 | 19 | | 10.7 | | 31 | 15 | 16 | | | | CL-2 |
| NS-1 DRL | 6-7.5 | 28 | | 5.3 | | 22 | 13 | 9 | | | | CL-1 |
| | 9-10.5 | 52 | | 6.1 | | 26 | 13 | 13 | | | | CL-1 |
| | 15-16.5 | 46 | | 5.3 | | | | NP | 6 | 25 | 69 | ML |
| | 22.5-24 | 23 | | 11.8 | | 26 | 13 | 13 | | | | CL-1 |
| | 31.5-31.9 | | 109.6 | 18.8 | | | | | | | | CL |
| S-1 DRL | 10-11.5 | 23 | | 7.8 | | 28 | 14 | 14 | | | | CL-1 |
| | 20-21.5 | 19 | | 12.9 | | 24 | 14 | 10 | | | | CL-1 |
| | 30-31.5 | 27 | | 12.8 | | 26 | 14 | 12 | | | | CL-1 |
| | 40-41.5 | 25 | | 17.5 | 6280* | 28 | 15 | 13 | | | | CL-1 |
| | 50-51.5 | 29 | | 16.2 | 5840* | 34 | 15 | 19 | | | | CL-2 |
| | 57 | | 113.9 | 16.3 | | | | | | | | |
| | 66 | | 103.4 | 18.1 | | | | | | | | CL |
| | 70-71.5 | 35 | | 17.2 | 8280* | 35 | 14 | 21 | | | | CL-2 |
| CV-4-1 DRL | 5-6.5 | 21 | | 10.0 | | 25 | 18 | 7 | | | | CL-1 |
| | 10.5-15 | Core | | 9.2 | | 20 | 13 | 7 | 24 | 24 | 52 | CL-1 |
| | 15-16.5 | 55 | | 10.2 | | 21 | 11 | 10 | | | | CL-1 |
| | 21.5-25 | Core | | 11.9 | 3600* | 22 | 12 | 10 | | | | CL-1 |
| | 25-26.5 | 22 | | 13.8 | 2240* | 26 | 10 | 16 | | | | CL-2 |
| | 31.5-35 | Core | | 10.5 | 2220* | 21 | 10 | 11 | | | | CL-1 |
| | 35-36.5 | 9 | | 17.1 | 3200* | 21 | 11 | 10 | | | | CL-1 |
| | 41.5-45 | Core | | 17.1 | | 29 | 13 | 16 | | | | CL-2 |
| | 45-46.5 | 74 | | 14.6 | 3320* | 30 | 14 | 16 | | | | CL-2 |
| | 55-60 | Core | | 12.6 | 4000* | 21 | 14 | 7 | | | | CL-1 |
| | 66.5-70 | Core | | 12.6 | 4000* | 29 | 11 | 18 | 15 | 19 | 66 | CL-2 |
| SC-2 DRL | 23-24 | | | | | 24 | 12 | 12 | | | | CL-1 |

NP=Nonplastic
*Torvane value used to estimate unconfined compressive strength.

# OTHER LABORATORY TESTING

PROJECT Kinney Mine
LOCATION Scofield, Utah

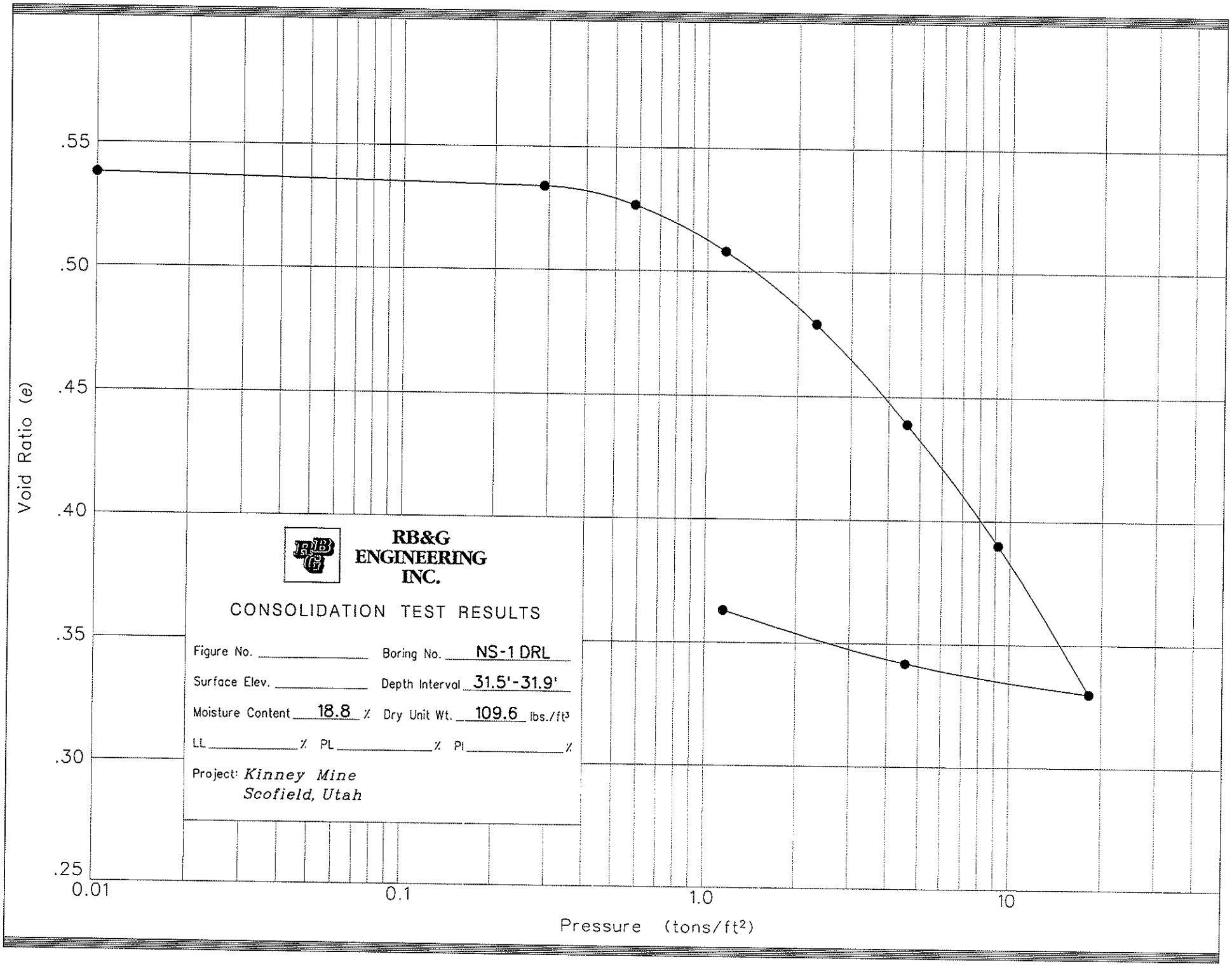
PROJECT NO. 200701-045
FEATURE

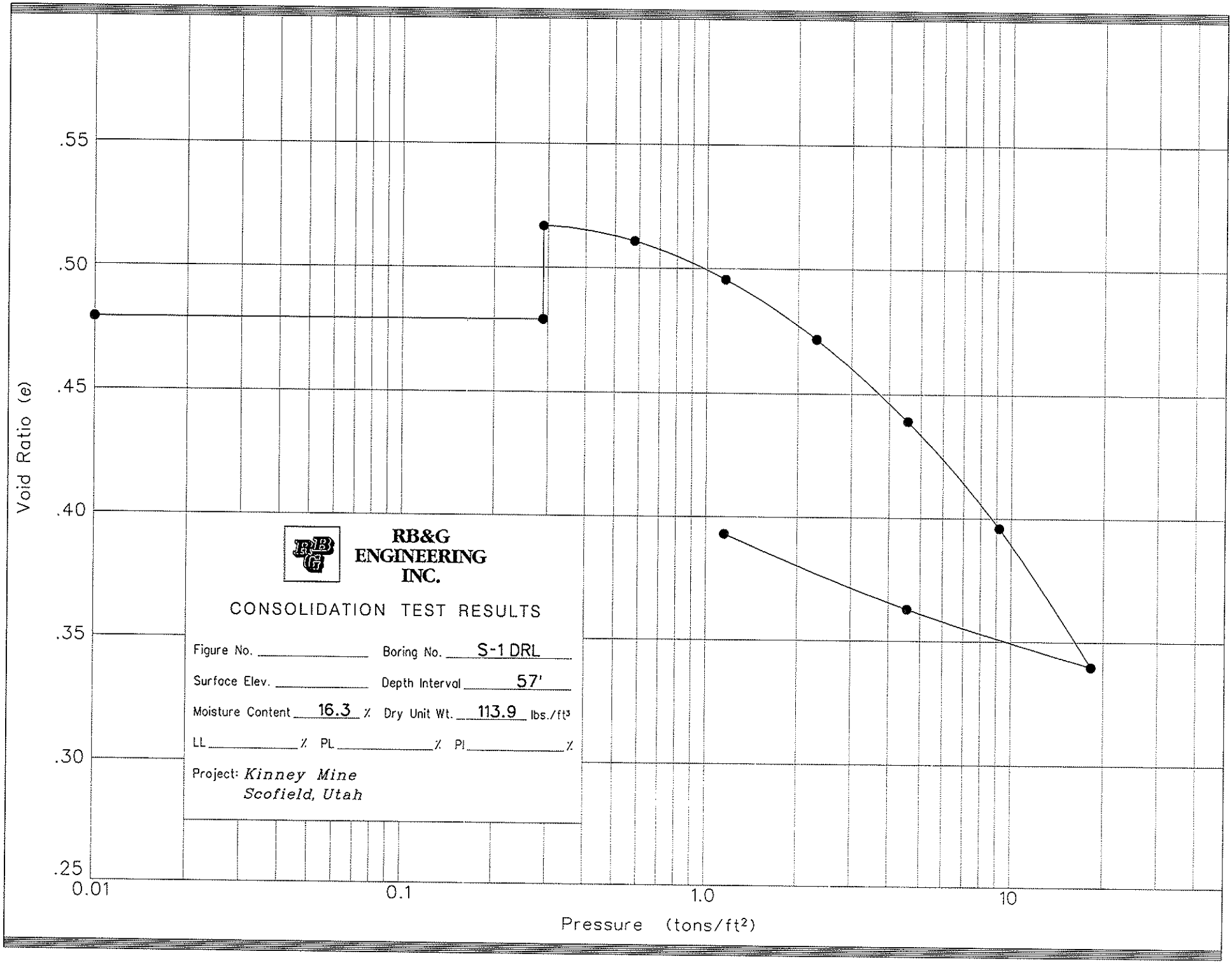
| CHEMICAL TESTS | | | | | |
|---|---|---|---|---|---|
| SAMPLE LOCATION | DEPTH BELOW GROUND SURFACE (ft) | pH | RESISTIVITY (ohm-cm) | SULFATE (%) | USCS (MODIFIED) / AASHTO CLASSIFICATION |
| 3-NS-1 | 6-7.5 | 8.0 | 6761 | 0.0031 | CL-1 |
| 11-MDF-2 | 3 | 8.2 | 7202 | 0.0064 | SC-SM |
| 9-WSF-1 | 6 | 7.3 | 3322 | 0.0195 | CL-ML |
| 13-WSF-2 | 3 | 7.8 | 6502 | 0.0315 | SM |

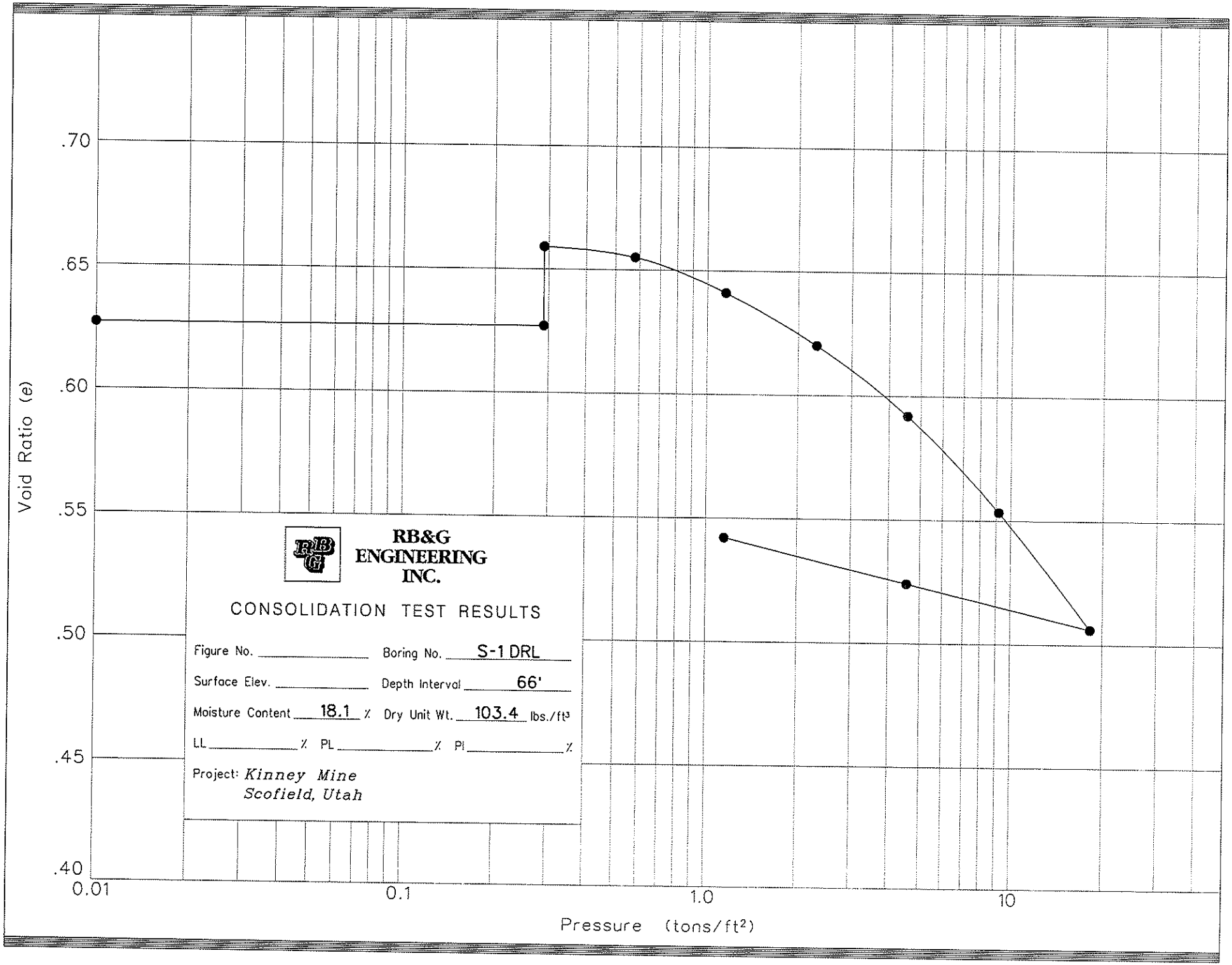
| DIRECT SHEAR TESTS CONSOLIDATED DRAINED | | | | | |
|---|---|---|---|---|---|
| SAMPLE LOCATION | DEPTH BELOW GROUND SURFACE (ft) | DRY DENSITY (pcf) | FRICTION ANGLE $\Phi$ (degrees) | COHESION c (psi) | USCS (MODIFIED) / AASHTO CLASSIFICATION |
| 07-CV-5-1 TH | 12 | 95.8 | 20 | 15 | CL-1 |

| TRIAXIAL SHEAR TESTS MULTI-STAGE CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENTS | | | | | | |
|---|---|---|---|---|---|---|
| SAMPLE LOCATION | DEPTH BELOW GROUND SURFACE (ft) | TOTAL STRESS | | EFFECTIVE STRESS | | USCS (MODIFIED) / AASHTO CLASSIFICATION |
| | | FRICTION ANGLE $\Phi_{(cu)}$ (degrees) | COHESION $c_{(cu)}$ (psi) | FRICTION ANGLE $\Phi$ (degrees) | COHESION c (psi) | |
| CV-4-1 DRL | 20-21.5 | 29.6 | 2 | 36.0 | 2 | CL |
| SC-2 DRL | 23-24 | 32.5 | 2 | 36.7 | 2 | CL-1 |

* Visual Classification
**Bulk Sample


.55
.50
.45
.40
.35
.30
.25
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. NS-1 DRL
Surface Elev. _____ Depth Interval 31.5'-31.9'
Moisture Content 18.8 % Dry Unit Wt. 109.6 lbs./ft³
LL _____ % PL _____ % PI _____ %
Project: Kinney Mine
Scofield, Utah


.55
.50
.45
.40
.35
.30
.25
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. S-1 DRL
Surface Elev. _____ Depth Interval 57'
Moisture Content 16.3 % Dry Unit Wt. 113.9 lbs./ft³
LL _____ % PL _____ % PI _____ %
Project: Kinney Mine
Scofield, Utah


.70
.65
.60
.55
.50
.45
.40
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. S-1 DRL
Surface Elev. _____ Depth Interval 66'
Moisture Content 18.1 % Dry Unit Wt. 103.4 lbs./ft³
LL _____ % PL _____ % PI _____ %
Project: Kinney Mine
Scofield, Utah

# CONVEYOR SECTION-4

BORINGS CV-4-1 & SC-2

# DRILL HOLE LOG

## BORING NO. CV-4-1 DRL



PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: CONVEYOR BENT / N:75,077 E:38,786
DRILLING METHOD: LONGYEAR 44 / H.Q. CORE W/SPLIT SPOON
DRILLER: S. KISSNER
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/13/07
DATE COMPLETED: 9/14/07
GROUND ELEVATION: 7776.3'
LOGGED BY: M. HANSEN

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7775 | | | | 11 | Core 18,0 | CL | brown, dry, very stiff | | | | | | | | |
| | 5 | | | 18 | 9,9,12 | CL-1 | brown, slightly moist, very stiff | | 10 | 25 | 7 | | | | |
| 7770 | | | | 35 | Core 83,0 | CL | very dk. brown to black, slightly moist, very stiff | | | | | | | | |
| | 10 | | | 6 | 55/6" | CL | dk. gray, slightly moist, hard | | | | | | | | |
| 7765 | | | | 42 | Core 0.99+ 78,44 | CL-1 | brown & yellow-brown, slightly moist, very stiff | | 9.2 | 20 | 7 | 24 | 24 | 52 | |
| | 15 | | | 18 | 18,25,30 | CL-1 | brown, slightly moist, hard | | 10.2 | 21 | 10 | | | | |
| 7760 | | | | 42 | Core 100,57 | CL | brown, slightly moist, hard | | | | | | | | |
| | 20 | | | 18 | 17,27,41 0.90+ | CL | brown, slightly moist, hard, weathered coal in sample | | | | | | | | TS |
| 7755 | | | | | | | SANDY LEAN CLAY W/GRAVEL sandstone cobbles & boulders | | | | | | | | |
| | | | | 38 | Core 91,69 | CL-1 | brown & dk. gray, moist, hard | | 11.9 | 22 | 10 | | | | |
| | 25 | | | 14 | 7,11,11 0.56 | CL-2 | brown, moist, stiff to very stiff | | 13.8 | 26 | 16 | | | | |
| 7750 | | | | 38 | Core 0.79 91,0 | CL | brown, moist, stiff to very stiff | | | | | | | | |
| | 30 | | | 18 | 5,5,8 0.55 0.58 | CL | brown, moist, stiff | | | | | | | | |
| 7745 | | | | 22 | Core 0.69 51,0 | CL-1 | brown, moist, stiff | | 10.5 | 21 | 11 | | | | |
| | 35 | | | 18 | 3,4,5 0.80 | CL-1 | brown, moist, stiff | | 17.1 | 21 | 10 | | | | |
| 7740 | | | | 19 | Core 0.42 0.77 46,0 | CL | brown & yellow-brown, moist, stiff | | | | | | | | |
| | 40 | | | 10 | 9,12,15 | CL | brown, moist, stiff | | | | | | | | |
| 7735 | | | | 42 | Core 0.90+ 100,0 | CL-2 | green-gray, yellow-brown & gray to black, moist, very stiff | | 17.1 | 29 | 16 | | | | |
| | 45 | | | 13 | 20,18,56 0.83 | CL-2 | lt. gray to brown, moist, stiff to very stiff | | 14.6 | 30 | 16 | | | | |
| 7730 | | | | | | | GRAVELLY LEAN CLAY W/SAND sandstone cobbles & boulders | | | | | | | | |
| | | | | 42 | Core 0.90+ 100,29 | CL | dk. gray & brown, moist, very stiff | | | | | | | | |

DH_LOGV3 KINNEYMINE_DH.GPJ US EVAL.GDT 10/30/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**

DISTURBED SAMPLE — 2,3,2 ← Blow Count per 6"; 0.45 ← Torvane (tsf)
CORE — CORE 95,60 ← Rock Quality Designation (% RQD); Percent Sample Recovery
UNDISTURBED SAMPLE — PUSHED 0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

# DRILL HOLE LOG

## BORING NO. CV-4-1 DRL



PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: CONVEYOR BENT / N:75,077 E:38,786
DRILLING METHOD: LONGYEAR 44 / H.Q. CORE W/SPLIT SPOON
DRILLER: S. KISSNER
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/13/07
DATE COMPLETED: 9/14/07
GROUND ELEVATION: 7776.3'
LOGGED BY: M. HANSEN

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7776 | | | | 4 | 50/4" | CL | brown, very moist, hard | | | | | | | | |
| 7725 | | | Core | 37 | 0.99+ 67,18 | CL | brown & yellow-brown, moist to very moist, very stiff | | | | | | | | |
| | 55 | | | 0 | 30/0" | - | GRAVELLY LEAN CLAY W/SAND sandstone cobbles & boulders | | | | | | | | |
| 7720 | | | Core | 60 | 0.99+ 100,0 | CL-1 | brown & yellow-brown, very moist, hard | | 12.6 | 21 | 7 | | | | |
| | 60 | | | 18 | 8,20,41 0.90+ | CL | brown, moist, very stiff | | | | | | | | |
| 7715 | | | Core | 42 | 100,0 | CL | brown to dk. gray-brown, moist, very stiff | | | | | | | | |
| | 65 | | | 9 | 13,40,54 0.90+ | CL | brown to rusty-brown, moist, hard | | | | | | | | |
| 7710 | | | Core | 42 | 0.99+ 100,0 | CL-2 | GRAVELLY LEAN CLAY W/SAND TO SANDY LEAN CLAY W/GRAVEL sandstone cobbles & boulders<br>brown, moist, hard | | 12.6 | 29 | 18 | | | | |
| | 70 | | | 16 | 12,33,52 0.90+ | CL | brown, moist, hard | | | | | | | | |
| 7705 | | | | | | | | | | | | | | | |
| | 75 | | | | | | | | | | | | | | |
| 7700 | | | | | | | | | | | | | | | |
| | 80 | | | | | | | | | | | | | | |
| 7695 | | | | | | | | | | | | | | | |
| | 85 | | | | | | | | | | | | | | |
| 7690 | | | | | | | | | | | | | | | |
| | 90 | | | | | | | | | | | | | | |
| 7685 | | | | | | | | | | | | | | | |
| | 95 | | | | | | | | | | | | | | |
| 7680 | | | | | | | | | | | | | | | |

DH_LOGV3 KINNEYMINE_DH.GPJ US EVAL.GDT 10/30/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**

DISTURBED SAMPLE
2,3,2 ← Blow Count per 6"
0.45 ← Torvane (tsf)

CORE
CORE 95,60 ← Rock Quality Designation (% RQD)
Percent Sample Recovery

UNDISTURBED SAMPLE
PUSHED 0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

# DRILL HOLE LOG

## BORING NO. SC-2 DRL

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: SCREENING & CRUSHING / N:75,227 E:38,820
DRILLING METHOD: LONGYEAR 44 & CME-2800 / C.F. AUGER & H.Q. CORE
DRILLER: S. MCCRAKEN
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/14/07
DATE COMPLETED: 9/14/07
GROUND ELEVATION: 7741.2'
LOGGED BY: M.N.H., G.L.H.

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7740 | 0 | | | | | | NOT SAMPLED | | | | | | | | |
| 7735 | 5 | | | | | | | | | | | | | | |
| 7730 | 10 | | | | | | | | | | | | | | |
| 7725 | 15 | | | | | | | | | | | | | | |
| 7720 | 20 | | | 16 | 11,12,13<br>0.66 | CL | brown, slightly moist, stiff | | | | | | | | |
| | | | | 14 | Core<br>34,0 | CL-1 | brown, slightly moist, stiff SANDY LEAN CLAY W/GRAVEL sandstone cobbles | 115.6 | 15.3 | 24 | 12 | | | | TS |
| 7715 | 25 | | | 18 | 5,6,10<br>0.52 | CL | brown, slightly moist, stiff | | | | | | | | |
| | | | | 19 | Core<br>46,0 | CL-ML | brown, slightly moist, stiff SANDY SILTY CLAY W/GRAVEL sandstone cobbles | 123.8 | 11.3 | 18 | 5 | | | | CT |
| 7710 | 30 | | | 18 | 9,9,15<br>0.25<br>0.57 | CL | brown, slightly moist, firm to stiff SANDY LEAN CLAY W/GRAVEL sandstone cobbles | | | | | | | | |

DH_LOGV3 KINNEYMINE_DH.GPJ US EVAL.GDT 11/16/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**

DISTURBED SAMPLE: 2,3,2 ← Blow Count per 6"; 0.45 ← Torvane (tsf)
CORE: CORE 95,60 ← Rock Quality Designation (% RQD); ← Percent Sample Recovery
UNDISTURBED SAMPLE: PUSHED 0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

1F
5
5-CV-4
6

2F
3F
5-CV-4
8

3F
4F
8
5-CV-4
9

4F
5F
9
10

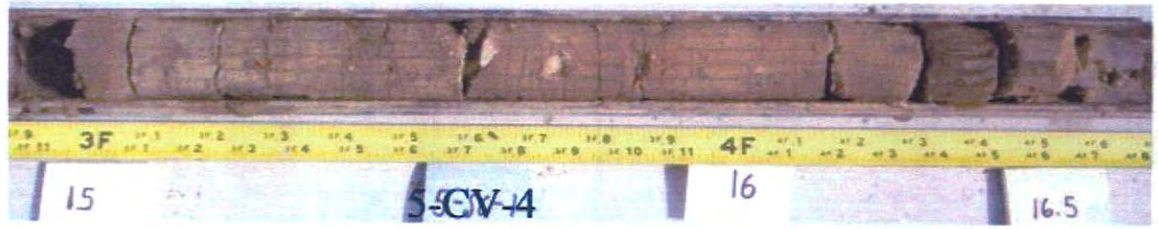
10
5-CV-4
10.5

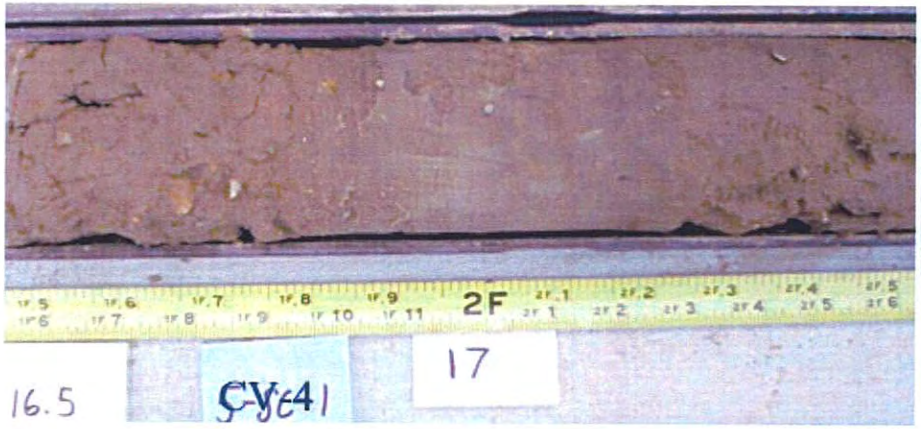
2F
10.5
11
5-CV-4
12

2F
3F
12
13

3F
4F
13
14

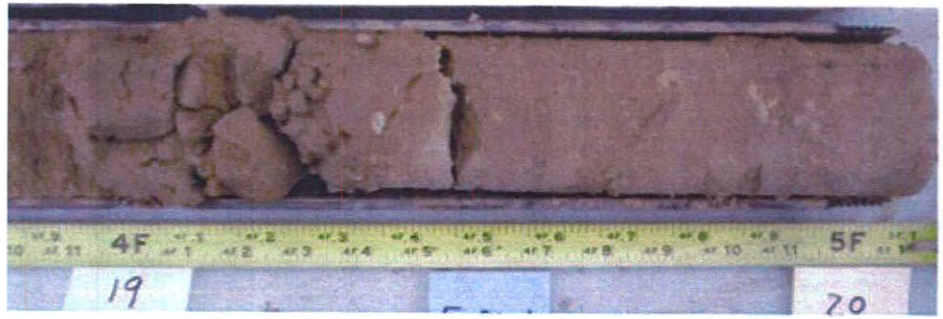
4F
5F
14
15


3F
4F
15
5-CV-4
16
16.5


16.5
CV-4-1
17

17
CV-4-1
18

18
CV-4-1
19


19
20

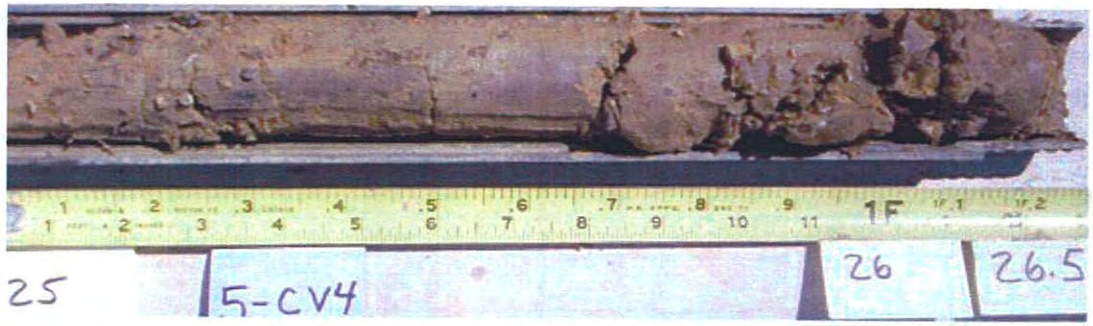
20
CV-4
21
21.5

22

2F
3F
22
23

3F
4F
23
24

4F
5F
24
25


1F
25
5-CV4
26
26.5

2F
5-CV4
27

2F
3F
27
5-CV4
28

3F
4F
28
29

4F
5F
29
5-CV4
30

30'
1F
31.5'

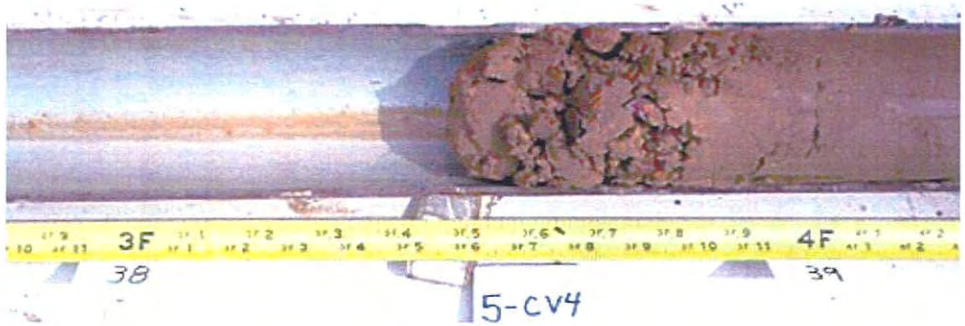
31.5'
2F
32
5-CV4
3F
33

4F
34
5-CV4

4F
5F
34
35'

1F
5-CV4
36.5

2F
3F
36.5'
37
5-CV4


3F
4F
38
5-CV4
39

4F
5F
39
5-CV4
40

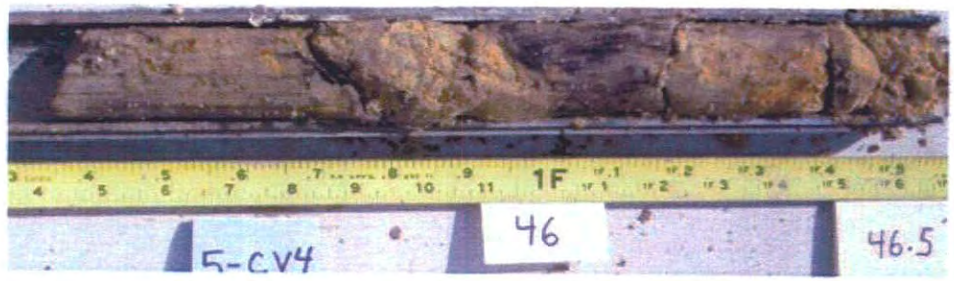
1F
5-CV4
41.5

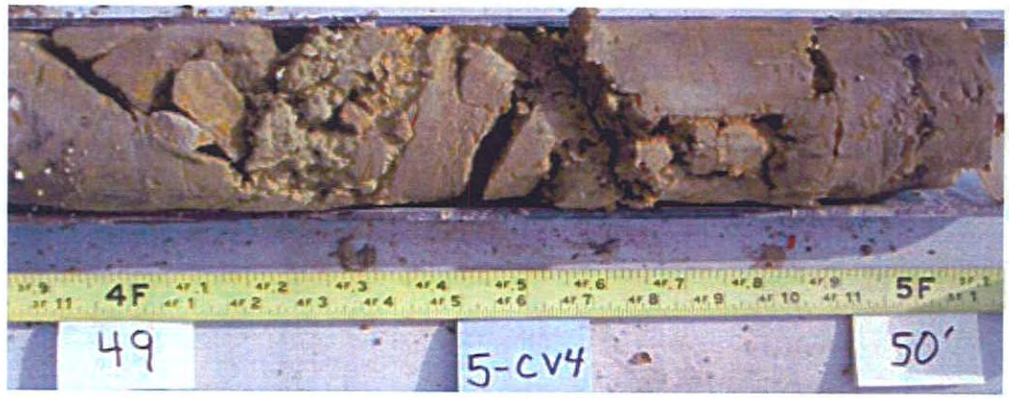
2F
41.5
5-CV4
42

2F
3F
42
5-CV4
43

3F
4F
43
5-CV4
44

4F
5F
44
5-CV4
45'


1F
5-CV4
46
46.5




TD

SCF-1

## Table 1

# SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

| HOLE NO. | DEPTH BELOW GROUND SURFACE (ft) | STANDARD PENETRATION BLOWS PER FOOT | IN-PLACE | | UNCONFINED COMPRESSIVE STRENGTH (psf) | ATTERBERG LIMITS | | | MECHANICAL ANALYSIS | | | UNIFIED SOIL CLASSIFICATION SYSTEM (modified) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DRY UNIT WEIGHT (pcf) | MOISTURE (%) | | LIQUID LIMIT (%) | PLASTIC LIMIT (%) | PLASTICITY INDEX (%) | PERCENT GRAVEL | PERCENT SAND | PERCENT SILT & CLAY | |
| Portal 1-DRL | 10-11.5 | 17 | | 5.0 | | | | NP | 55 | 23 | 22 | GM |
| | 19-20.5 | 16 | | 72.0 | | 78 | 74 | 4 | 0 | 41 | 59 | OH |
| CV-2-2 DRL | 3-4.5 | 52 | | 3.6 | | | | NP | 15 | 59 | 26 | SM |
| | 9-10.5 | 11 | | 4.9 | | | | NP | 17 | 61 | 22 | SM |
| | 15-16.5 | 19 | | 4.4 | | | | NP | 42 | 49 | 9 | SP-SM |
| | 25-26.5 | 19 | | 10.7 | | 31 | 15 | 16 | | | | CL-2 |
| NS-1 DRL | 6-7.5 | 28 | | 5.3 | | 22 | 13 | 9 | | | | CL-1 |
| | 9-10.5 | 52 | | 6.1 | | 26 | 13 | 13 | | | | CL-1 |
| | 15-16.5 | 46 | | 5.3 | | | | NP | 6 | 25 | 69 | ML |
| | 22.5-24 | 23 | | 11.8 | | 26 | 13 | 13 | | | | CL-1 |
| | 31.5-31.9 | | 109.6 | 18.8 | | | | | | | | CL |
| S-1 DRL | 10-11.5 | 23 | | 7.8 | | 28 | 14 | 14 | | | | CL-1 |
| | 20-21.5 | 19 | | 12.9 | | 24 | 14 | 10 | | | | CL-1 |
| | 30-31.5 | 27 | | 12.8 | | 26 | 14 | 12 | | | | CL-1 |
| | 40-41.5 | 25 | | 17.5 | 6280* | 28 | 15 | 13 | | | | CL-1 |
| | 50-51.5 | 29 | | 16.2 | 5840* | 34 | 15 | 19 | | | | CL-2 |
| | 57 | | 113.9 | 16.3 | | | | | | | | |
| | 66 | | 103.4 | 18.1 | | | | | | | | CL |
| | 70-71.5 | 35 | | 17.2 | 8280* | 35 | 14 | 21 | | | | CL-2 |
| CV-4-1 DRL | 5-6.5 | 21 | | 10.0 | | 25 | 18 | 7 | | | | CL-1 |
| | 10.5-15 | Core | | 9.2 | | 20 | 13 | 7 | 24 | 24 | 52 | CL-1 |
| | 15-16.5 | 55 | | 10.2 | | 21 | 11 | 10 | | | | CL-1 |
| | 21.5-25 | Core | | 11.9 | 3600* | 22 | 12 | 10 | | | | CL-1 |
| | 25-26.5 | 22 | | 13.8 | 2240* | 26 | 10 | 16 | | | | CL-2 |
| | 31.5-35 | Core | | 10.5 | 2220* | 21 | 10 | 11 | | | | CL-1 |
| | 35-36.5 | 9 | | 17.1 | 3200* | 21 | 11 | 10 | | | | CL-1 |
| | 41.5-45 | Core | | 17.1 | | 29 | 13 | 16 | | | | CL-2 |
| | 45-46.5 | 74 | | 14.6 | 3320* | 30 | 14 | 16 | | | | CL-2 |
| | 55-60 | Core | | 12.6 | 4000* | 21 | 14 | 7 | | | | CL-1 |
| | 66.5-70 | Core | | 12.6 | 4000* | 29 | 11 | 18 | 15 | 19 | 66 | CL-2 |
| SC-2 DRL | 23-24 | | | | | 24 | 12 | 12 | | | | CL-1 |

NP=Nonplastic
*Torvane value used to estimate unconfined compressive strength.

# OTHER LABORATORY TESTING

PROJECT Kinney Mine
LOCATION Scofield, Utah

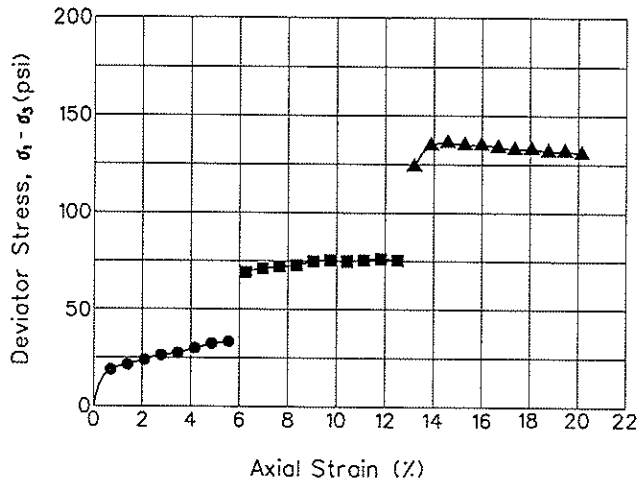
PROJECT NO. 200701-045
FEATURE

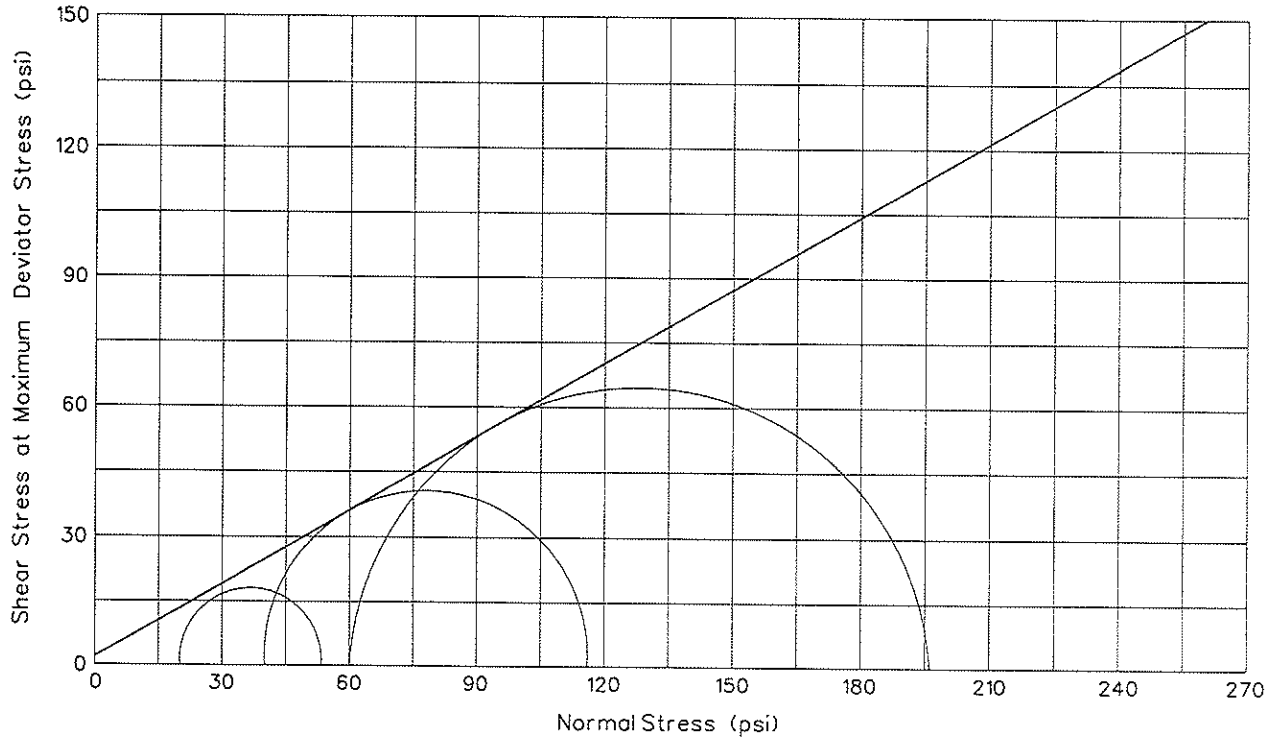
| CHEMICAL TESTS | | | | | |
|---|---|---|---|---|---|
| SAMPLE LOCATION | DEPTH BELOW GROUND SURFACE (ft) | pH | RESISTIVITY (ohm-cm) | SULFATE (%) | USCS (MODIFIED) / AASHTO CLASSIFICATION |
| 3-NS-1 | 6-7.5 | 8.0 | 6761 | 0.0031 | CL-1 |
| 11-MDF-2 | 3 | 8.2 | 7202 | 0.0064 | SC-SM |
| 9-WSF-1 | 6 | 7.3 | 3322 | 0.0195 | CL-ML |
| 13-WSF-2 | 3 | 7.8 | 6502 | 0.0315 | SM |

| DIRECT SHEAR TESTS CONSOLIDATED DRAINED | | | | | |
|---|---|---|---|---|---|
| SAMPLE LOCATION | DEPTH BELOW GROUND SURFACE (ft) | DRY DENSITY (pcf) | FRICTION ANGLE $\Phi$ (degrees) | COHESION c (psi) | USCS (MODIFIED) / AASHTO CLASSIFICATION |
| 07-CV-5-1 TH | 12 | 95.8 | 20 | 15 | CL-1 |

| TRIAXIAL SHEAR TESTS MULTI-STAGE CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENTS | | | | | | |
|---|---|---|---|---|---|---|
| SAMPLE LOCATION | DEPTH BELOW GROUND SURFACE (ft) | TOTAL STRESS | | EFFECTIVE STRESS | | USCS (MODIFIED) / AASHTO CLASSIFICATION |
| | | FRICTION ANGLE $\Phi_{(cu)}$ (degrees) | COHESION $c_{(cu)}$ (psi) | FRICTION ANGLE $\Phi$ (degrees) | COHESION c (psi) | |
| CV-4-1 DRL | 20-21.5 | 29.6 | 2 | 36.0 | 2 | CL |
| SC-2 DRL | 23-24 | 32.5 | 2 | 36.7 | 2 | CL-1 |

* Visual Classification
**Bulk Sample




MULTI-STAGE CONSOLIDATED UNDRAINED W/PORE PRESSURE MEASUREMENTS:
TOTAL STRESS FAILURE ENVELOPE

| Test No. or Symbol | Sample Data | | Degree of Saturation (%) | Confining Pressure (psi) | Maximum Deviator Stress (psi) | Strength Values at Failure | | Sample Size, L/D (inches) | Strain Rate (inches/minute) |
|---|---|---|---|---|---|---|---|---|---|
| | Dry Density (pcf) | Moisture Content (%) | | | | Friction Angle $\phi$ (degrees) | Cohesion (c/psi) | | |
| ● | 115.0 | 7.8 | ~100 | 20 | 53.4 | 29.6 | 2 | 2.88/1.38 | 0.001 |
| ■ | 115.0 | 7.8 | ~100 | 40 | 116.1 | | | | |
| ▲ | 115.0 | 7.8 | ~100 | 60 | 196.1 | | | | |
| | | | | | | | | | |

MATERIAL: SANDY LEAN CLAY (CL)

RB&G ENGINEERING INC.
Provo, Utah

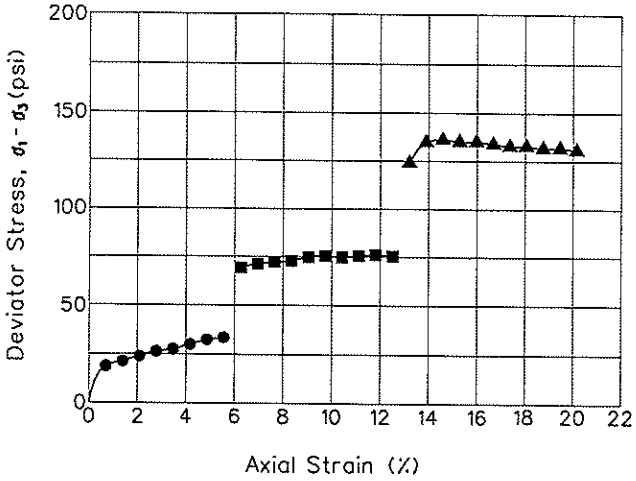
TRIAXIAL SHEAR TEST

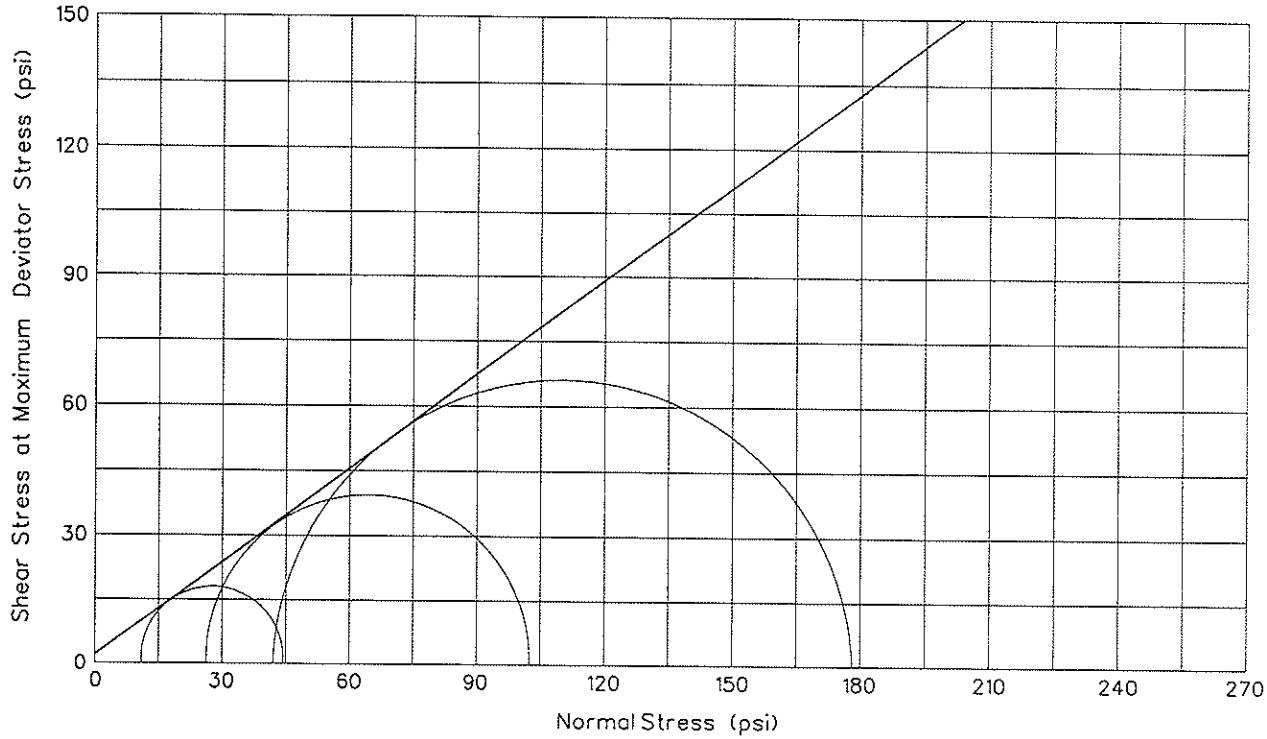
Project: *Kinney Mine*
*Scofield, Utah*

HOLE NO.: CV-4-1 DRL

DEPTH: 20'-21.5'

Figure




MULTI-STAGE CONSOLIDATED UNDRAINED W/PORE PRESSURE MEASUREMENTS:
EFFECTIVE STRESS FAILURE ENVELOPE

| Test No. or Symbol | Sample Data | | Degree of Saturation (%) | Confining Pressure (psi) | Maximum Deviator Stress (psi) | Strength Values at Failure | | Sample Size, L/D (inches) | Strain Rate (inches/minute) |
|---|---|---|---|---|---|---|---|---|---|
| | Dry Density (pcf) | Moisture Content (%) | | | | Friction Angle $\phi$ (degrees) | Cohesion (c/psi) | | |
| ● | 115.0 | 7.8 | ~100 | 11.0 | 44.4 | 36.0 | 2 | 2.88/1.38 | 0.001 |
| ■ | 115.0 | 7.8 | ~100 | 26.3 | 102.4 | | | | |
| ▲ | 115.0 | 7.8 | ~100 | 42.0 | 178.1 | | | | |
| | | | | | | | | | |

MATERIAL: SANDY LEAN CLAY (CL)

RB&G ENGINEERING INC.
Provo, Utah

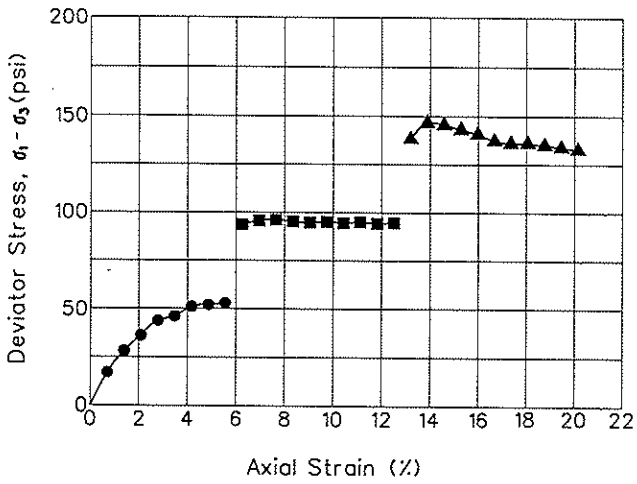
TRIAXIAL SHEAR TEST

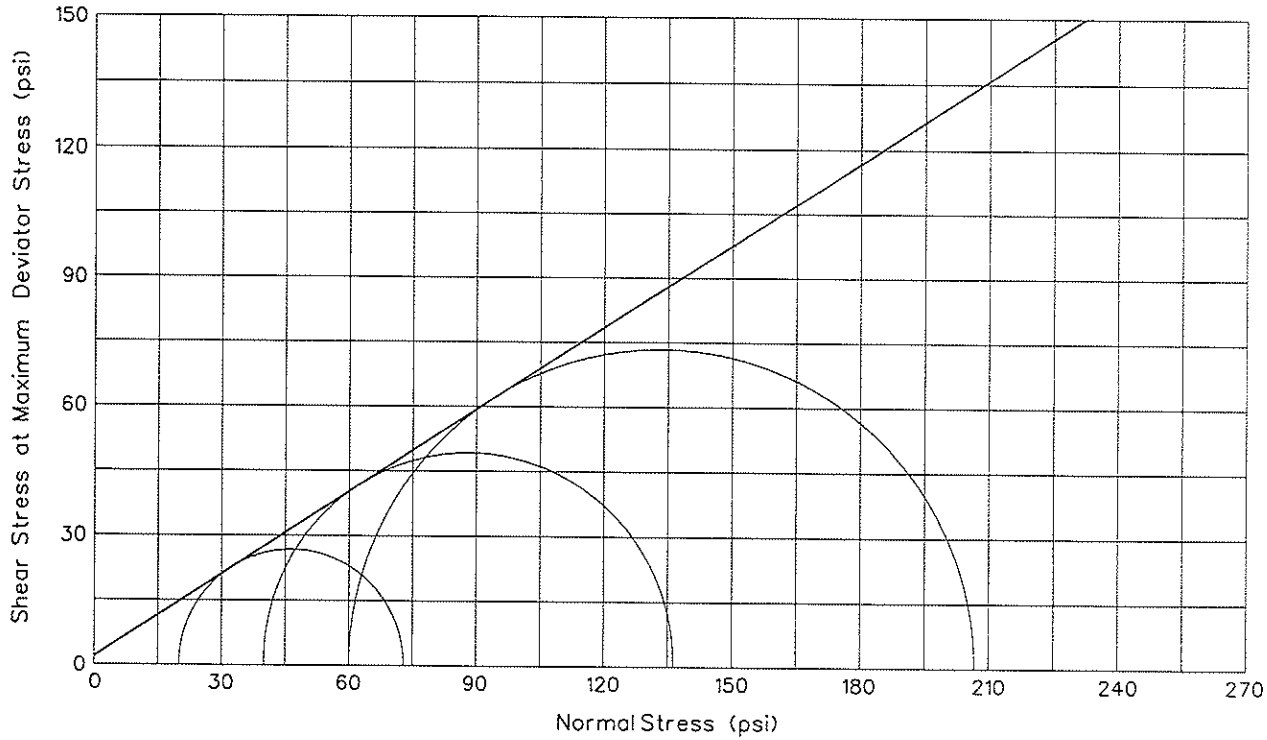
Project: *Kinney Mine*
*Scofield, Utah*

HOLE NO.: CV-4-1 DRL

DEPTH: 20'-21.5'

Figure




MULTI-STAGE CONSOLIDATED UNDRAINED W/PORE PRESSURE MEASUREMENTS:
TOTAL STRESS FAILURE ENVELOPE

| Test No. or Symbol | Sample Data | | Degree of Saturation (%) | Confining Pressure (psi) | Maximum Deviator Stress (psi) | Strength Values at Failure | | Sample Size, L/D (inches) | Strain Rate (inches/minute) |
|---|---|---|---|---|---|---|---|---|---|
| | Dry Density (pcf) | Moisture Content (%) | | | | Friction Angle $\phi$ (degrees) | Cohesion (c/psi) | | |
| ● | 115.6 | 15.3 | ~100 | 20 | 72.9 | 32.5 | 2 | 2.88/1.38 | 0.001 |
| ■ | 115.6 | 15.3 | ~100 | 40 | 136.3 | | | | |
| ▲ | 115.6 | 15.3 | ~100 | 60 | 206.7 | | | | |
| | | | | | | | | | |

MATERIAL: SANDY LEAN CLAY (CL)

RB&G ENGINEERING INC.
Provo, Utah

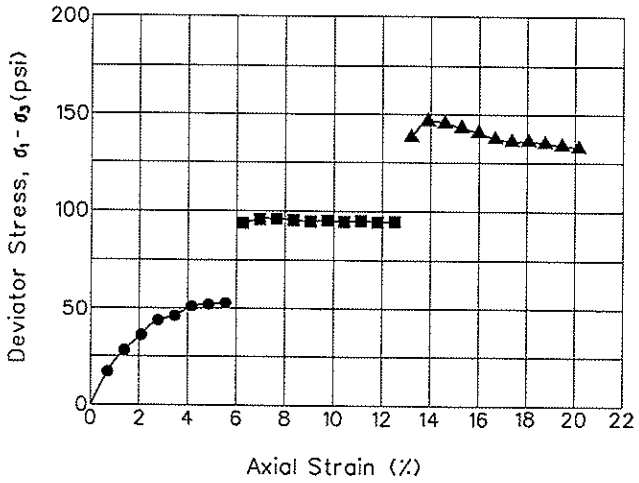
TRIAXIAL SHEAR TEST

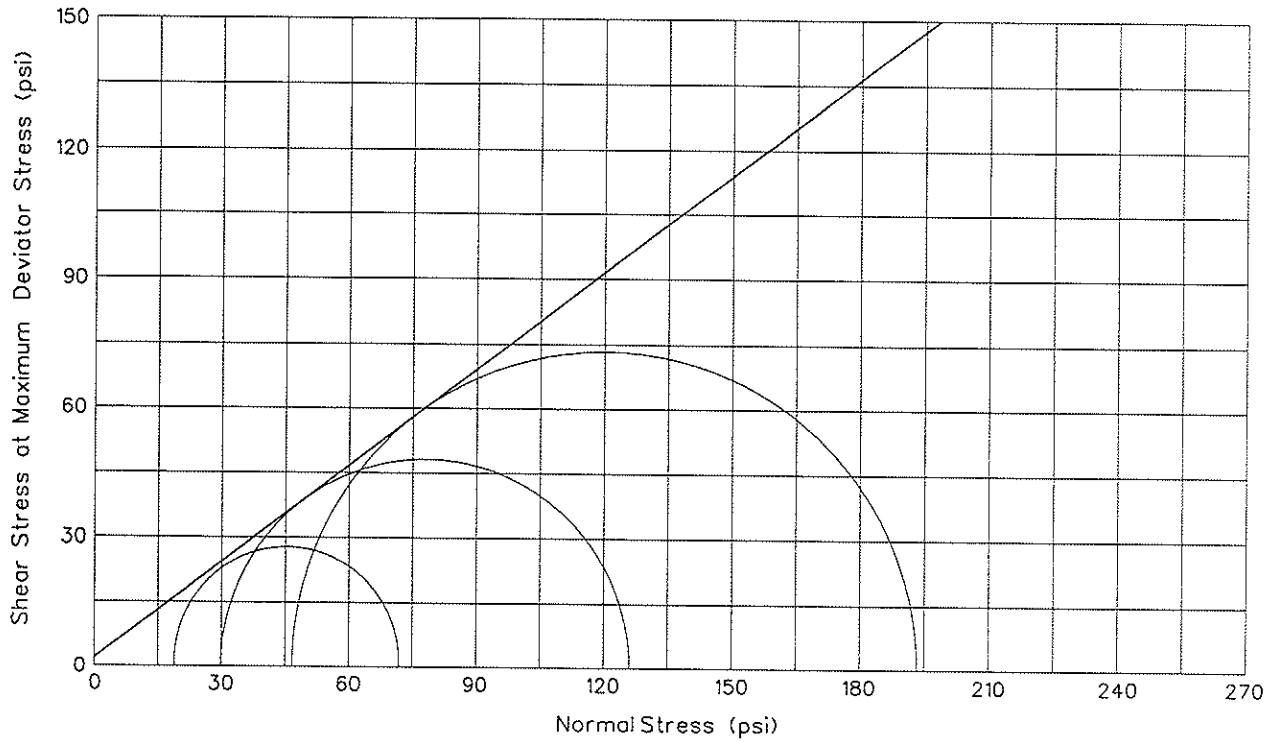
Project: *Kinney Mine*
*Scofield, Utah*

HOLE NO.: SC-2 DRL

DEPTH: 23'-24'

Figure




MULTI-STAGE CONSOLIDATED UNDRAINED W/PORE PRESSURE MEASUREMENTS:
EFFECTIVE STRESS FAILURE ENVELOPE

| Test No. or Symbol | Sample Data | | Degree of Saturation (%) | Confining Pressure (psi) | Maximum Deviator Stress (psi) | Strength Values at Failure | | Sample Size, L/D (inches) | Strain Rate (inches/minute) |
|---|---|---|---|---|---|---|---|---|---|
| | Dry Density (pcf) | Moisture Content (%) | | | | Friction Angle $\phi$ (degrees) | Cohesion (c/psi) | | |
| ● | 115.6 | 15.3 | ~100 | 18.9 | 71.8 | 36.7 | 2 | 2.88/1.38 | 0.001 |
| ■ | 115.6 | 15.3 | ~100 | 29.8 | 126.1 | | | | |
| ▲ | 115.6 | 15.3 | ~100 | 46.6 | 193.3 | | | | |
| | | | | | | | | | |

MATERIAL: SANDY LEAN CLAY (CL)

RB&G ENGINEERING INC.
Provo, Utah

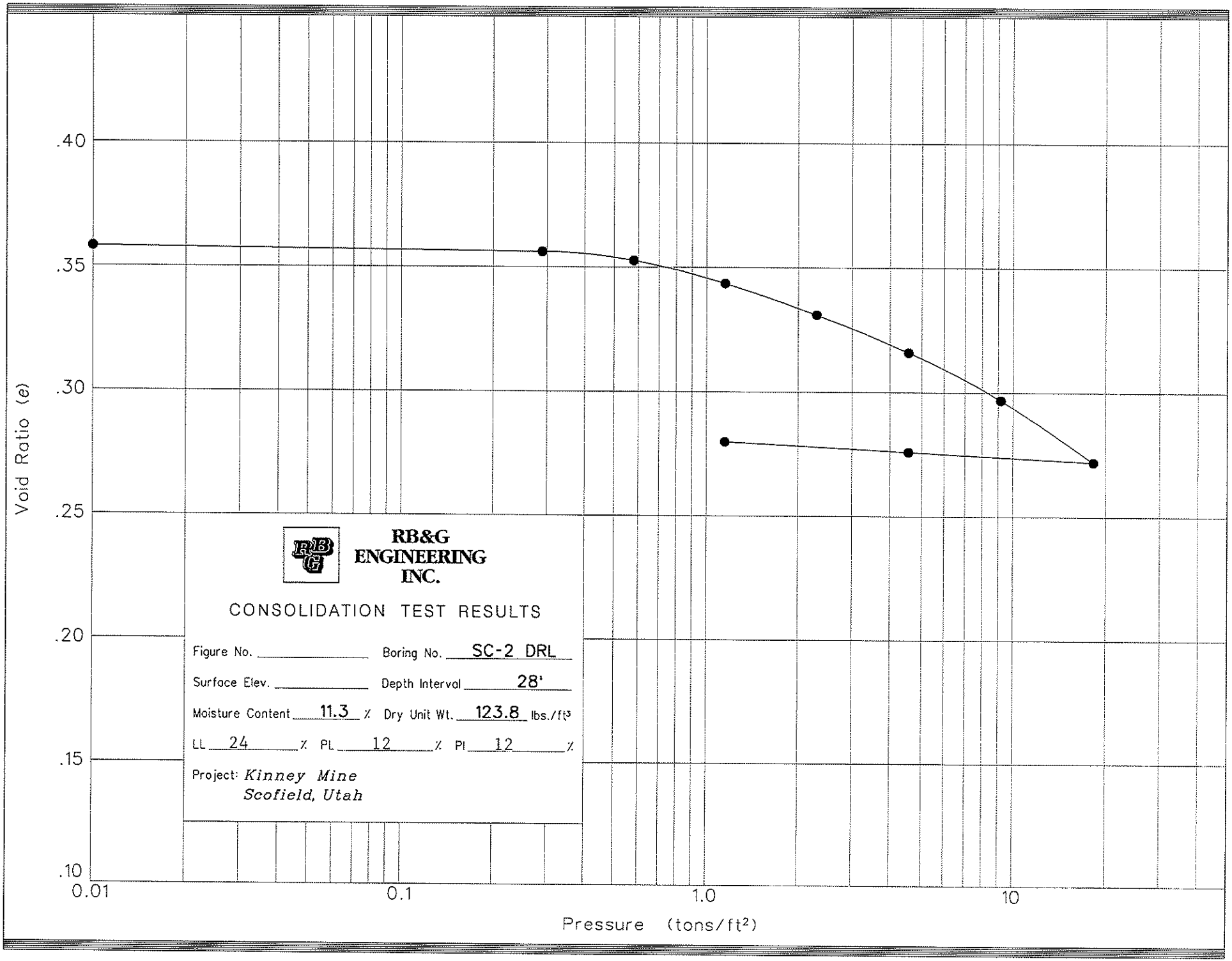
TRIAXIAL SHEAR TEST

Project: *Kinney Mine*
*Scofield, Utah*

HOLE NO.: SC-2 DRL

DEPTH: 23'-24'

Figure




RB&G ENGINEERING INC.

CONSOLIDATION TEST RESULTS

Figure No. _____ Boring No. SC-2 DRL

Surface Elev. _____ Depth Interval 28'

Moisture Content 11.3 % Dry Unit Wt. 123.8 lbs./ft³

LL 24 % PL 12 % PI 12 %

Project: *Kinney Mine*
*Scofield, Utah*

# CONVEYOR SECTION-5

TEST PITS CV-5-1 & CV-5-2

# TEST PIT LOG

## TEST PIT NO. CV-5-1 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: CONVEYOR BENT / N:75,340 E:38,792
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/5/07
DATE COMPLETED: 9/5/07
GROUND ELEVATION: 7737.7'
LOGGED BY: J. BOONE

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7735 | 0 | | | | | CL-1 | SANDY LEAN CLAY<br>sandy silt layers & pockets<br>(fill)<br>brown, dry, stiff | 89.8 | 5.8 | 22 | 7 | | | | |
| | 5 | | | | +1.00 | CL-ML | lt. brown, dry, very stiff | 95.6 | 4.9 | | | | | | |
| 7730 | | | | | | | SANDY SILTY CLAY<br>pinhole structure, occasional cobble<br>and/or boulder | | | | | | | | |
| | 10 | | | | +1.00 | CL-ML | lt. brown, dry to slightly moist, very stiff | 90.7 | 7.1 | 21 | 4 | | | | CT |
| 7725 | | | | | +1.00 | CL-1 | lt. brown, dry, very stiff | | 9.7 | 22 | 10 | | | | DS |
| | 15 | | | | +1.00 | CL | lt. brown, slightly moist, hard | | | | | | | | |
| | | | | | | | SANDY LEAN CLAY<br>pinhole structure, occasional cobble<br>and/or boulder | | | | | | | | |
| 7720 | | | | | +1.00 | CL-1 | lt. brown, slightly moist, hard | | 9.6 | 23 | 10 | | | | |

TP_LOGV1 KINNEYMINE TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**
DISTURBED SAMPLE
UNDISTURBED SAMPLE
Bucket ← Type of Sample
0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

# TEST PIT LOG

## TEST PIT NO. CV-5-2 TH

SHEET 1 OF 1

PROJECT: KINNEY MINE
CLIENT: GEO-HUNT CONSULTING, LLC
LOCATION: CONVEYOR BENT / N:75,688 E:38,928
DIGGING METHOD: JOHN DEERE 160 TRACKHOE
OPERATOR:
DEPTH TO WATER - INITIAL: ▽ DRY' AFTER 24 HOURS: ▼ N.M.

PROJECT NUMBER: 200701.045
DATE STARTED: 9/5/07
DATE COMPLETED: 9/5/07
GROUND ELEVATION: 7749.8'
LOGGED BY: J. BOONE

| Elev. (ft) | Depth (ft) | Lithology | Sample Type | Sample Rec. (in) | Sample See Legend | USCS | Material Description | Dry Density (pcf) | Moisture Content (%) | Atter. Liquid Limit | Atter. Plast. Index | Gradation Gravel (%) | Gradation Sand (%) | Gradation Silt/Clay (%) | Other Tests |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | COAL, CL,GM | brown, slightly moist, very stiff | 101.8 | 7.9 | | | | | | |
| 7745 | 5 | | | | | | INTERBEDDED LAYERS OF COAL, SANDY LEAN CLAY & SILTY GRAVEL W/SAND (fill) | | | | | | | | |
| | | | | | | COAL, CL,GM | brown, dry, very stiff | 107.3 | 4.2 | | | | | | |
| | | | | | | COAL, CL,GM | brown, dry, very stiff | 100.4 | 6.9 | | | | | | |
| 7740 | 10 | | | | | | | | | | | | | | |
| | | | | | +1.00 | CL-2 | brown, slightly moist, very stiff | 112.7 | 13.8 | 42 | 26 | | | | CT |
| 7735 | 15 | | | | +1.00 | CL-2 | brown, slightly moist, hard | SANDY LEAN CLAY slight pinhole structure | | 14.1 | 33 | 18 | | | | |
| | | | | | +1.00 | CL | brown, slightly moist, hard | | | | | | | | | |
| 7730 | | | | | | | | | | | | | | | |

TP_LOGV1 KINNEYMINE_TP.GPJ US EVAL.GDT 10/29/07

RB&G ENGINEERING INC.
PROVO, UTAH

**LEGEND:**
DISTURBED SAMPLE
UNDISTURBED SAMPLE
Bucket ← Type of Sample
0.45 ← Torvane (tsf)

OTHER TESTS
UC = Unconfined Compression
CT = Consolidation
DS = Direct Shear
TS = Triaxial Shear
CBR = California Bearing Ratio

Table 1

# SUMMARY OF TEST DATA

PROJECT Kinney Mine
LOCATION Scofield, Utah

PROJECT NO. 200701-045
FEATURE Foundations

| HOLE NO. | DEPTH BELOW GROUND SURFACE (ft) | STANDARD PENETRATION BLOWS PER FOOT | IN-PLACE | | UNCONFINED COMPRESSIVE STRENGTH (psf) | ATTERBERG LIMITS | | | MECHANICAL ANALYSIS | | | UNIFIED SOIL CLASSIFICATION SYSTEM (modified) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | DRY UNIT WEIGHT (pcf) | MOISTURE (%) | | LIQUID LIMIT (%) | PLASTIC LIMIT (%) | PLASTICITY INDEX (%) | PERCENT GRAVEL | PERCENT SAND | PERCENT SILT & CLAY | |
| CV-2-1 TH | 3 | Grab | 95.0 | 9.0 | | 32 | 15 | 17 | | | | CL-2 |
| | 6 | Grab | | 3.1 | | | | NP | 64 | 23 | 13 | GM |
| CV-2-3 TH | 3 | Grab | 106.1 | 7.6 | 4000+* | 25 | 13 | 12 | | | | CL-1 |
| | 6 | Grab | 88.6 | 6.5 | 4000+* | 23 | 17 | 6 | | | | CL-ML |
| | 9 | Grab | 97.1 | 4.8 | 4000+* | 19 | 15 | 4 | | | | CL-ML / SC-SM |
| CV-5-1 TH | 3 | Grab | 89.8 | 5.8 | 4000+* | 22 | 15 | 7 | | | | CL-1 |
| | 9 | Grab | 90.7 | 7.1 | 4000+* | 21 | 17 | 4 | | | | CL-ML |
| | 12 | Grab | 95.8 | 9.7 | 4000+* | 22 | 12 | 10 | | | | CL-1 |
| | 19 | Grab | | 9.6 | 4000+* | 23 | 13 | 10 | | | | CL-1 |
| CL-5-2 TH | 12 | Grab | 112.7 | 13.8 | 4000+* | 42 | 16 | 26 | | | | CL-2 |
| | 15 | Grab | | 14.1 | 4000+* | 33 | 15 | 18 | | | | CL-2 |
| WSF-1 TH | 6 | Grab | 97.9 | 4.5 | 2827 | 21 | 16 | 5 | | | | CL-ML |
| WSF-2 TH | 3 | Grab | 91.0 | 4.6 | | | | NP | 29 | 45 | 26 | SM |
| | 9 | Grab | | 4.7 | | 19 | 15 | 4 | | | | CL-ML / SC-SM |
| WSF-3 TH | 6 | Grab | 89.6 | 4.6 | | | | NP | 34 | 38 | 28 | SM |
| | 9 | Grab | 96.3 | 10.1 | 3000* | 22 | 14 | 8 | | | | CL-1 |
| | 12 | Grab | | 6.1 | 3320* | | | NP | 34 | 38 | 28 | SM |
| MDF-1 TH | 3 | Grab | 102.7 | 4.9 | | 20 | 16 | 4 | | | | CL-ML / SC-SM |
| | 9 | Grab | 86.6 | 8.4 | 3240* | 25 | 14 | 11 | | | | CL-1 |
| | 18.5 | Grab | 108.7 | 10.8 | 2760* | 23 | 13 | 10 | | | | CL-1 |
| MDF-2 TH | 3 | Grab | 108.6 | 4.6 | | 20 | 15 | 5 | 34 | 38 | 28 | SC-SM |
| | 6 | Grab | 118.5 | 3.8 | | | | NP | 38 | 47 | 15 | SM |
| | 15 | Grab | 94.8 | 9.3 | 3520* | 23 | 14 | 9 | | | | CL-1 |
| MDF-3 TH | 6 | Grab | 102.9 | 5.8 | | | | NP | 34 | 39 | 27 | SM |
| | 15 | Grab | | 7.5 | 4000+* | 22 | 12 | 10 | | | | CL-1 |
| | 18 | Grab | | 5.3 | 4000+* | 21 | 13 | 8 | | | | CL-1 |
| CS-1 TH | 6 | Grab | | | | | | | | | | Coal |
| | 9 | Grab | | 8.8 | 2080* | 23 | 14 | 9 | | | | CL-1 |
| | 12 | Grab | | 15.5 | 2240* | 24 | 16 | 8 | | | | CL-1 |
| F-1 TH | 6 | Grab | 91.3 | 5.6 | | 22 | 18 | 4 | 18 | 42 | 40 | SC-SM |
| | 9 | Grab | | 6.1 | | 21 | 16 | 5 | | | | CL-ML / SC-SM |

NP=Nonplastic
*Toravne value used to estimate unconfined compressive Strength.

# OTHER LABORATORY TESTING

PROJECT Kinney Mine
LOCATION Scofield, Utah

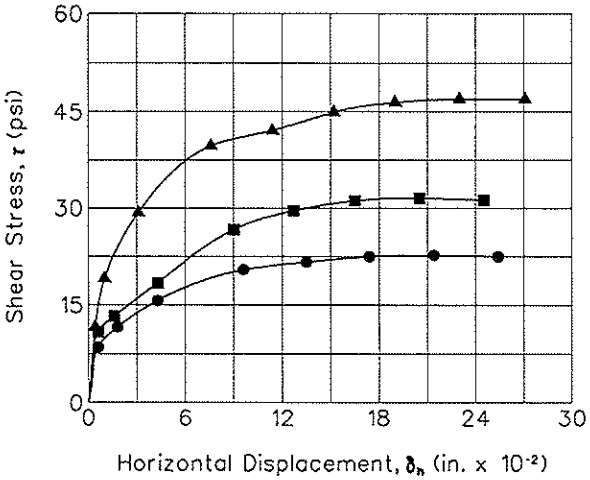
PROJECT NO. 200701-045
FEATURE

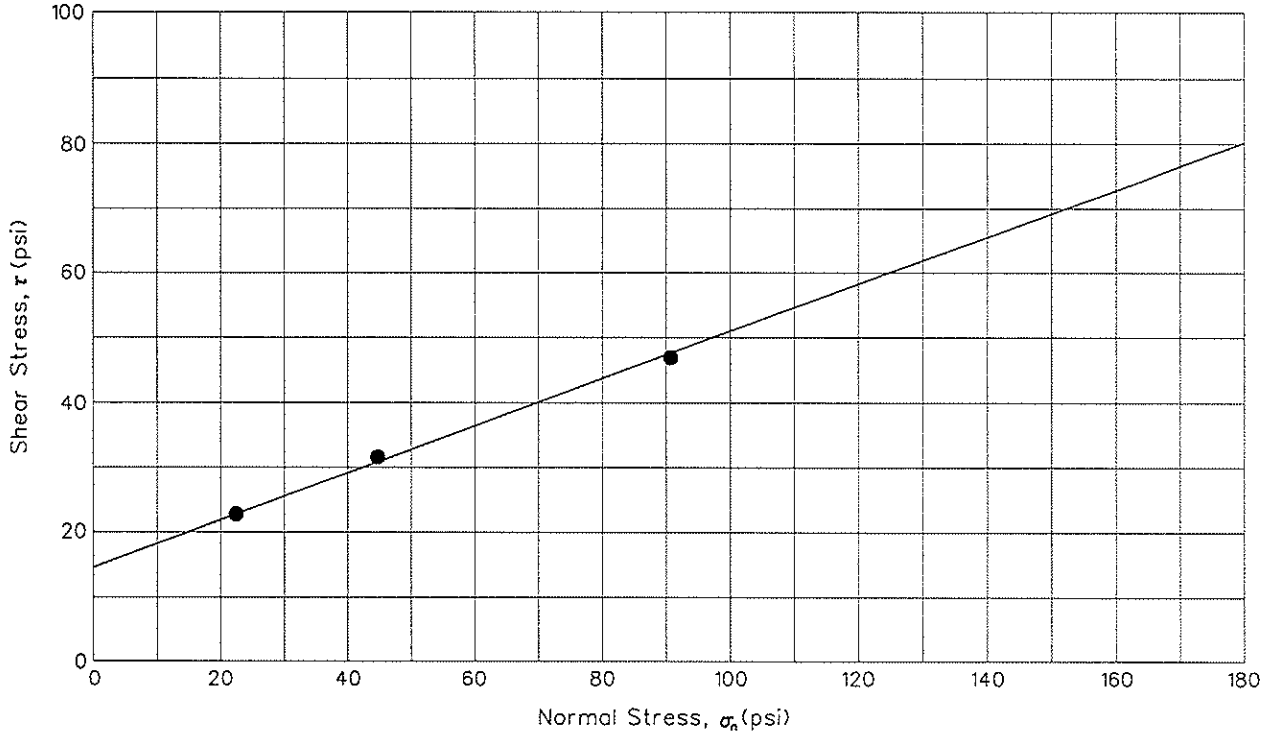
| CHEMICAL TESTS | | | | | |
|---|---|---|---|---|---|
| SAMPLE LOCATION | DEPTH BELOW GROUND SURFACE (ft) | pH | RESISTIVITY (ohm-cm) | SULFATE (%) | USCS (MODIFIED) / AASHTO CLASSIFICATION |
| 3-NS-1 | 6-7.5 | 8.0 | 6761 | 0.0031 | CL-1 |
| 11-MDF-2 | 3 | 8.2 | 7202 | 0.0064 | SC-SM |
| 9-WSF-1 | 6 | 7.3 | 3322 | 0.0195 | CL-ML |
| 13-WSF-2 | 3 | 7.8 | 6502 | 0.0315 | SM |

| DIRECT SHEAR TESTS CONSOLIDATED DRAINED | | | | | |
|---|---|---|---|---|---|
| SAMPLE LOCATION | DEPTH BELOW GROUND SURFACE (ft) | DRY DENSITY (pcf) | FRICTION ANGLE Φ (degrees) | COHESION c (psi) | USCS (MODIFIED) / AASHTO CLASSIFICATION |
| 07-CV-5-1 TH | 12 | 95.8 | 20 | 15 | CL-1 |

| TRIAXIAL SHEAR TESTS MULTI-STAGE CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENTS | | | | | | |
|---|---|---|---|---|---|---|
| SAMPLE LOCATION | DEPTH BELOW GROUND SURFACE (ft) | TOTAL STRESS | | EFFECTIVE STRESS | | USCS (MODIFIED) / AASHTO CLASSIFICATION |
| | | FRICTION ANGLE $\Phi_{(cu)}$ (degrees) | COHESION $c_{(cu)}$ (psi) | FRICTION ANGLE Φ (degrees) | COHESION c (psi) | |
| CV-4-1 DRL | 20-21.5 | 29.6 | 2 | 36.0 | 2 | CL |
| SC-2 DRL | 23-24 | 32.5 | 2 | 36.7 | 2 | CL-1 |

* Visual Classification
**Bulk Sample




| Test No. or Symbol | Sample Size (inches) | Sample Data | | Degree of Saturation (%) | Normal Stress σn (psi) | Maximum Shear Stress τ (psi) | Strain Rate (inches/minute) | Shear Strength Parameters | |
|---|---|---|---|---|---|---|---|---|---|
| | | Dry Density (pcf) | Moisture Content (%) | | | | | Friction Angle φ (degrees) | Cohesion (c/psi) |
| ● | 2.375 | 95.7 | 9.8 | ~100 | 22.4 | 22.7 | 0.0005 | 20.0 | 15 |
| ■ | 2.375 | 95.9 | 9.7 | ~100 | 44.7 | 31.6 | 0.0005 | | |
| ▲ | 2.375 | 95.8 | 9.8 | ~100 | 90.7 | 46.9 | 0.0005 | | |
| | | | | | | | | | |

MATERIAL: SANDY LEAN CLAY (CL-1)

RB&G ENGINEERING INC.
Provo, Utah

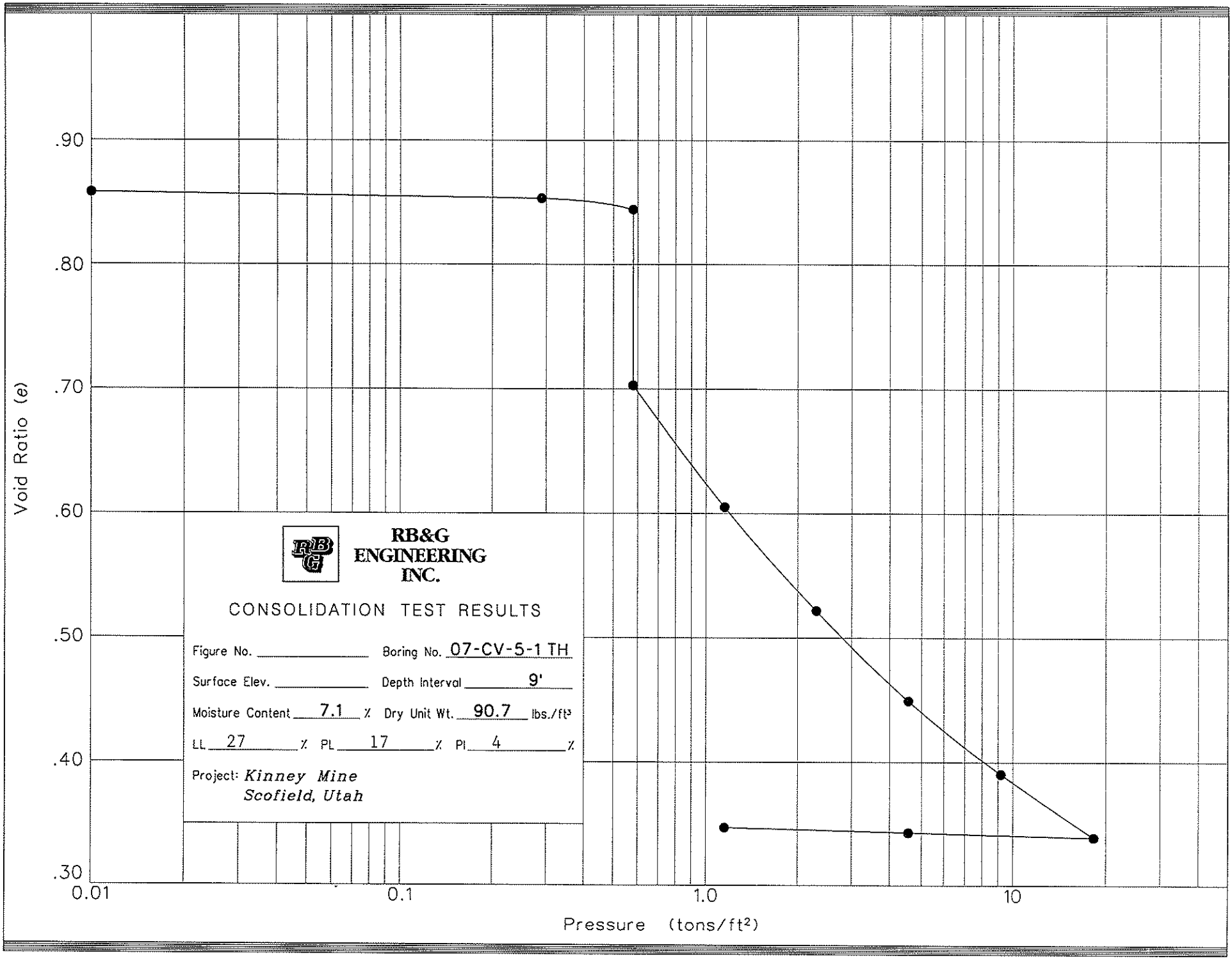
DIRECT SHEAR TEST

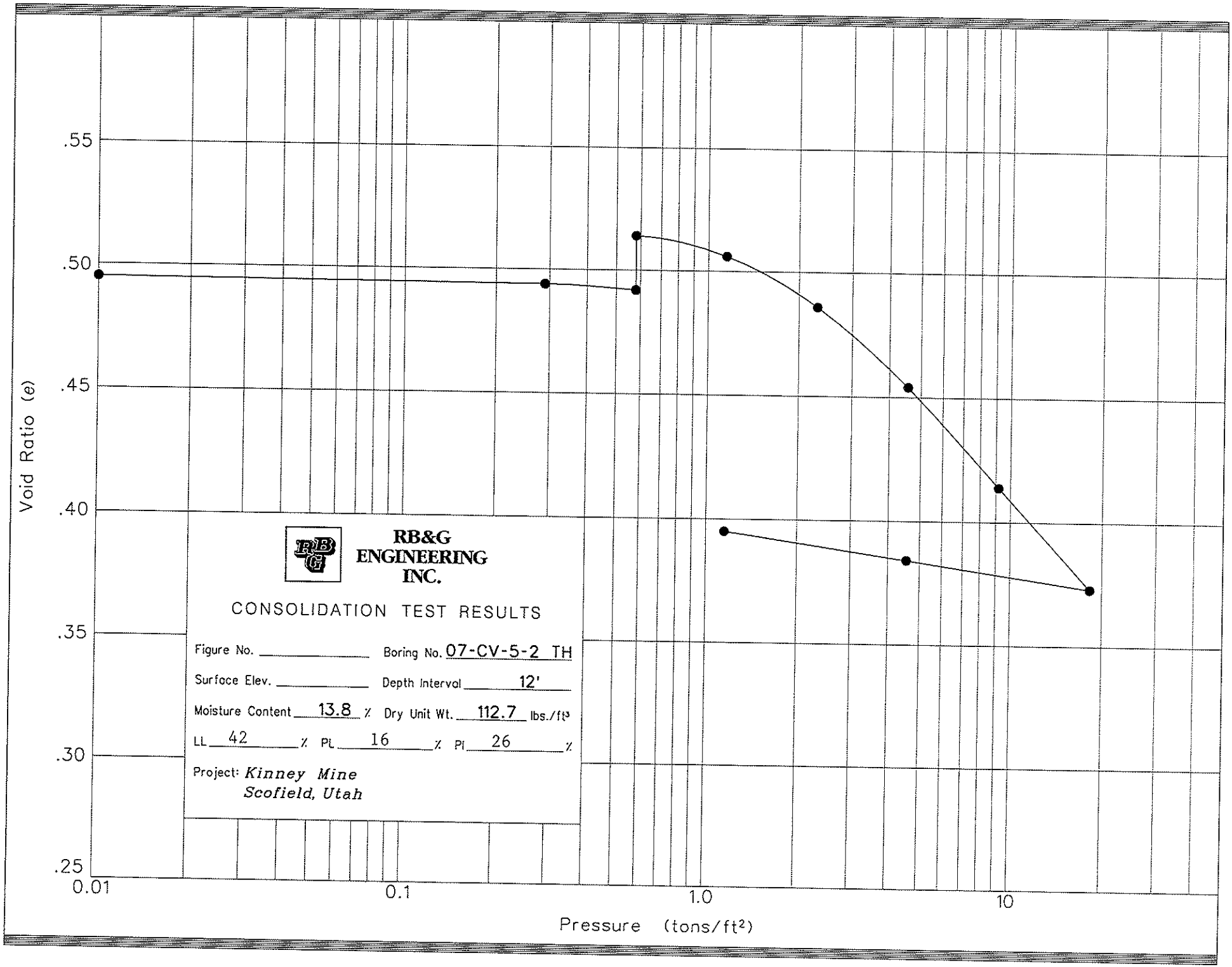
Project: *Kinney Mine*
*Scofield, Utah*

HOLE NO.: 07-CV-5-1 TH

DEPTH: 12'

Figure


.90
.80
.70
.60
.50
.40
.30
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. 07-CV-5-1 TH
Surface Elev. _____ Depth Interval 9'
Moisture Content 7.1 % Dry Unit Wt. 90.7 lbs./ft³
LL 27 % PL 17 % PI 4 %
Project: Kinney Mine
Scofield, Utah

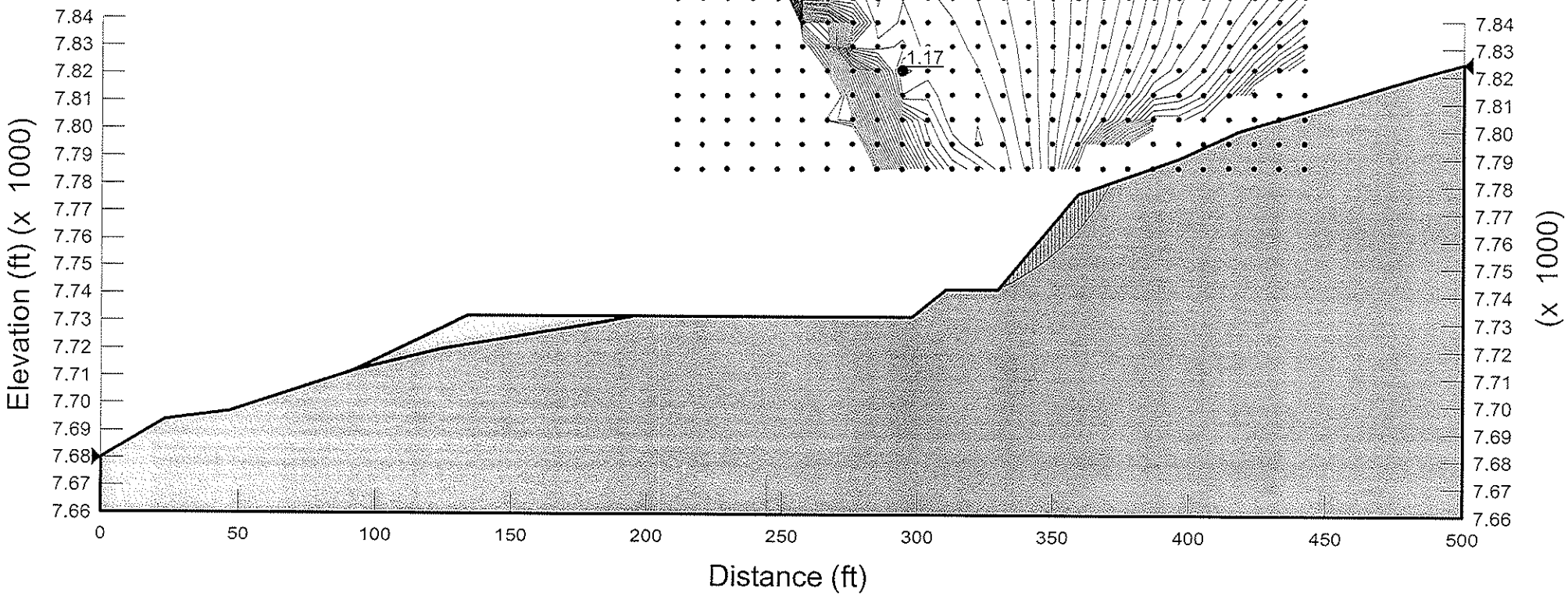

.55
.50
.45
.40
.35
.30
.25
Void Ratio (e)
0.01
0.1
1.0
10
Pressure (tons/ft²)
RB&G ENGINEERING INC.
CONSOLIDATION TEST RESULTS
Figure No. _____ Boring No. 07-CV-5-2 TH
Surface Elev. _____ Depth Interval 12'
Moisture Content 13.8 % Dry Unit Wt. 112.7 lbs./ft³
LL 42 % PL 16 % PI 26 %
Project: Kinney Mine
Scofield, Utah

# SLOPE STABILITY ANALYSES

Kinney Mine
Section A-A
0.8:1 Slope

Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20

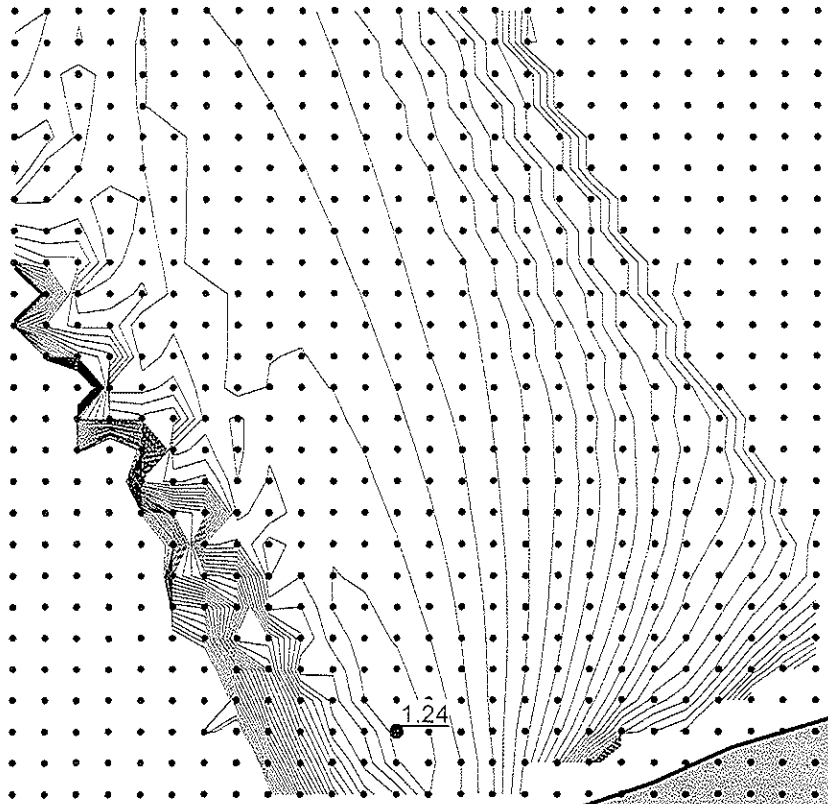
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30

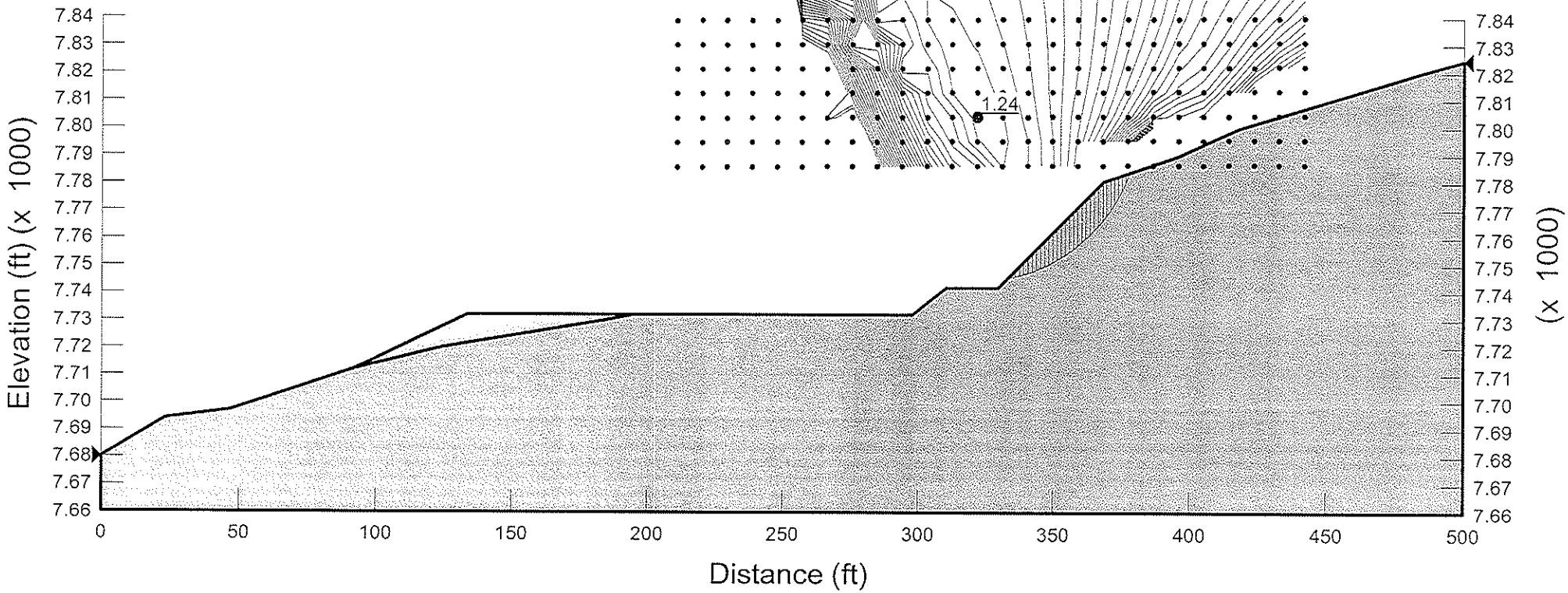


Kinney Mine
Section A-A
1:1 Slope

Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20

Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30

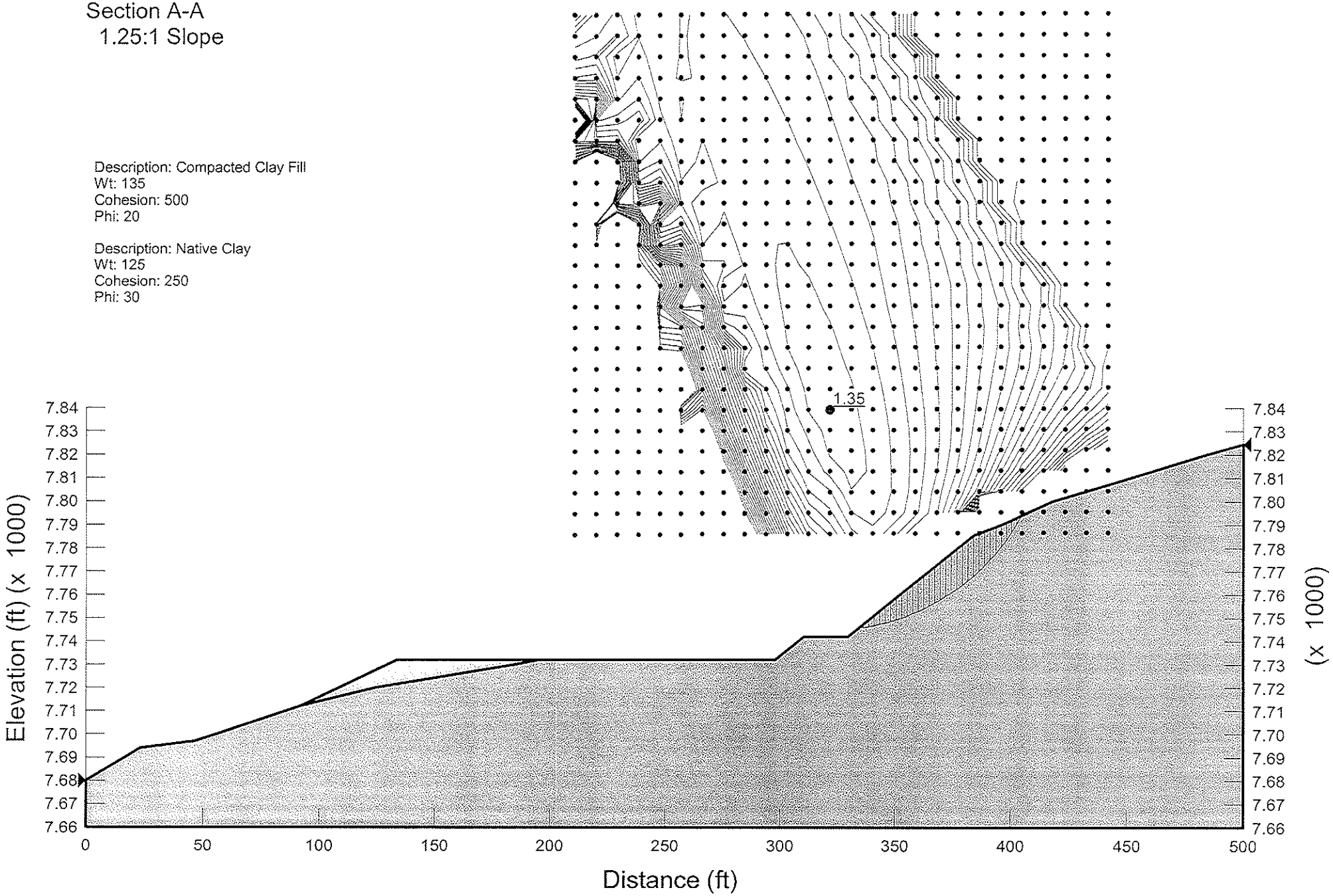


Kinney Mine
Section A-A
1.25:1 Slope

Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20

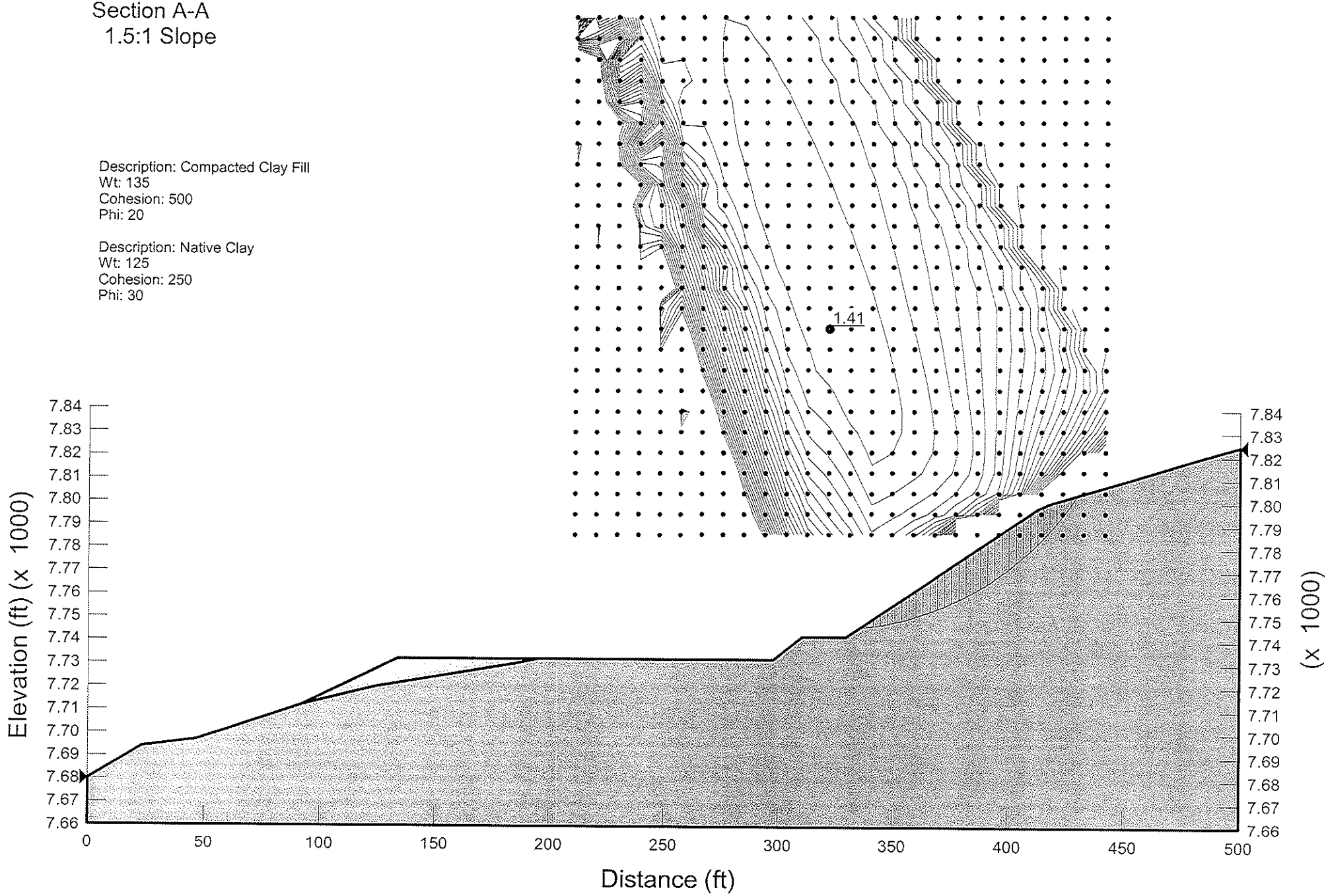
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30



Kinney Mine
Section A-A
1.5:1 Slope

Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20

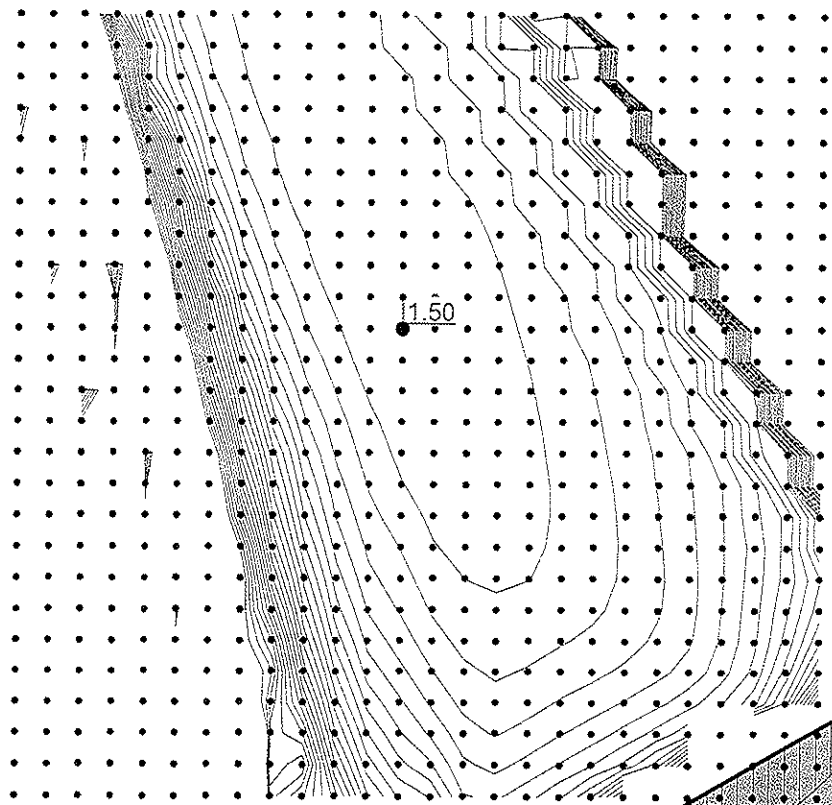
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30

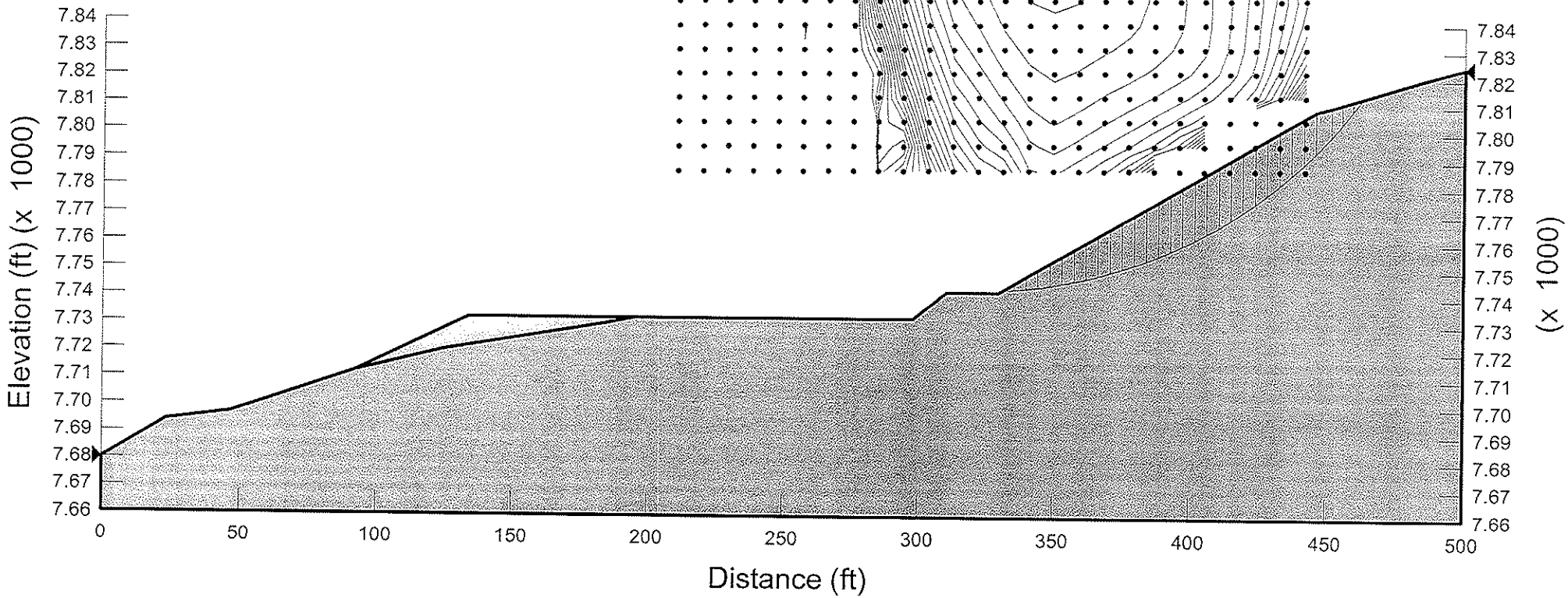


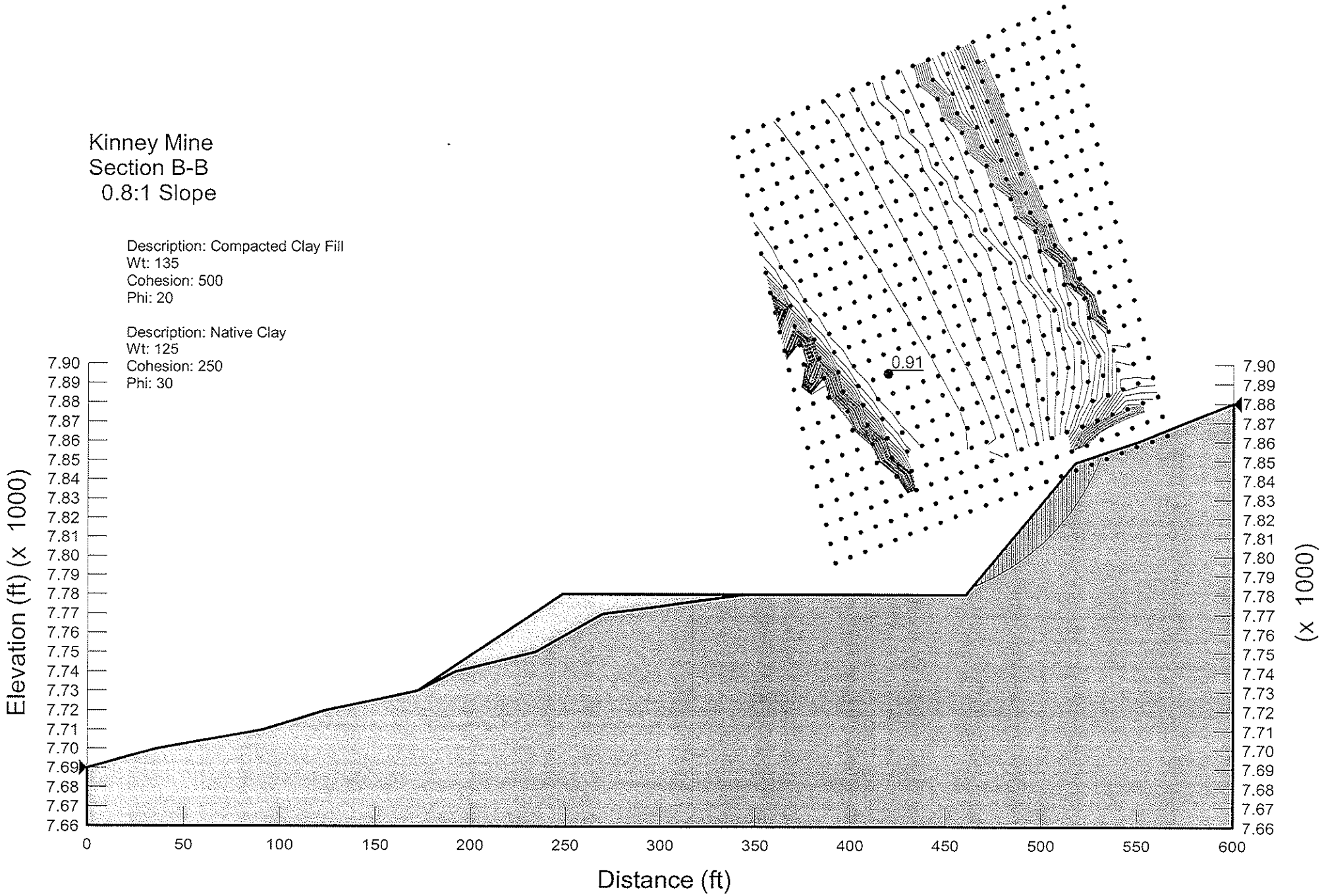
Kinney Mine
Section A-A
1.75:1 Slope

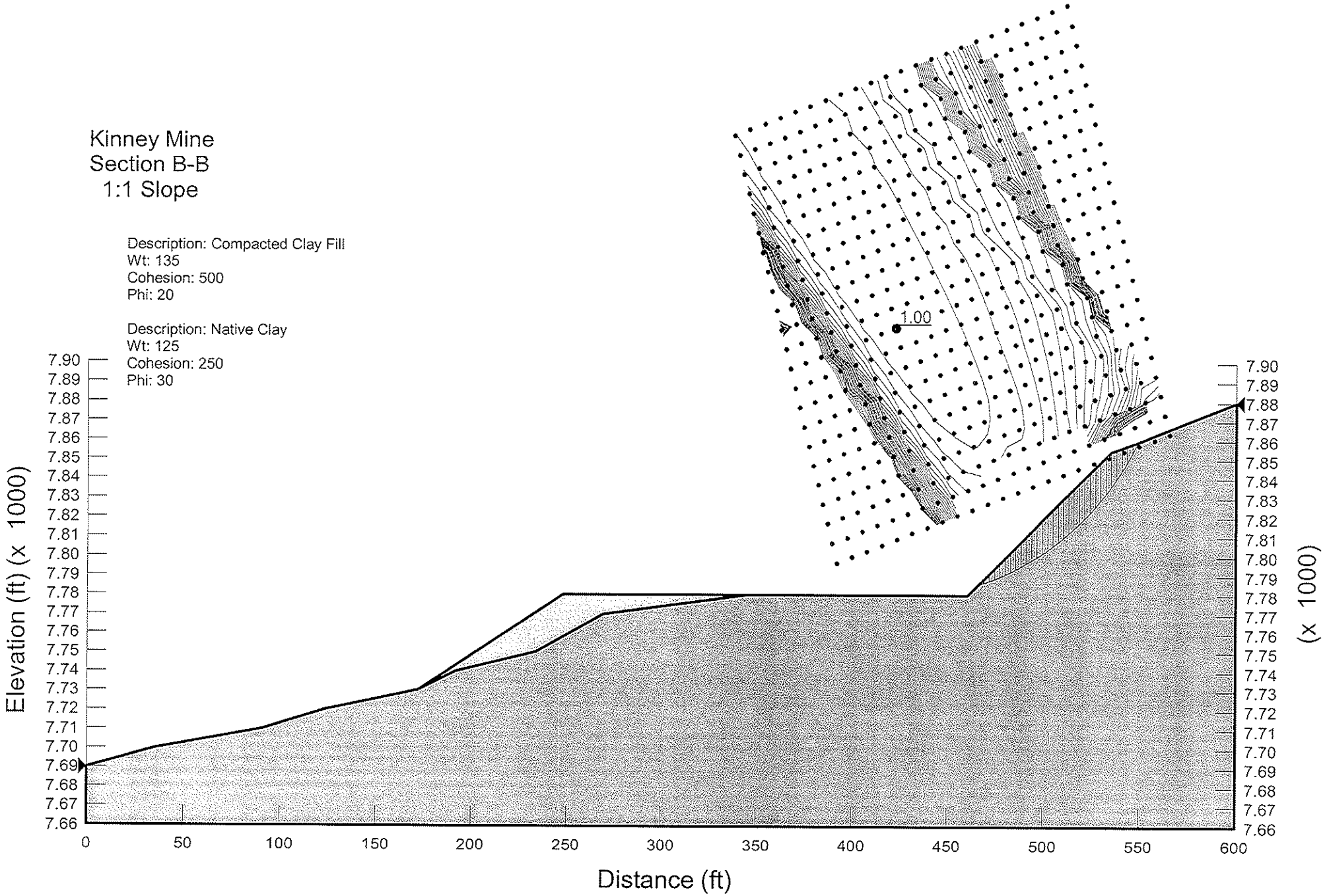
Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20

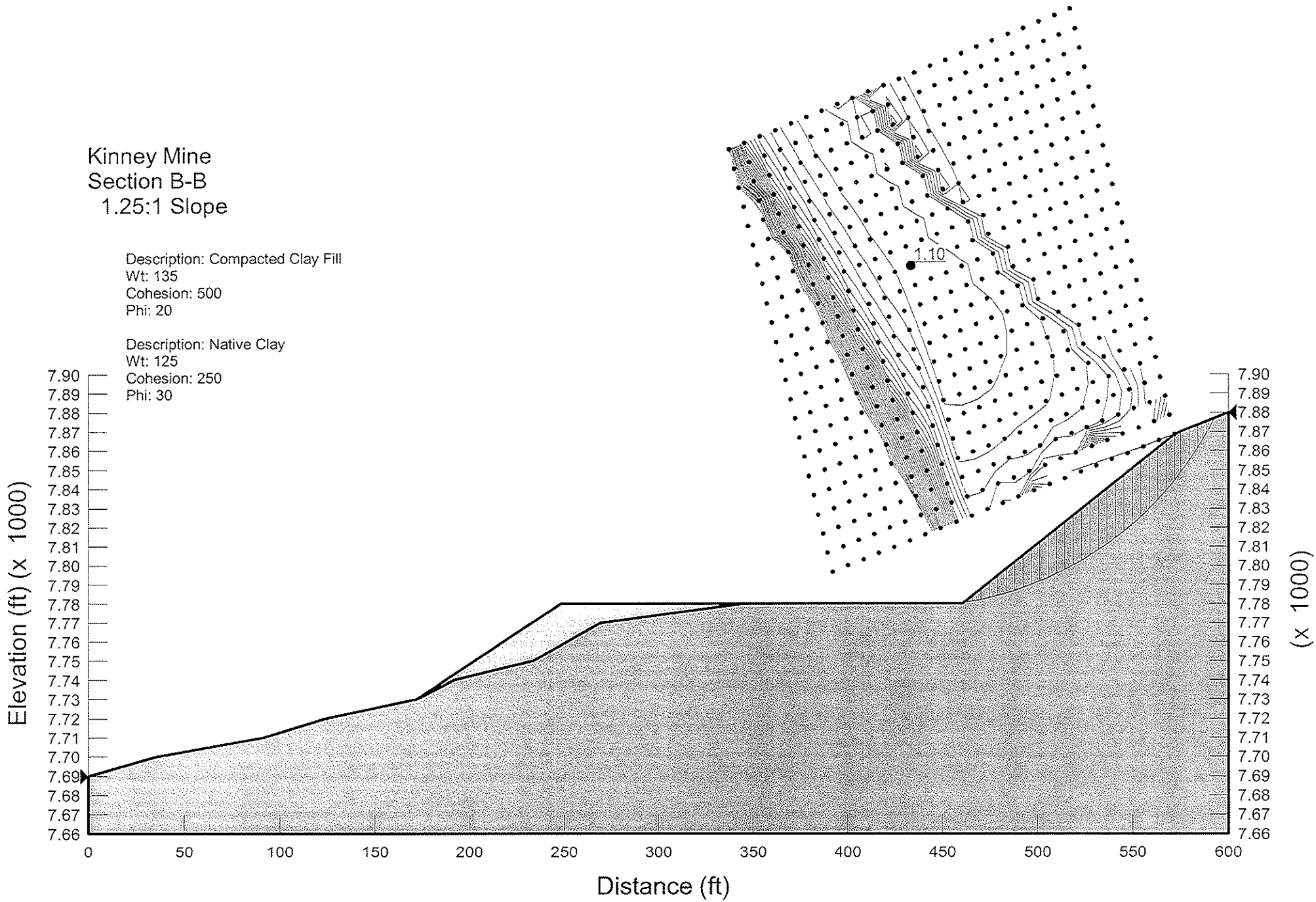
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30




Kinney Mine
Section B-B
0.8:1 Slope
Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30
0.91
Elevation (ft) (x 1000)
7.90
7.89
7.88
7.87
7.86
7.85
7.84
7.83
7.82
7.81
7.80
7.79
7.78
7.77
7.76
7.75
7.74
7.73
7.72
7.71
7.70
7.69
7.68
7.67
7.66
0
50
100
150
200
250
300
350
400
450
500
550
600
Distance (ft)
(x 1000)

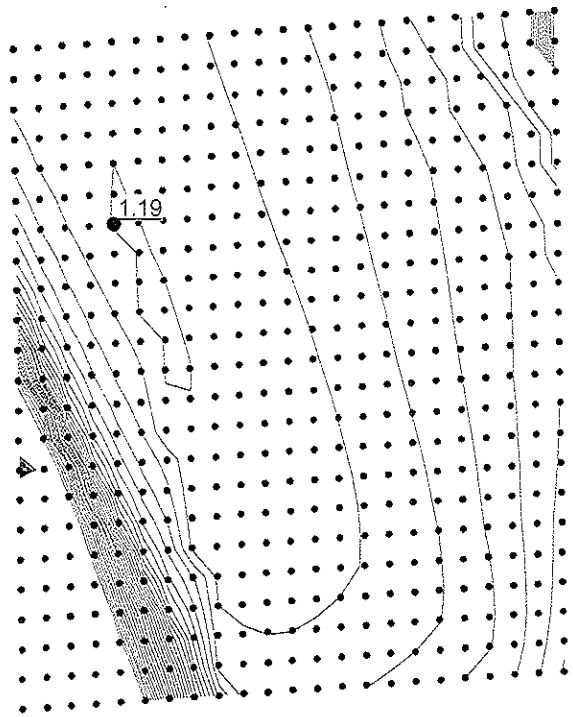

Kinney Mine
Section B-B
1:1 Slope
Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30
1.00
Elevation (ft) (x 1000)
7.90
7.89
7.88
7.87
7.86
7.85
7.84
7.83
7.82
7.81
7.80
7.79
7.78
7.77
7.76
7.75
7.74
7.73
7.72
7.71
7.70
7.69
7.68
7.67
7.66
0
50
100
150
200
250
300
350
400
450
500
550
600
Distance (ft)
(x 1000)

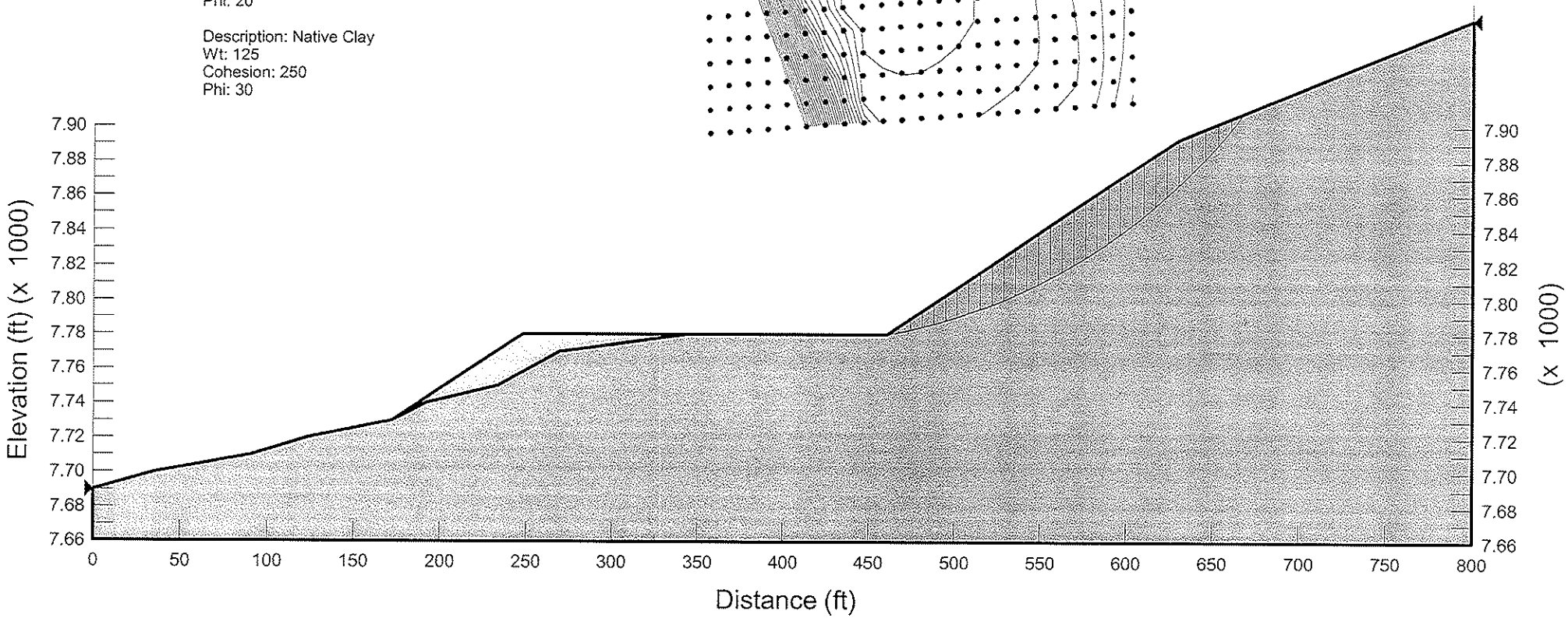

Kinney Mine
Section B-B
1.25:1 Slope
Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30
1.10
Elevation (ft) (x 1000)
7.90
7.89
7.88
7.87
7.86
7.85
7.84
7.83
7.82
7.81
7.80
7.79
7.78
7.77
7.76
7.75
7.74
7.73
7.72
7.71
7.70
7.69
7.68
7.67
7.66
0
50
100
150
200
250
300
350
400
450
500
550
600
Distance (ft)
(x 1000)

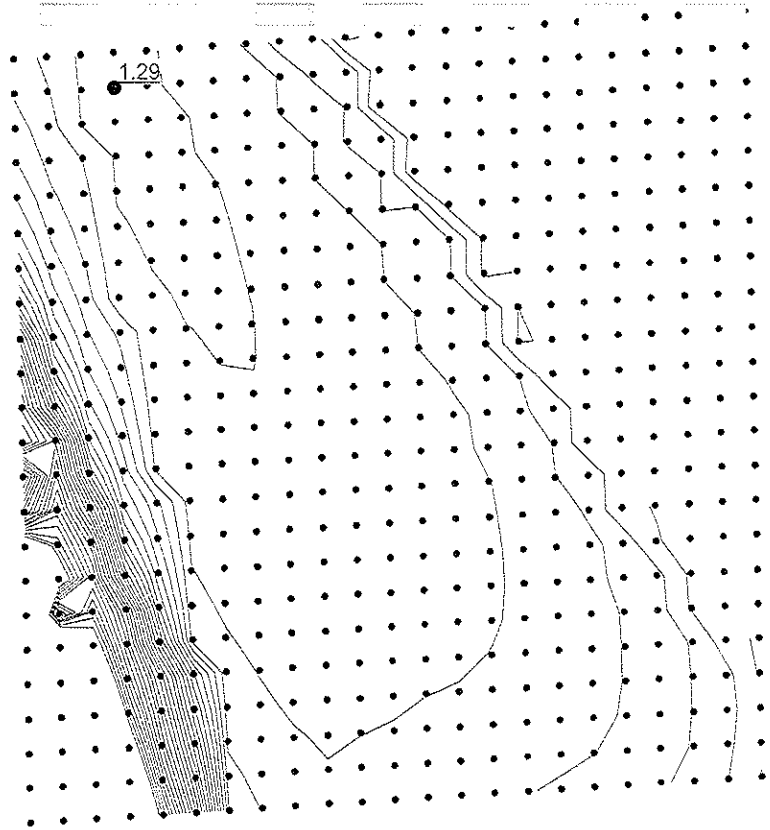
Kinney Mine
Section B-B
1.5:1 Slope

Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20

Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30



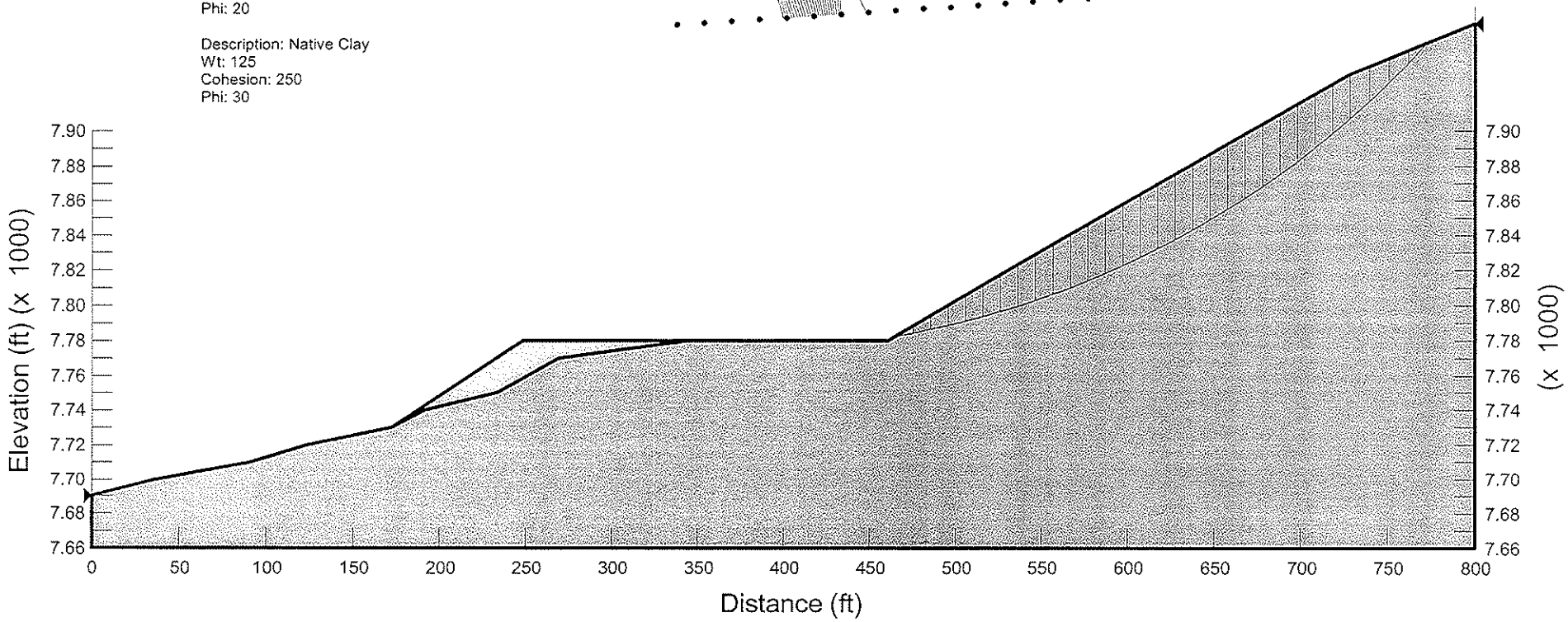





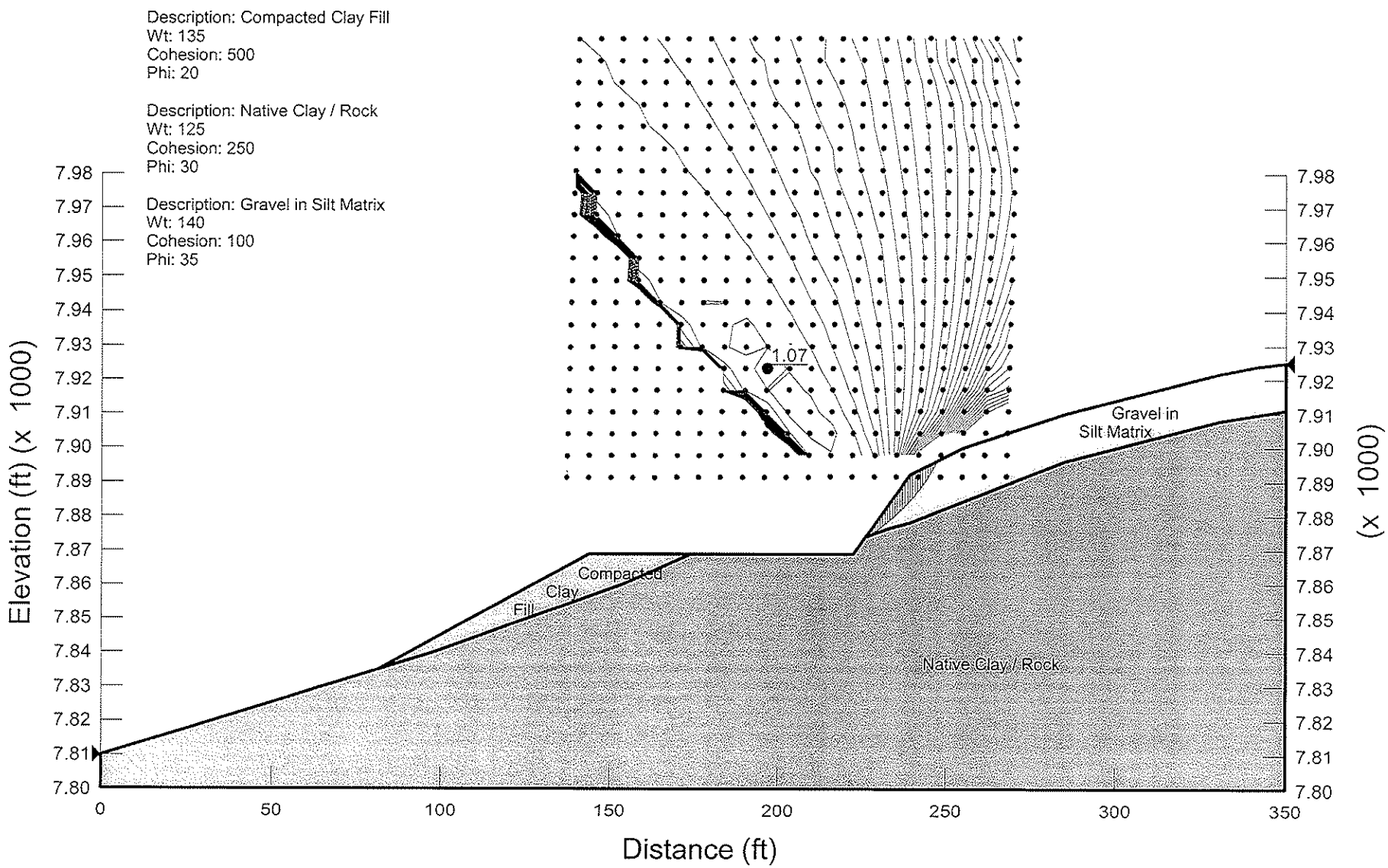

Kinney Mine
Section B-B
1.75:1 Slope

Description: Compacted Clay Fill
Wt: 135
Cohesion: 500
Phi: 20

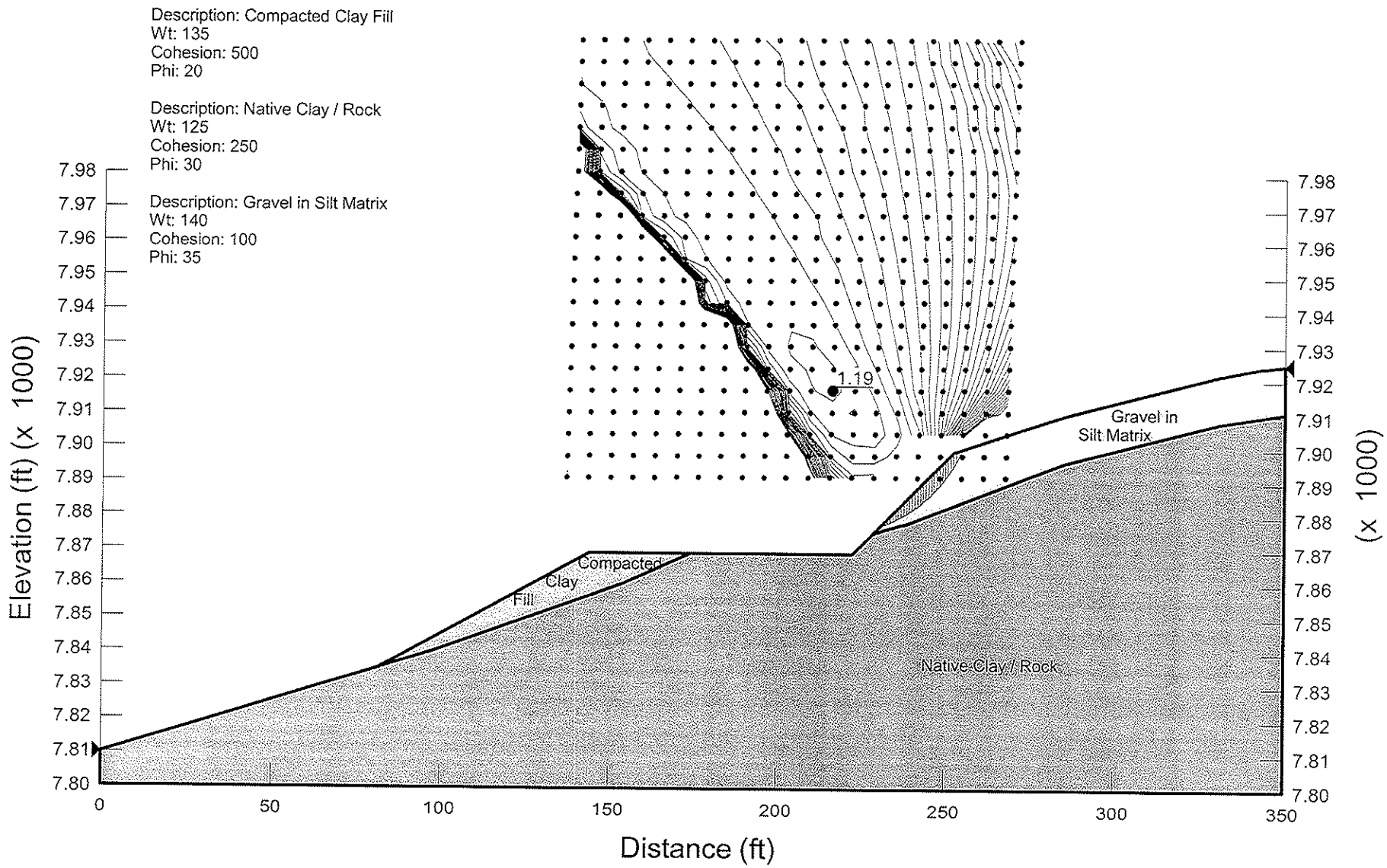
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30



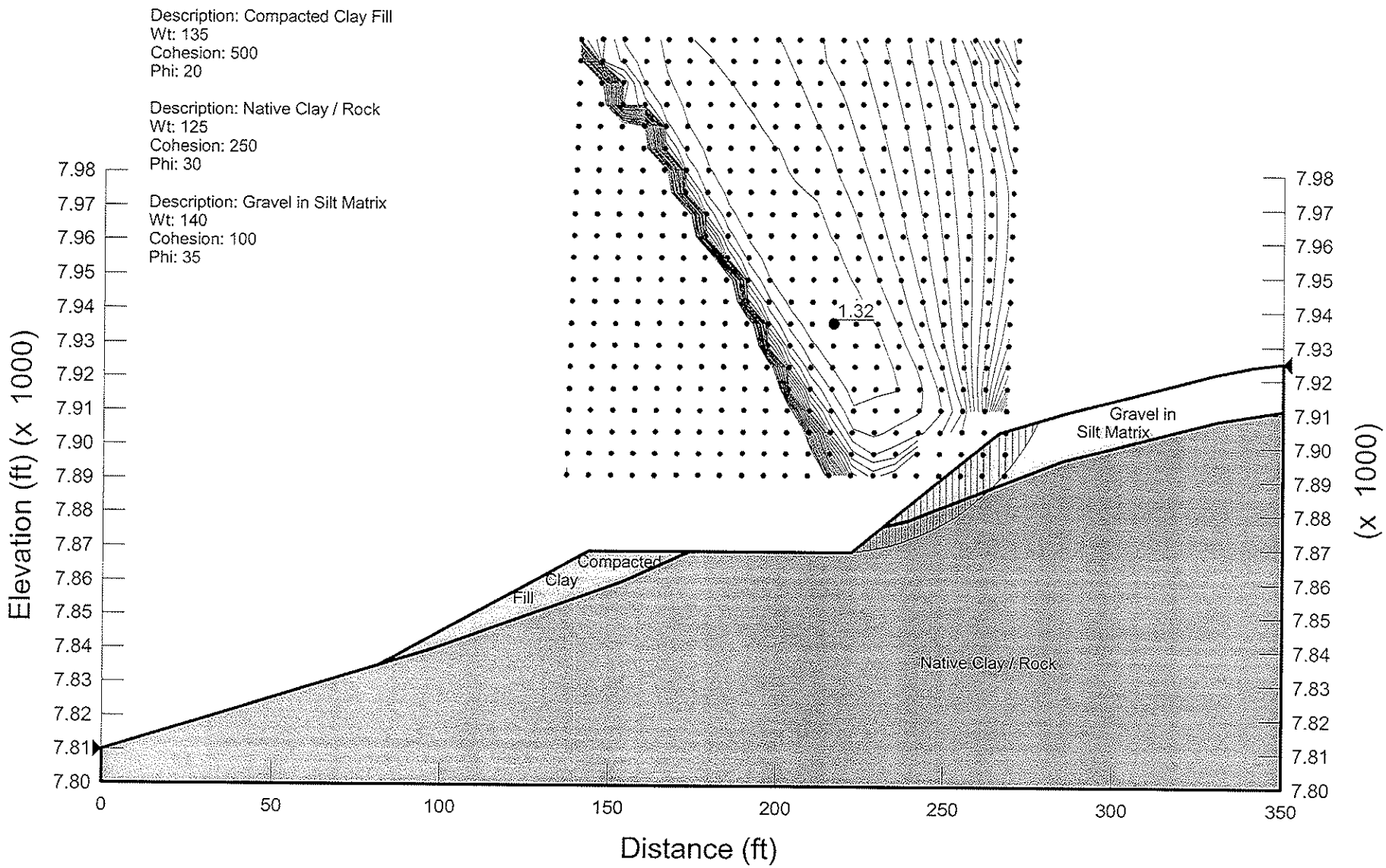
Kinney Mine
Section F-F
0.8:1 Slope



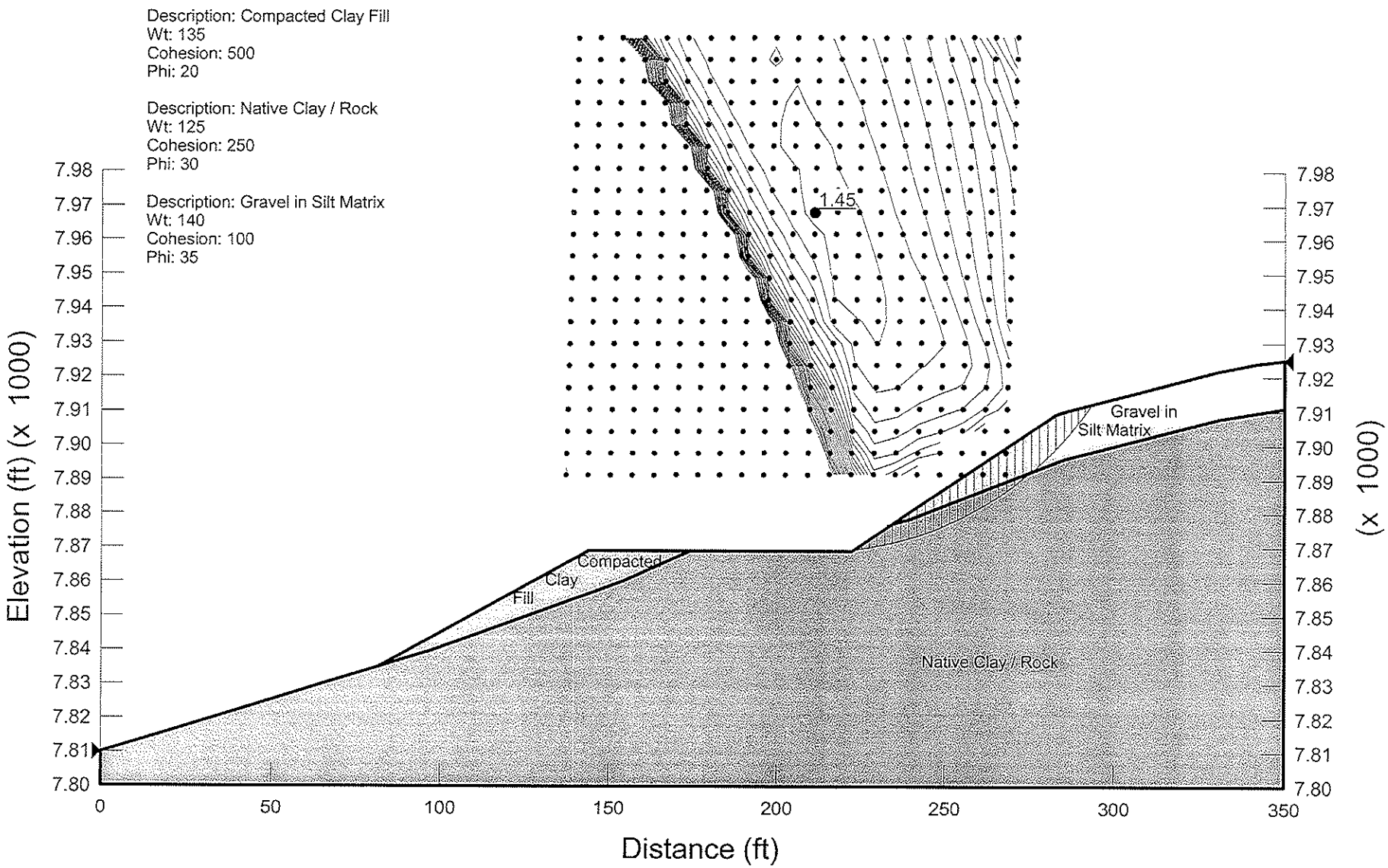
Kinney Mine
Section F-F
1:1 Slope



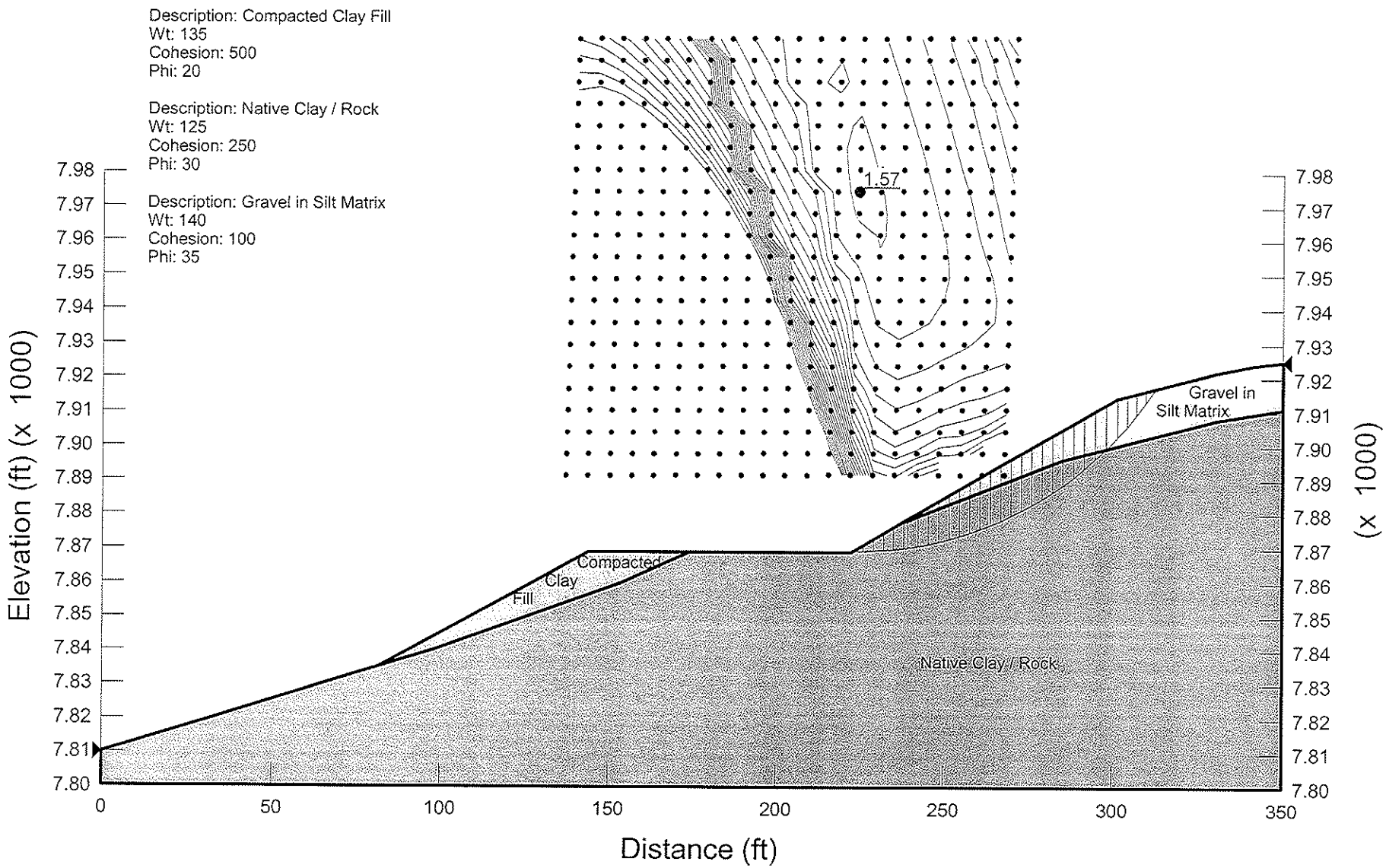
Kinney Mine
Section F-F
1.25:1 Slope



Kinney Mine
Section F-F
1.5:1 Slope



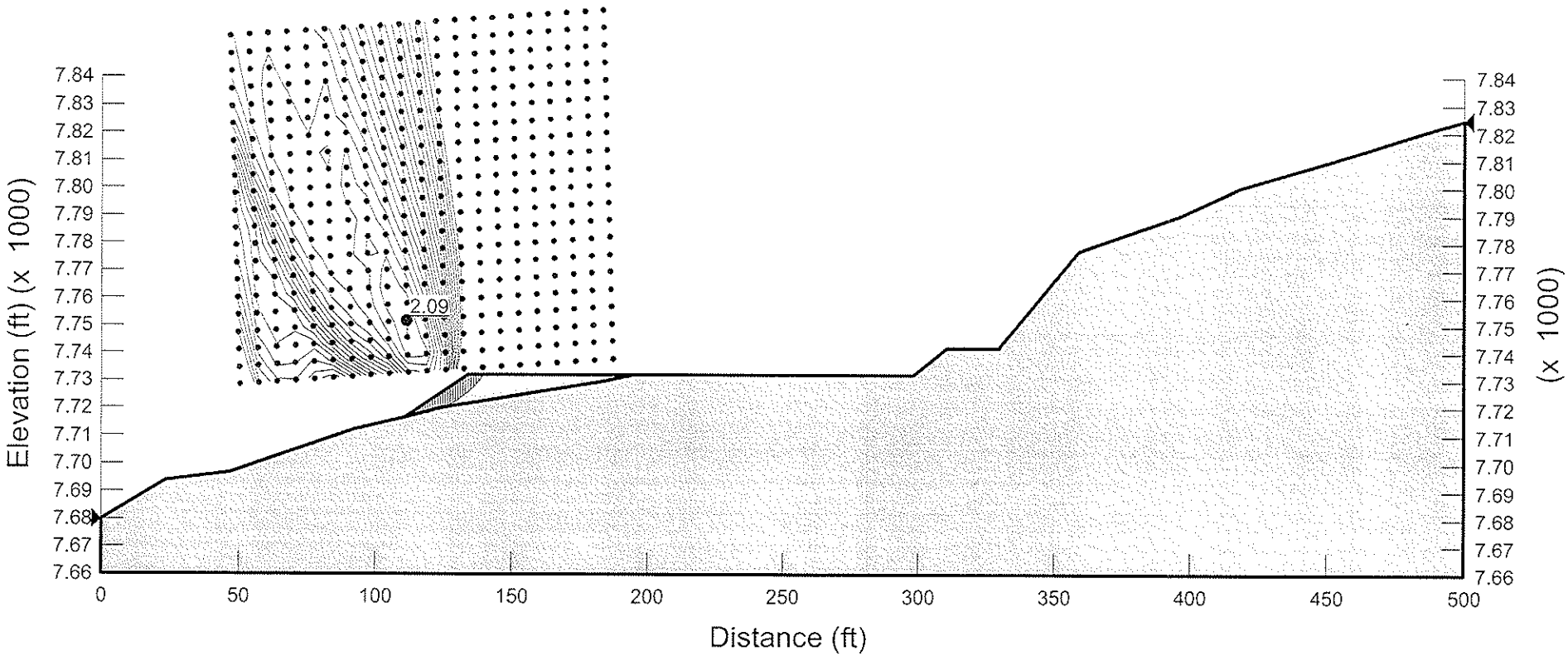
Kinney Mine
Section F-F
1.75:1 Slope

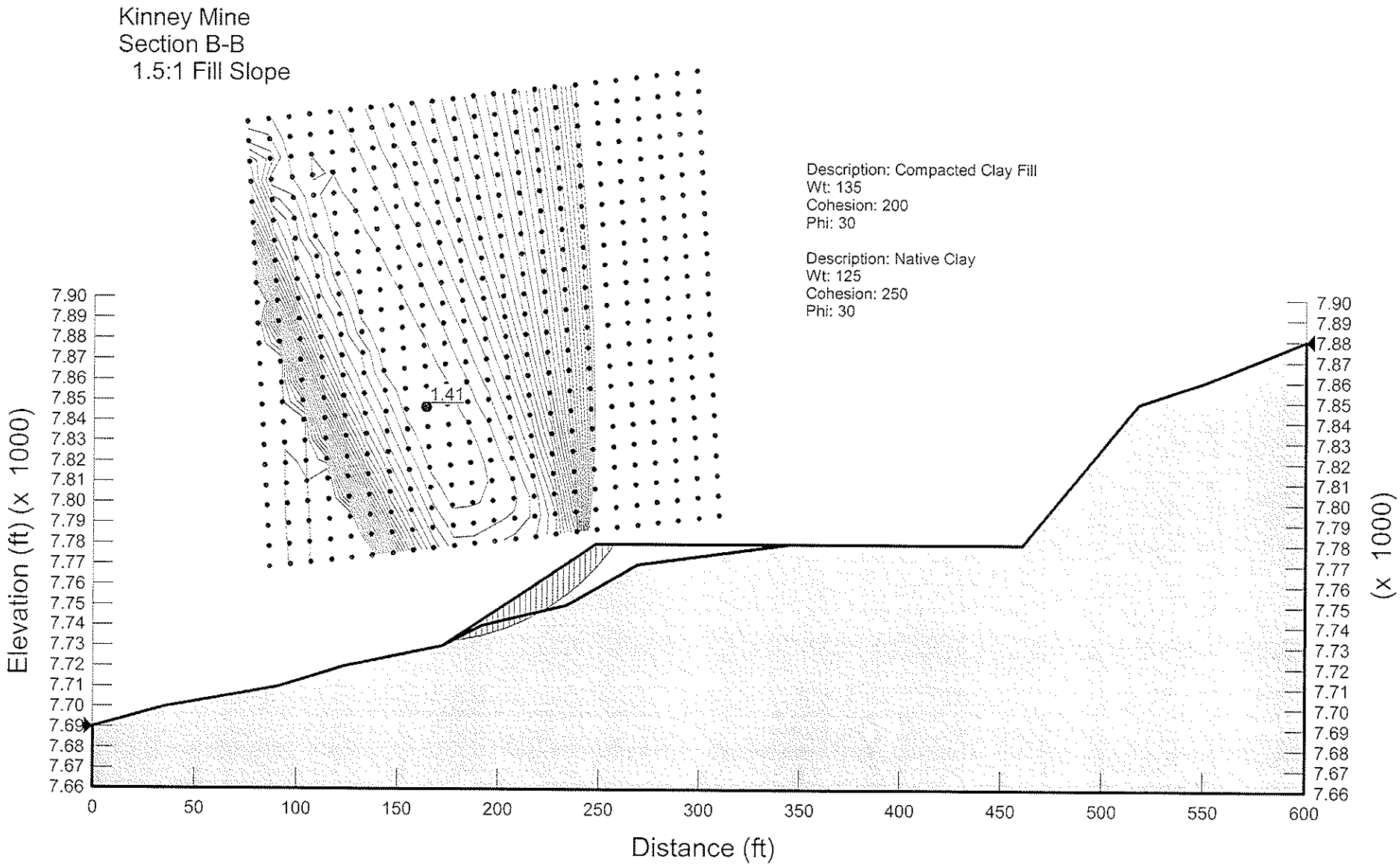


Kinney Mine
Section A-A
1.5:1 Fill Slope

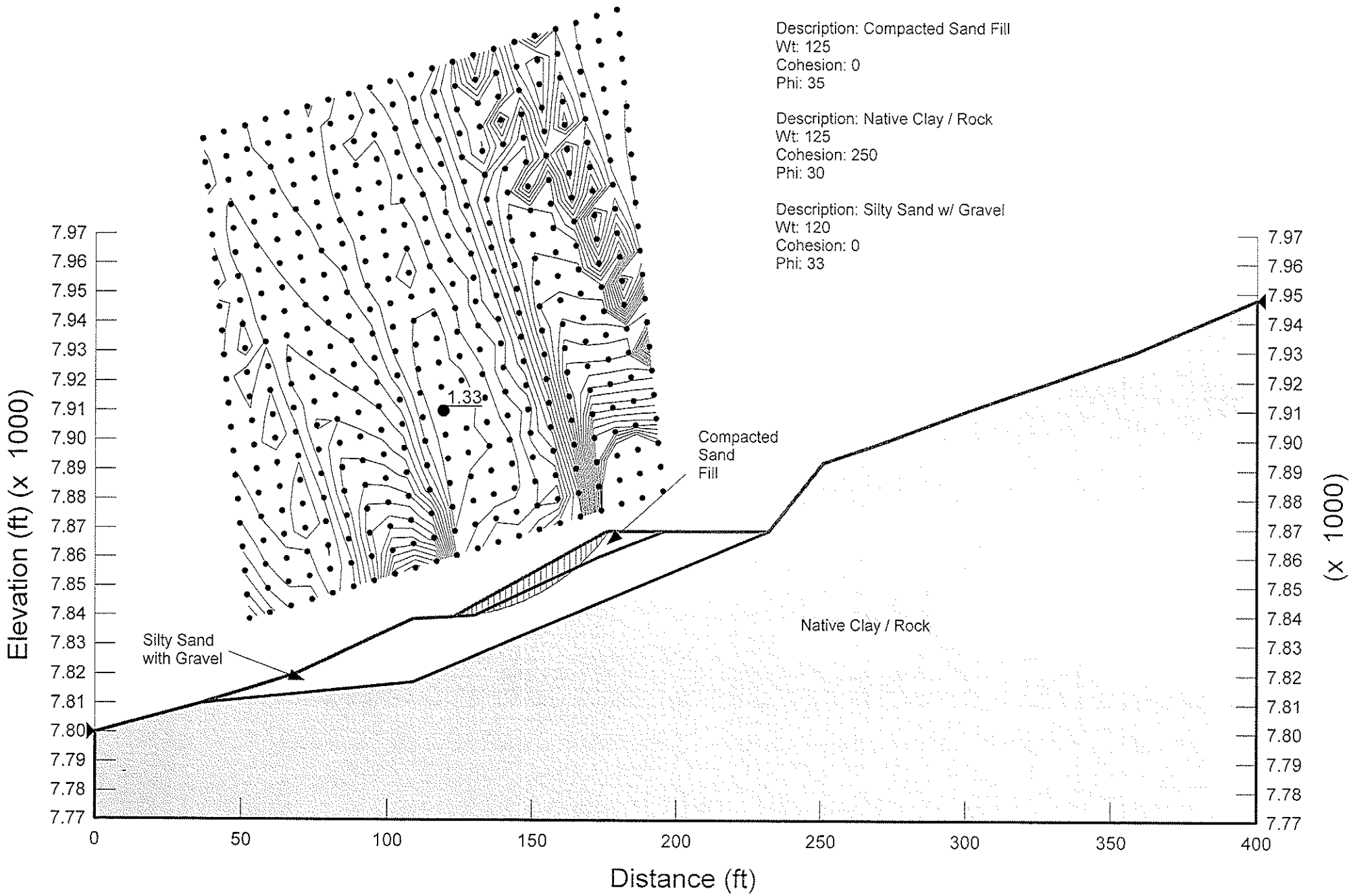
Description: Compacted Clay Fill
Wt: 135
Cohesion: 200
Phi: 30

Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30

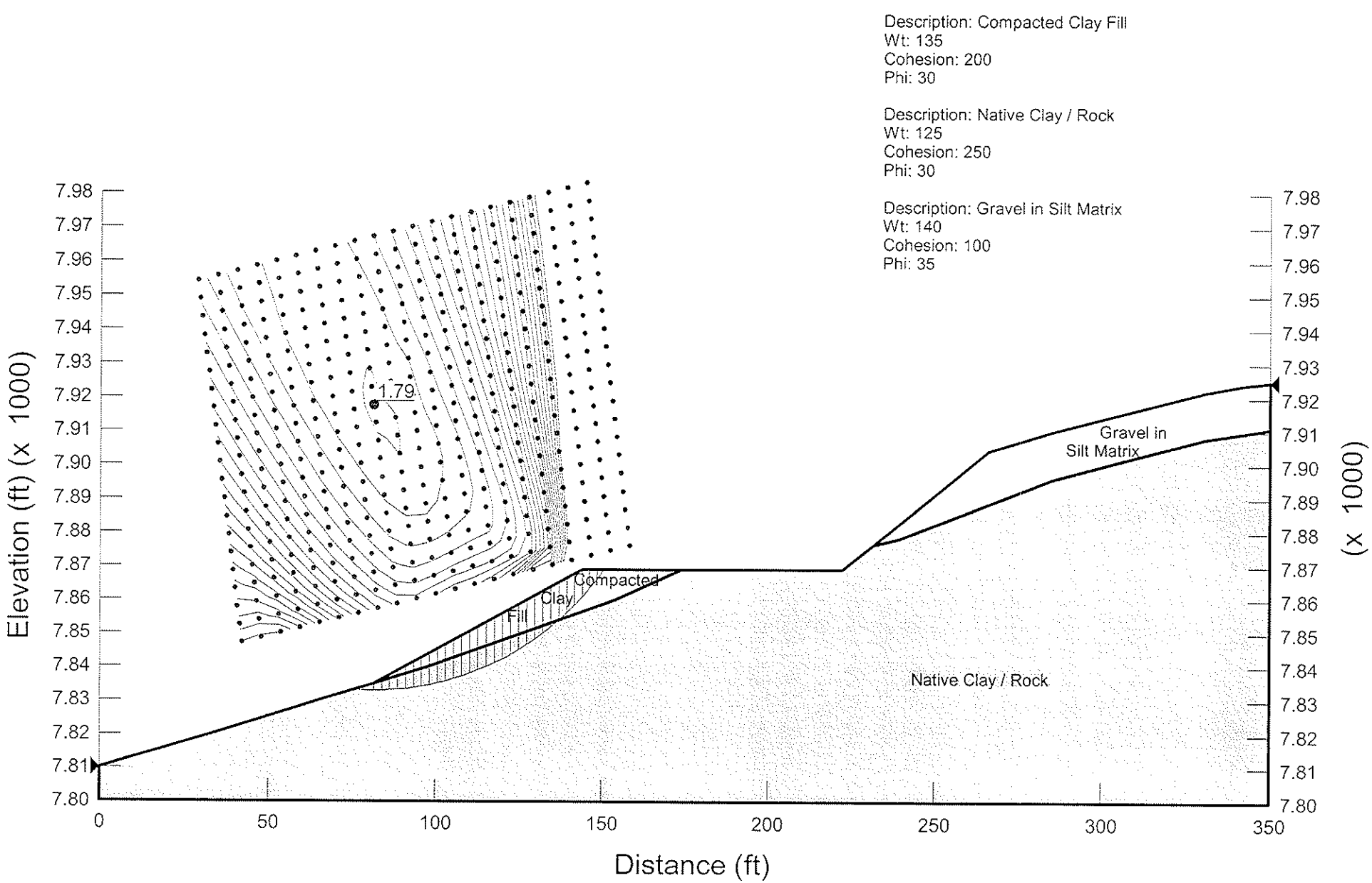



Kinney Mine
Section B-B
1.5:1 Fill Slope
Description: Compacted Clay Fill
Wt: 135
Cohesion: 200
Phi: 30
Description: Native Clay
Wt: 125
Cohesion: 250
Phi: 30
1.41
Elevation (ft) (x 1000)
7.90
7.89
7.88
7.87
7.86
7.85
7.84
7.83
7.82
7.81
7.80
7.79
7.78
7.77
7.76
7.75
7.74
7.73
7.72
7.71
7.70
7.69
7.68
7.67
7.66
0
50
100
150
200
250
300
350
400
450
500
550
600
Distance (ft)
(x 1000)

Kinney Mine
Section C-C
1.8:1 Fill Slope



Kinney Mine
Section F-F
1.8:1 Fill Slope



# Exhibit 15

# Kinney No. 2 Mine Blasting Plan

# EXHIBIT 15
# KINNEY NO. 2 MINE BLASTING PLAN

This blasting plan conforms to the Utah Coal Mining Rules R645-301-524 et. seq. The plan generally follows the format of the regulations, each regulation will be addressed as follows:

## 524.100 & 524.110

All surface blasting will be conducted under the direction of a certified blaster. Blasters will be qualified through the Division's blaster certification program.

## 524.120

Certificates of blaster certification will be carried by blasters or will be on file at a location within the permit area during blasting operations.

## 524.130

A blaster and at least one other person will be present for blasts.

## 524-140

The certified blaster responsible for blasting operations at the site will be familiar with the blasting plan and site-specific performance standards and give on-the-job training to persons who are not certified and who are assigned to the blasting crew or assist in the use of explosives.

## 524.210 – 524.240

Blasting may be required at the surface facilities of the Kinney No. 2 Mine located in the east half of the southeast quarter of Section 32, the west half of the west half of Section 33, Township 12 South, Range 7 East, Salt Lake Base & Meridian. Said areas can be seen on the Regional Land Use Map, Map 4. A portion of this area is within 1,000 feet of occupied buildings, and within 500 feet of abandoned coal mines in the area. In addition, portions of the area are adjacent to Highway 96.

### Blast Design

The blast design, as illustrated by Table 15-1, is intended to show the general layout and present general blasting information. Any significant deviation from this plan will be presented to the Division prior to the blast.

### Structures To Be Protected

Structures to be protected will include all structures within 1,000 feet of the area described above, including the convenience store on the corner of Highway 96 south of the permit area, and all dwellings and public building located within 1,000 feet of the blasting area described above. The locations of buildings and structures within a 1,000 foot zone of the potential blasting area can be seen on Map 11, Regional Surface Ownership Map.

## Blaster Signature

This plan has been signed by a certified blaster on the last page of the plan. In the event the blaster that signed the plan no longer works for Carbon Resources (CR), or is no longer certified, a new certified blaster will be secured to execute the plan, his signature will be placed in the space below the original blaster, and a copy of the signed plan will be filed in the blasting records file.

## 524.300

A preblasting survey will be performed when 5 or more pounds of explosive are used as follows:

**524.310** – At least 30 days before initiation of blasting, CR or its agent will notify, in writing, all residents or owners of dwellings, utilities or other structures located within on-half mile of the permit area, how to request a preblasting survey. Attachment A to this plan is a copy of a notification to be sent to the residents or owners of dwellings, utilities or other structures located within on-half mile of the permit area regarding their rights under the R645 rules to request a preblasting survey per R645-301-524.320.

**524.320** – A resident or owner of a dwelling, structure, or utility within one-half mile of any part of the permit area may request a preblasting survey. The request will be made in writing directly to CR or UDOGM, who will promptly notify CR. CR will promptly conduct a preblasting survey of the dwelling, structure or utility and promptly prepare a report of the survey. An updated survey of any additions, modifications, or renovatins ill be performed by CR if requested by a resident or owner.

**524.330** – CR will determine the condition of the dwelling, structure, or utility and will document any preblasting damage and other physical factors that could reasonably be affected by the blasting. Structures such as pipelines, cables, powerlines, and water systems will receive special attention, however, the assessment of these structures may be limited to surface conditions and other readily available data.

**524.340** – The written report of the survey will be signed by the person that conducted the survey. Copies of the report will be promptly provided to UDOGM and to the person requesting the survey. If the person requesting the survey disagrees with the contents and/or recommendations contained therein, he or she may submit to both CR and UDOGM a detailed description of the specific areas of disagreement.

**524.350** – Any surveys requested more than ten days before the planned initiation of blasting will be completed by CR before the initiation of blasting.

## 524.400

Blasting schedule: Blasting during construction of the Kinney No. 2 Mine surface facilities will begin any time after start of construction, which is scheduled to begin as soon after all appropriate permit approvals as possible. After construction is completed, blasting will be conducted as needed.

Blasting during initial site construction and during full mine operation will be done during daylight hours.

524.410 – Unscheduled blasts may occur for the following reasons:

- Where public safety requires
- Emergency blasting, such as boulders falling onto roadways, and etc.
- Destruction of damaged or deteriorated explosives or detonators in a safe manner
- Disposal of misfires and undetonated explosives
- Firing of charged holes as soon as practical after cessation of static electricity or stray current conditions when electrical detonators are used
- Firing of charged holes when weather conditions indicate the existence of a safety hazard is imminent

Residents of buildings or structures within one-half mile will be notified of unscheduled blasts using audible signals. CR will document the reason for the unscheduled blasts on the blasting records in accordance with R645-301-524.760.

524.430 – Written notice of blasting that is conducted within one-half mile of residents, structures, local governments, or utilities including Scofield Town, PacificCorp Power, and the Utah Department of Transportation will be given. A notice for blasting conducted during construction will be sent to the above entities weekly but in no case less than 24 hours before blasting will occur. The notices will contain the following:

- General location of the blasting
- Genera schedule
- General times of blasts
- Warning signals to be used before and after blasting

Notification to UDOT will be given that Highway 96 may be closed temporarily during blasting if a public safety hazard exists. A general notice of blasting will be placed in the Sun Advocate Newspaper before construction begins. Daily notices will be given each morning to the town of Scofield, and weekly notices will be given to UDOT if blasting during the following week has the potential to interfere with traffic on Highway 96.

524.500 & 524.510 – Blasting signs will be posted at the entrances to the Kinney No. 2 Mine site warning all who enter thereon of blasting. There are three possible entrances to the site, at the main entrance from Highway 96, at the private property road east of the site and the private property road at the north end of the permit area. The signs will be in accordance with R645-301-521.200 as follows:

- Signs will be posted, maintained, and removed by CR or its agent
- Signs will be of uniform design that can be easily seen and read
- Signs will be of durable materials and conform to local laws and regulations
- Signs will be maintained during all activities which they pertain

**524.511** - Signs reading "BLASTING AREA" will be placed at conspicuous places along the edge of Highway 96 adjacent to the permit boundary where blasting may occur.

**524.512** – Signs reading "WARNING! EXPLOSIVES IN USE" will be placed in conspicuous locations at all entrances to the permit area. The signs will also clearly list and describe the meaning of the audible blast warning and all-clear signals, and explain the marking of blasting areas and charged holes awaiting firing within the permit area.

**524.520** – CR or its agent will give warning and all-clear signals of different character that are audible within a range of one-half mile from the point of the blast. A single long tone will be sounded approximately three (3) minutes before all blasts as the warning signal and two (2) short tones from the siren will signal all clear after each blast. Persons within the permit area and persons who reside or work within on-half mile of the permit area will be notified of the meaning of the signals through appropriate written notification as addressed above.

**524.530** – Access within the blasting areas will be controlled to prevent the presence of livestock or unauthorized persons during blasting and until CR or its agent has determined that there are no unusual hazards and access to the travel within the blasting area can be safely resumed.

524.621 – Airblast will not exceed the limits below at the location of occupied dwellings or structures outside the permit area:

| Lower Frequency Limit of Measuring System, HZ(+3dB) | Maximum Level dB |
|---|---|
| 0.1 Hz or lower – flat response(1) | 134 peak |
| 2 Hz or lower – flat response | 133 peak |
| 6 Hz of lower – flat response | 129 peak |
| C-weighted – slow response(1) | 105 peak bBC |
| Note: (1) Only when approved by the Division | |

**524.631** – Periodic monitoring will be conducted to ensure compliance with airblast standards.

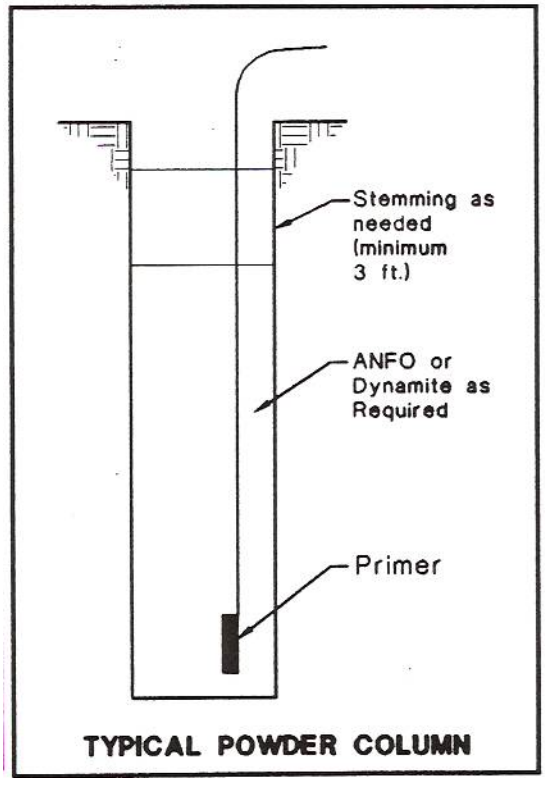
**524.632** – The measuring system used will have an upper-end flat frequency response of at least 200 Hz.

**524.633** – Flyrock traveling in the air or along the ground will not be cast from the blasting site more than one-half the distance to the nearest dwelling or other structure; beyond the area of control required under R645-301-524.530; or beyond the permit boundary.

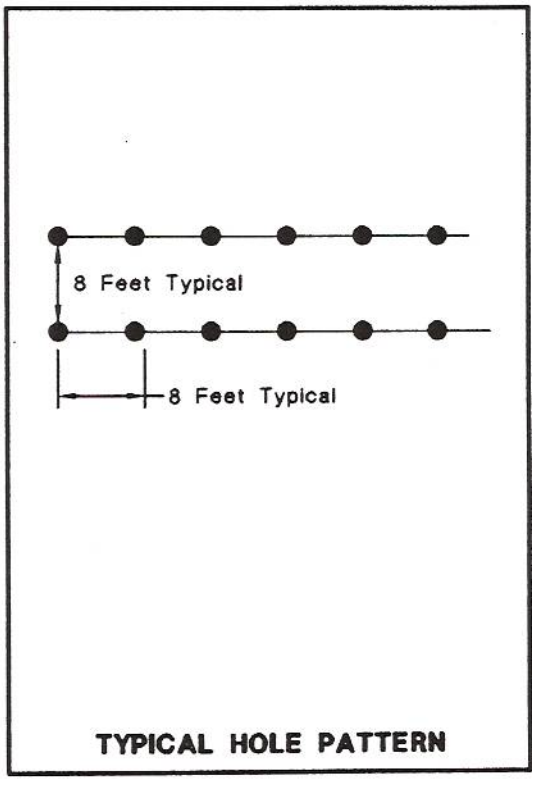
## Table 15-1

## BLASTING PARAMETERS

| | |
|---|---|
| Hole Depth | As needed |
| Hole Diameter | 2.5 inches |
| Hole Stemming | 3 ft. |
| Powder Column | As needed |
| Pounds of Powder Per Hole (ANFO Density @ 0.85 gm/cc) | 1.8 lbs/ft. ANFO, dynamite as needed |
| Powder Factor | 0.61 lb/BCY |
| Bank Cubic Yards Per Hole | depends on hole depth |
| Drilling Pattern | 8 ft. x 0 ft. |
| Primer | 1.5" x 8" stick dynamite for ANFO or cap for dynamite |




TYPICAL POWDER COLUMN




TYPICAL HOLE PATTERN

**TABLE 15-2**
**BLASTING RECORD**
**(Page 1 of 2)**

| | |
|---|---|
| Kinney No. 2 Mine<br>Carbon Resources<br>Kinney No. 2 Mine<br>Carbon Resources, LLC<br>P.O. Box 11789<br>Albuquerqui, New Mexico 87192 | Blaster in Charge:_____<br><br>License No.:_____ |

| | | |
|---|---|---|
| Shot Number: | | Number in Blasting Crew: |
| Date: | Time: | Explosives used: |
| Location: | | Weight of explosives used: |
| | | *Max. number of explosives detonated: |
| Distance to nearest structure: | | *Max. number of holes detonated: |
| Direction to nearest structure: | | Method of firing: |
| Weather conditions:<br>Temp:_____<br>Wind Direction:_____<br>Wind speed:_____<br>Other:_____ | | Type & length of stemming: |
| | | Protection Used: |
| Material blasted: | | Type of delay detonator used: |
| Number of holes: | | Reason for unscheduled blast: |
| Diameter of holes: | | |
| Burden distance: | | |
| Spacing distance: | | |
| Depth of holes: | | |
| *Detonator within any 8 millisecond period. | | |

Signature:_____
Blaster In Charge

| TABE 15-2<br>BLASTING RECORD<br>(Page 2 of 2) |
| --- |
| DELAY PATTERN SKETCH |
| |

**524.640** – CR or its agent will use the explosive equation for blasting set forth in R645301.524.651 to comply with the peak particle velocity limits as set forth in the Explosives Table given in R645-301-524.642. When deviations from the number of holes per delay, as calculated by the referenced equation occurs, a seismograph will be utilized to assure compliance.

**524.700** – Records of blasting will be maintained at the mine site for three years and will be available for inspection by the UDOGM or the public at reasonable times. The record of blasting will be on a form as shown as Table 15-2.

**524.750** – If required, a record of seismographic and airblast information will be recorded and attached to the blasting record. The contents of this record will be in accordance with R645-301-524.751 through R645-301-524.755.

**524.760** – The reason for unscheduled blasts will be recorded on the blasting record for the individual blast.

**524.800** – CR will comply with all appropriate Utah and Federal laws and regulations in the use of explosives.

Signature:_____

Certified Blaster No. _____

Date:_____

Signature:_____

Certified Blaster No. _____

Date:_____

# ATTACHMENT A

[Owner]
[Address]

Date:

To Whom It May Concern,

Re: Blasting By Kinney No. 2 Mine – Preblasting Survey

As per Utah Coal Mining Rules R645-301-524.310 et. seq., you have the right to request a preblasting survey of your structures that lie within on-half mile of the Kinney No. 2 Mine permit area shown on the attached map. This notice is required to be mailed to you at least 30 days before initiation of blasting when more than 5 pounds of blasting agent are used. Since blasting may be necessary during the construction phase of the project as well as during operation of the mine, this notice is being mailed to you before starting construction. We will notify you weekly of blasting that is planned during that week. You should evaluate your needs for a preblasting survey before the construction starts. You may request a preblasting survey any time during the life of the mine. Blasting will be done in compliance with the Utah Coal Mining Rules at R645-301-524.

According to R645-301-524.320, your request must be made in writing to either:

Carbon Resources
Kinney No. 2 Mine
Carbon Resources, LLC
P.O. Box 11789
Albuquerqui, New Mexico 87192

Or

Utah Coal Regulatory Program
Division of Oil. Gas and Mining
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Carbon Resources will promptly conduct a preblasting survey of the structure and promptly prepare a written report of the survey. An updated survey of any additions, modifications, or renovations will be performed if requested. The report will contain:

1. The condition of the structure and will document any preblasting damage and other physical factors that could reasonably be affected by the blasting. The assessment of the structures may be limited to surface conditions and other readily available data and information.
2. The written report will be signed by the person who conducted the survey. Copies of the report will be provided to The Division of Oil, Gas and Mining and to you.

If you disagree with the contents of and/or the recommendations in the report, you may submit to us or the Division of Oil, Gas and Mining a detailed description of the specific areas of disagreement.

Any surveys requested more than ten days before the planned blasting will be conducted and completed before the initiation of blasting.

Sincerely,

Carbon Resources

# Exhibit 16

# Runoff Control Design Details

## Hydrology and Hydraulics

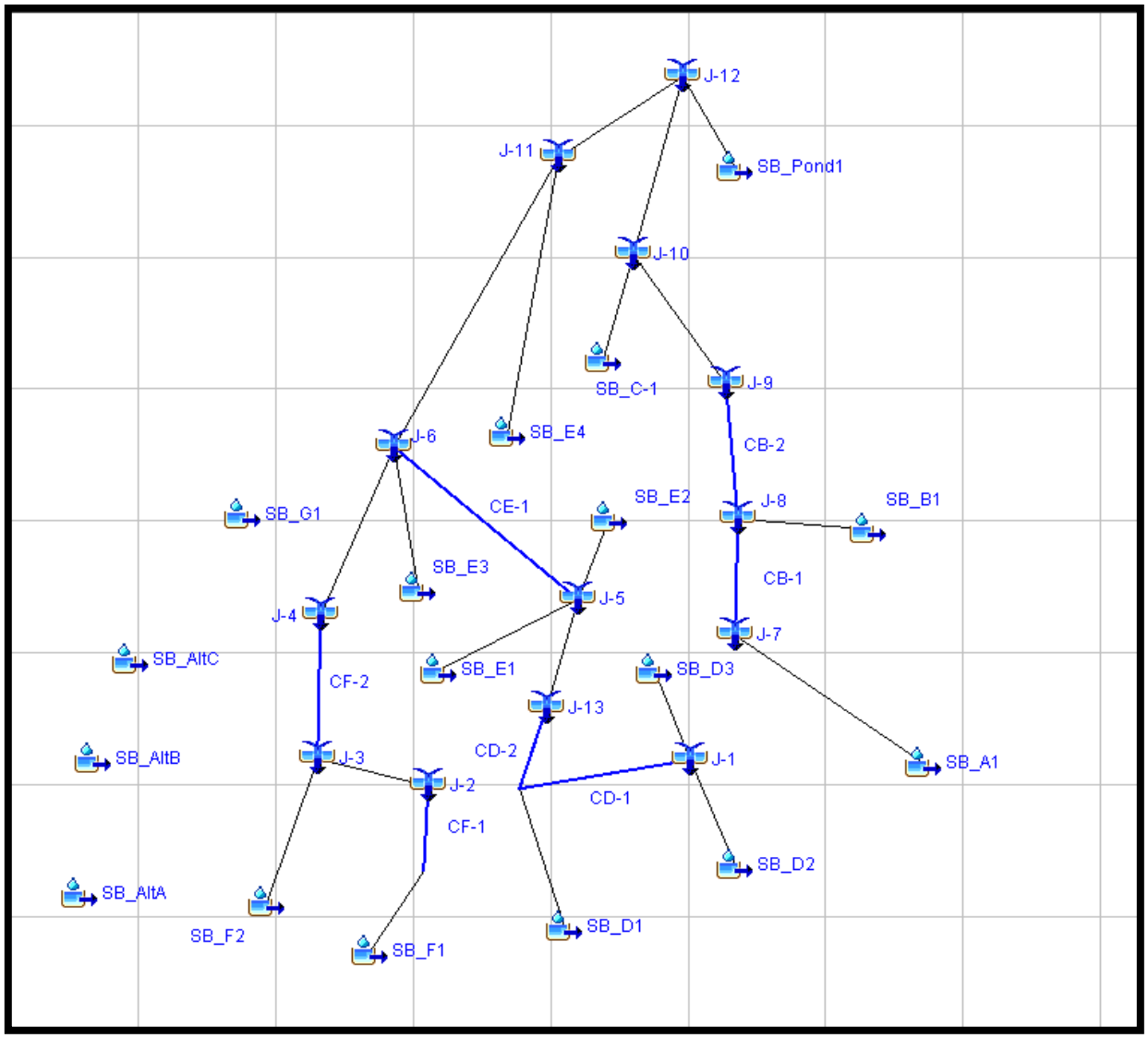
## Ditches and Culverts

## Sedimentation Pond 1

## Energy Dissipation Structures

# Hydrology and Hydraulics

KINNEY MINE HYDROLOGY
HEC-HMS MODEL LAYOUT



| Hydrologic Element | Drainage Area (mi2) | 10yr 6hr Peak Discharge (cfs) | Time of Peak | Volume (in) |
|---|---|---|---|---|
| CB-1 | 0.0064 | 0.9 | 01Jul2007, 03:32 | 0.26 |
| CB-2 | 0.01188 | 2 | 01Jul2007, 03:32 | 0.3 |
| CD-1 | 0.00517 | 0.3 | 01Jul2007, 03:33 | 0.17 |
| CD-2 | 0.00952 | 0.6 | 01Jul2007, 03:36 | 0.19 |
| CE-1 | 0.0190796 | 2.4 | 01Jul2007, 03:33 | 0.28 |
| CF-1 | 0.00581 | 1.3 | 01Jul2007, 03:31 | 0.39 |
| CF-2 | 0.00779 | 1.7 | 01Jul2007, 03:31 | 0.37 |
| J-1 | 0.00517 | 0.3 | 01Jul2007, 03:33 | 0.17 |
| J-10 | 0.0184117 | 2.9 | 01Jul2007, 03:32 | 0.3 |
| J-11 | 0.0300896 | 4.2 | 01Jul2007, 03:32 | 0.29 |
| J-12 | 0.0518713 | 7.6 | 01Jul2007, 03:32 | 0.29 |
| J-13 | 0.00952 | 0.6 | 01Jul2007, 03:36 | 0.19 |
| J-2 | 0.00581 | 1.3 | 01Jul2007, 03:31 | 0.39 |
| J-3 | 0.00779 | 1.7 | 01Jul2007, 03:31 | 0.37 |
| J-4 | 0.00779 | 1.7 | 01Jul2007, 03:31 | 0.37 |
| J-5 | 0.0190796 | 2.4 | 01Jul2007, 03:33 | 0.28 |
| J-6 | 0.0276996 | 4.1 | 01Jul2007, 03:32 | 0.3 |
| J-7 | 0.0064 | 0.9 | 01Jul2007, 03:31 | 0.26 |
| J-8 | 0.01188 | 2 | 01Jul2007, 03:32 | 0.3 |
| J-9 | 0.01188 | 2 | 01Jul2007, 03:32 | 0.3 |
| SB_A1 | 0.0064 | 0.9 | 01Jul2007, 03:31 | 0.26 |
| SB_AltA | 0.00401 | 0.4 | 01Jul2007, 03:34 | 0.23 |
| SB_AltB | 0.00092 | 0.2 | 01Jul2007, 03:30 | 0.32 |
| SB_AltC | 0.0007 | 0.1 | 01Jul2007, 03:30 | 0.32 |
| SB_B1 | 0.00548 | 1.1 | 01Jul2007, 03:32 | 0.35 |
| SB_C-1 | 0.0065317 | 1 | 01Jul2007, 03:33 | 0.29 |
| SB_D1 | 0.00435 | 0.3 | 01Jul2007, 03:37 | 0.21 |
| SB_D2 | 0.00308 | 0.2 | 01Jul2007, 03:34 | 0.16 |
| SB_D3 | 0.00209 | 0.2 | 01Jul2007, 03:33 | 0.18 |
| SB_E1 | 0.00693 | 1.6 | 01Jul2007, 03:32 | 0.43 |
| SB_E2 | 0.0026296 | 0.2 | 01Jul2007, 03:36 | 0.23 |
| SB_E3 | 0.00083 | 0.1 | 01Jul2007, 03:31 | 0.23 |
| SB_E4 | 0.00239 | 0.1 | 01Jul2007, 03:35 | 0.13 |
| SB_F1 | 0.00581 | 1.3 | 01Jul2007, 03:31 | 0.39 |
| SB_F2 | 0.00198 | 0.4 | 01Jul2007, 03:31 | 0.32 |
| SB_G1 | 0.00712 | 0.3 | 01Jul2007, 03:35 | 0.14 |
| SB_Pond1 | 0.00337 | 0.6 | 01Jul2007, 03:30 | 0.29 |
| UDC-1 | 0.15526 | 2.7 | 01Jul2007, 05:45 | 0.09 |
| UDD-1 | 0.101508 | 1.8 | 01Jul2007, 05:45 | 0.09 |

| Hydrologic Element | Drainage Area (mi2) | 100yr 6hr Peak Discharge (cfs) | Time of Peak | Volume (in) |
|---|---|---|---|---|
| CB-1 | 0.0064 | 2.9 | 01Jul2007, 03:31 | 0.75 |
| CB-2 | 0.01188 | 5.8 | 01Jul2007, 03:31 | 0.82 |
| CD-1 | 0.00517 | 1.6 | 01Jul2007, 03:32 | 0.59 |
| CD-2 | 0.00952 | 2.9 | 01Jul2007, 03:34 | 0.62 |
| CE-1 | 0.0190796 | 7.8 | 01Jul2007, 03:32 | 0.78 |
| CF-1 | 0.00581 | 3.3 | 01Jul2007, 03:31 | 0.97 |
| CF-2 | 0.00779 | 4.4 | 01Jul2007, 03:31 | 0.94 |
| J-1 | 0.00517 | 1.6 | 01Jul2007, 03:32 | 0.59 |
| J-10 | 0.0184117 | 8.7 | 01Jul2007, 03:31 | 0.81 |
| J-11 | 0.0300896 | 12.9 | 01Jul2007, 03:31 | 0.79 |
| J-12 | 0.0518713 | 23.2 | 01Jul2007, 03:31 | 0.8 |
| J-13 | 0.00952 | 2.9 | 01Jul2007, 03:34 | 0.62 |
| J-2 | 0.00581 | 3.3 | 01Jul2007, 03:31 | 0.97 |
| J-3 | 0.00779 | 4.4 | 01Jul2007, 03:30 | 0.94 |
| J-4 | 0.00779 | 4.4 | 01Jul2007, 03:31 | 0.94 |
| J-5 | 0.0190796 | 7.8 | 01Jul2007, 03:32 | 0.78 |
| J-6 | 0.0276996 | 12.4 | 01Jul2007, 03:31 | 0.82 |
| J-7 | 0.0064 | 2.9 | 01Jul2007, 03:30 | 0.75 |
| J-8 | 0.01188 | 5.8 | 01Jul2007, 03:31 | 0.82 |
| J-9 | 0.01188 | 5.8 | 01Jul2007, 03:31 | 0.82 |
| SB_A1 | 0.0064 | 2.9 | 01Jul2007, 03:30 | 0.75 |
| SB_AltA | 0.00401 | 1.5 | 01Jul2007, 03:33 | 0.7 |
| SB_AltB | 0.00092 | 0.5 | 01Jul2007, 03:30 | 0.85 |
| SB_AltC | 0.0007 | 0.4 | 01Jul2007, 03:30 | 0.85 |
| SB_B1 | 0.00548 | 2.9 | 01Jul2007, 03:31 | 0.91 |
| SB_C-1 | 0.0065317 | 2.9 | 01Jul2007, 03:32 | 0.8 |
| SB_D1 | 0.00435 | 1.4 | 01Jul2007, 03:35 | 0.65 |
| SB_D2 | 0.00308 | 0.9 | 01Jul2007, 03:33 | 0.57 |
| SB_D3 | 0.00209 | 0.7 | 01Jul2007, 03:32 | 0.61 |
| SB_E1 | 0.00693 | 4.1 | 01Jul2007, 03:31 | 1.03 |
| SB_E2 | 0.0026296 | 0.9 | 01Jul2007, 03:35 | 0.7 |
| SB_E3 | 0.00083 | 0.3 | 01Jul2007, 03:31 | 0.7 |
| SB_E4 | 0.00239 | 0.6 | 01Jul2007, 03:33 | 0.49 |
| SB_F1 | 0.00581 | 3.3 | 01Jul2007, 03:31 | 0.97 |
| SB_F2 | 0.00198 | 1 | 01Jul2007, 03:30 | 0.85 |
| SB_G1 | 0.00712 | 1.9 | 01Jul2007, 03:33 | 0.53 |
| SB_Pond1 | 0.00337 | 1.6 | 01Jul2007, 03:30 | 0.8 |
| UDC-1 | 0.15526 | 14.3 | 01Jul2007, 04:16 | 0.42 |
| UDD-1 | 0.101508 | 9.4 | 01Jul2007, 04:14 | 0.42 |

| Hydrologic Element | Drainage Area (mi2) | 100yr 6hr Peak Discharge (cfs) | Time of Peak | Volume (in) |
|---|---|---|---|---|
| Reclaimed Watershed | 0.112 | 11.5 | 01Jul2007, 04:14 | 0.45 |

| Hydrologic Element | Drainage Area (mi2) | 100yr 24hr Peak Discharge (cfs) | Time of Peak | Volume (in) |
|---|---|---|---|---|
| UDC-1 | 0.15526 | 38.5 | 01Jul2007, 13:34 | 0.79 |
| UDD-1 | 0.101508 | 25.7 | 01Jul2007, 13:33 | 0.79 |

| Hydrologic Element | Drainage Area (mi2) | 100yr 6hr Peak Discharge (cfs) | Time of Peak | Volume (in) |
|---|---|---|---|---|
| Combined | 0.05887 | 18.7 | 01Jul2007, 03:43 | 0.8 |

Kinney Mine Hydrology
Time of Concentration/Lag Time Esitimates

Method: SCS TR 55

Tc = Sheet flow time + shallow concentrated flow time + channel flow time

Tt = 0.007*(n*L) ^ 0.8/((P2) ^ .5*S ^ .4)
P2 = 2-yr 24-hr precip = 1.39 inches
S = Slope (ft/ft)

| SUBBASIN | SHEET FLOW TIME | | | | SHALLOW CONCENTRATED TIME | | | | Channel Time | | | | TOTAL Tc | LAG TIME | LAG TIME |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | L (ft) | S | n | Tt (hrs) | L | S | v (fps) | T (hrs) | L | S | v (fps) | T (hrs) | (hrs) | (hrs) | (mins) |
| SB_A1 | 24 | 0.583 | 0.13 | 0.02 | 0 | 0.000 | 0 | 0.00 | 1515 | 0.064 | 6.5 | 0.07 | 0.08 | 0.05 | 3.0 |
| SB_B1 | 157 | 0.682 | 0.13 | 0.08 | 0 | 0.000 | 0 | 0.00 | 644 | 0.010 | 2.6 | 0.07 | 0.15 | 0.09 | 5.3 |
| SB_C1 | 224 | 0.393 | 0.13 | 0.13 | 0 | 0.000 | 0 | 0.00 | 599 | 0.023 | 3.9 | 0.04 | 0.17 | 0.10 | 6.1 |
| SB_D1 | 300 | 0.313 | 0.13 | 0.18 | 1303 | 0.058 | 3.8 | 0.10 | 240 | 0.021 | 3.7 | 0.02 | 0.29 | 0.17 | 10.5 |
| SB_D2 | 300 | 0.333 | 0.13 | 0.17 | 176 | 0.244 | 8 | 0.01 | 350 | 0.082 | 7.3 | 0.01 | 0.19 | 0.12 | 6.9 |
| SB_D3 | 47 | 0.021 | 0.13 | 0.12 | 0 | 0.000 | 0 | 0.00 | 467 | 0.029 | 4.4 | 0.03 | 0.15 | 0.09 | 5.3 |
| SB_E1 | 300 | 0.008 | 0.011 | 0.10 | 51 | 0.011 | 1.6 | 0.01 | 490 | 0.010 | 2.6 | 0.05 | 0.17 | 0.10 | 6.0 |
| SB_E2 | 413 | 0.240 | 0.13 | 0.25 | 0 | 0.000 | 0 | 0.00 | 424 | 0.021 | 3.7 | 0.03 | 0.29 | 0.17 | 10.3 |
| SB_E3 | 63 | 0.333 | 0.13 | 0.05 | 0 | 0.000 | 0 | 0.00 | 525 | 0.010 | 2.6 | 0.06 | 0.11 | 0.06 | 3.8 |
| SB_E4 | 73 | 0.260 | 0.13 | 0.06 | 0 | 0.000 | 0 | 0.00 | 1238 | 0.010 | 2.6 | 0.13 | 0.20 | 0.12 | 7.1 |
| SB_F1 | 240 | 0.013 | 0.011 | 0.07 | 154 | 0.013 | 1.8 | 0.02 | 244 | 0.033 | 4.6 | 0.01 | 0.11 | 0.07 | 4.0 |
| SB_F2 | 56 | 0.125 | 0.13 | 0.07 | 0 | 0.000 | 0 | 0.00 | 503 | 0.090 | 7.7 | 0.02 | 0.08 | 0.05 | 3.1 |
| SB_G1 | 30 | 0.020 | 0.013 | 0.01 | 0 | 0.000 | 0 | 0.00 | 1809 | 0.010 | 2.6 | 0.20 | 0.21 | 0.13 | 7.6 |
| SB_Pond1 | 64 | 0.313 | 0.13 | 0.05 | 0 | 0.000 | 0 | 0.00 | 544 | 0.065 | 6.5 | 0.02 | 0.07 | 0.04 | 2.7 |
| SB_AltA | 300 | 0.200 | 0.13 | 0.21 | 0 | 0.000 | 0 | 0.00 | 133 | 0.010 | 2.6 | 0.01 | 0.23 | 0.14 | 8.1 |
| SB_AltB | 63 | 0.270 | 0.13 | 0.05 | 0 | 0.000 | 0 | 0.00 | 145 | 0.083 | 7.4 | 0.01 | 0.06 | 0.04 | 2.1 |
| SB_AltC | 29 | 0.720 | 0.13 | 0.02 | 0 | 0.000 | 0 | 0.00 | 227 | 0.044 | 5.4 | 0.01 | 0.03 | 0.02 | 1.1 |
| Combined | 190 | 0.005 | 0.03 | 0.20 | 500 | 0.005 | 1.2 | 0.12 | 2080 | 0.01 | 2.6 | 0.23 | 0.54 | 0.32 | 19.5 |

# Chapter 3 Time of Concentration and Travel Time

Travel time ( $T_t$ ) is the time it takes water to travel from one location to another in a watershed. $T_t$ is a component of time of concentration ( $T_c$ ), which is the time for runoff to travel from the hydraulically most distant point of the watershed to a point of interest within the watershed. $T_c$ is computed by summing all the travel times for consecutive components of the drainage conveyance system.

$T_c$ influences the shape and peak of the runoff hydrograph. Urbanization usually decreases $T_c$, thereby increasing the peak discharge. But $T_c$ can be increased as a result of (a) ponding behind small or inadequate drainage systems, including storm drain inlets and road culverts, or (b) reduction of land slope through grading.

## Factors affecting time of concentration and travel time

### Surface roughness

One of the most significant effects of urban development on flow velocity is less retardance to flow. That is, undeveloped areas with very slow and shallow overland flow through vegetation become modified by urban development: the flow is then delivered to streets, gutters, and storm sewers that transport runoff downstream more rapidly. Travel time through the watershed is generally decreased.

### Channel shape and flow patterns

In small non-urban watersheds, much of the travel time results from overland flow in upstream areas. Typically, urbanization reduces overland flow lengths by conveying storm runoff into a channel as soon as possible. Since channel designs have efficient hydraulic characteristics, runoff flow velocity increases and travel time decreases.

### Slope

Slopes may be increased or decreased by urbanization, depending on the extent of site grading or the extent to which storm sewers and street ditches are used in the design of the water management system. Slope will tend to increase when channels are straightened and decrease when overland flow is directed through storm sewers, street gutters, and diversions.

## Computation of travel time and time of concentration

Water moves through a watershed as sheet flow, shallow concentrated flow, open channel flow, or some combination of these. The type that occurs is a function of the conveyance system and is best determined by field inspection.

Travel time ( $T_t$ ) is the ratio of flow length to flow velocity:

$$T_t = \frac{L}{3600V} \qquad \text{[eq. 3-1]}$$

where:

$T_t$ = travel time (hr)
L = flow length (ft)
V = average velocity (ft/s)
3600 = conversion factor from seconds to hours.

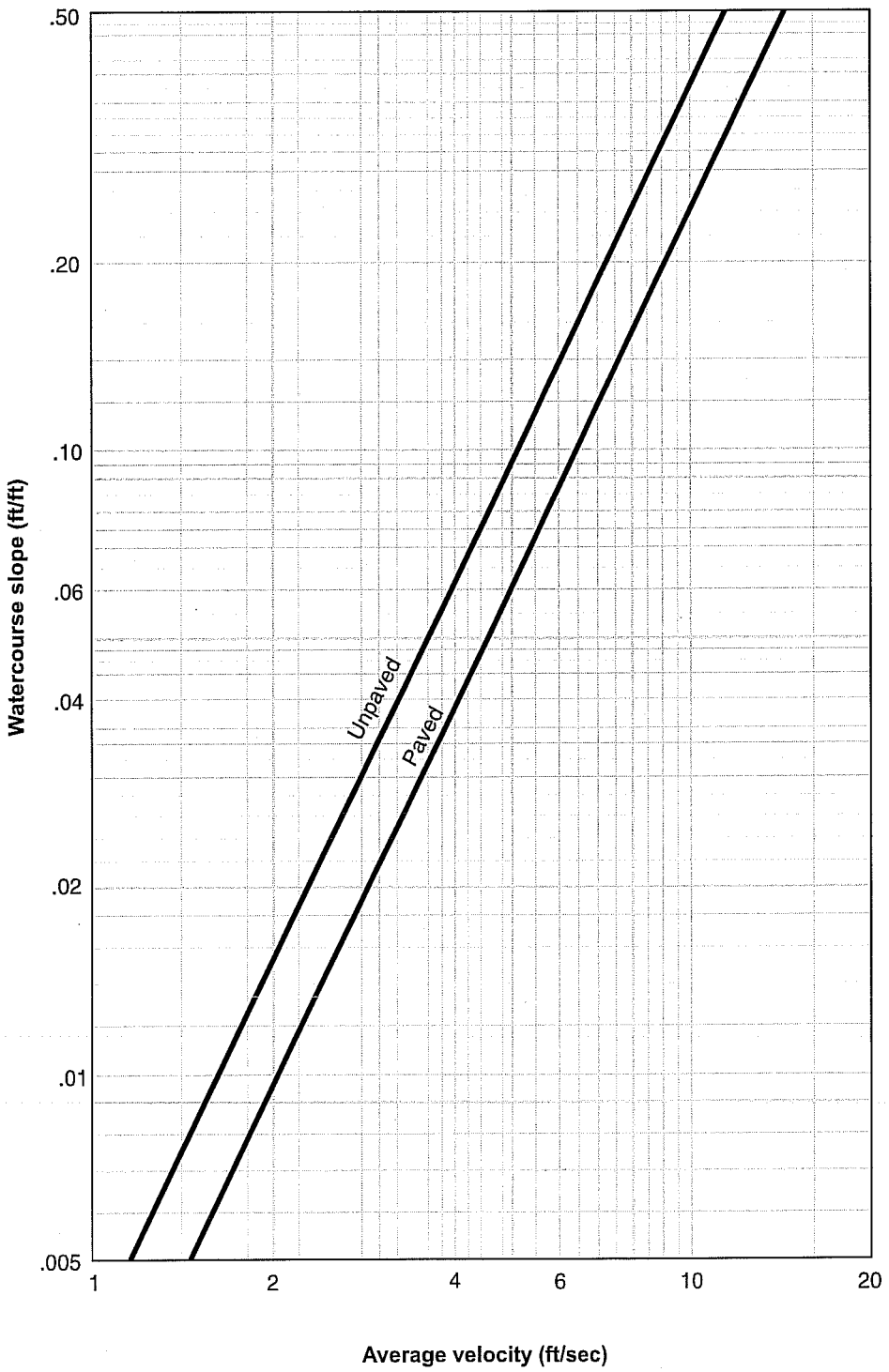
Time of concentration ( $T_c$ ) is the sum of $T_t$ values for the various consecutive flow segments:

$$T_c = T_{t_1} + T_{t_2} + \ldots T_{t_m} \qquad \text{[eq. 3-2]}$$

where:

$T_c$ = time of concentration (hr)
m = number of flow segments

**Figure 3-1** Average velocities for estimating travel time for shallow concentrated flow



## Sheet flow

Sheet flow is flow over plane surfaces. It usually occurs in the headwater of streams. With sheet flow, the friction value (Manning's n) is an effective roughness coefficient that includes the effect of raindrop impact; drag over the plane surface; obstacles such as litter, crop ridges, and rocks; and erosion and transportation of sediment. These n values are for very shallow flow depths of about 0.1 foot or so. Table 3-1 gives Manning's n values for sheet flow for various surface conditions.

**Table 3-1** Roughness coefficients (Manning's n) for sheet flow

| Surface description | n [1] |
|---|---|
| Smooth surfaces (concrete, asphalt, gravel, or bare soil) | 0.011 |
| Fallow (no residue) | 0.05 |
| Cultivated soils: | |
| Residue cover ≤20% | 0.06 |
| Residue cover >20% | 0.17 |
| Grass: | |
| Short grass prairie | 0.15 |
| Dense grasses [2] | 0.24 |
| Bermudagrass | 0.41 |
| Range (natural) | 0.13 |
| Woods:[3] | |
| Light underbrush | 0.40 |
| Dense underbrush | 0.80 |

[1] The n values are a composite of information compiled by Engman (1986).

[2] Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass, and native grass mixtures.

[3] When selecting n , consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

For sheet flow of less than 300 feet, use Manning's kinematic solution (Overtop and Meadows 1976) to compute $T_t$:

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5} s^{0.4}} \qquad \text{[eq. 3-3]}$$

where:

$T_t$ = travel time (hr),
n = Manning's roughness coefficient (table 3-1)
L = flow length (ft)
$P_2$ = 2-year, 24-hour rainfall (in)
s = slope of hydraulic grade line (land slope, ft/ft)

This simplified form of the Manning's kinematic solution is based on the following: (1) shallow steady uniform flow, (2) constant intensity of rainfall excess (that part of a rain available for runoff), (3) rainfall duration of 24 hours, and (4) minor effect of infiltration on travel time. Rainfall depth can be obtained from appendix B.

## Shallow concentrated flow

After a maximum of 300 feet, sheet flow usually becomes shallow concentrated flow. The average velocity for this flow can be determined from figure 3-1, in which average velocity is a function of watercourse slope and type of channel. For slopes less than 0.005 ft/ft, use equations given in appendix F for figure 3-1. Tillage can affect the direction of shallow concentrated flow. Flow may not always be directly down the watershed slope if tillage runs across the slope.

After determining average velocity in figure 3-1, use equation 3-1 to estimate travel time for the shallow concentrated flow segment.

## Open channels

Open channels are assumed to begin where surveyed cross section information has been obtained, where channels are visible on aerial photographs, or where blue lines (indicating streams) appear on United States Geological Survey (USGS) quadrangle sheets. Manning's equation or water surface profile information can be used to estimate average flow velocity. Average flow velocity is usually determined for bankfull elevation.

Manning's equation is:

$$V = \frac{1.49 r^{\frac{2}{3}} s^{\frac{1}{2}}}{n} \qquad \text{[eq. 3-4]}$$

where:

V = average velocity (ft/s)
r = hydraulic radius (ft) and is equal to $a/p_w$
a = cross sectional flow area ($ft^2$)
$p_w$ = wetted perimeter (ft)
s = slope of the hydraulic grade line (channel slope, ft/ft)
n = Manning's roughness coefficient for open channel flow.

Manning's n values for open channel flow can be obtained from standard textbooks such as Chow (1959) or Linsley et al. (1982). After average velocity is computed using equation 3-4, $T_t$ for the channel segment can be estimated using equation 3-1.

### Reservoirs or lakes

Sometimes it is necessary to estimate the velocity of flow through a reservoir or lake at the outlet of a watershed. This travel time is normally very small and can be assumed as zero.

## Limitations

- Manning's kinematic solution should not be used for sheet flow longer than 300 feet. Equation 3-3 was developed for use with the four standard rainfall intensity-duration relationships.

- In watersheds with storm sewers, carefully identify the appropriate hydraulic flow path to estimate $T_c$. Storm sewers generally handle only a small portion of a large event. The rest of the peak flow travels by streets, lawns, and so on, to the outlet. Consult a standard hydraulics textbook to determine average velocity in pipes for either pressure or nonpressure flow.

- The minimum $T_c$ used in TR-55 is 0.1 hour.

- A culvert or bridge can act as a reservoir outlet if there is significant storage behind it. The procedures in TR-55 can be used to determine the peak flow upstream of the culvert. Detailed storage routing procedures should be used to determine the outflow through the culvert.

## Example 3-1

The sketch below shows a watershed in Dyer County, northwestern Tennessee. The problem is to compute $T_c$ at the outlet of the watershed (point D). The 2-year 24-hour rainfall depth is 3.6 inches. All three types of flow occur from the hydraulically most distant point (A) to the point of interest (D). To compute $T_c$, first determine $T_t$ for each segment from the following information:

Segment AB: Sheet flow; dense grass; slope (s) = 0.01 ft/ft; and length (L) = 100 ft. Segment BC: Shallow concentrated flow; unpaved; s = 0.01 ft/ft; and L = 1,400 ft. Segment CD: Channel flow; Manning's n = .05; flow area (a) = 27 $ft^2$; wetted perimeter ($p_w$) = 28.2 ft; s = 0.005 ft/ft; and L = 7,300 ft.

See figure 3-2 for the computations made on worksheet 3.

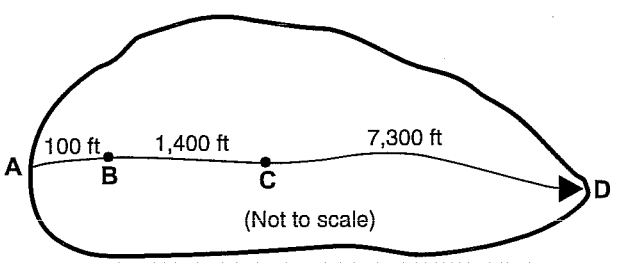


**Figure 3-2** Worksheet 3 for example 3-1

## Worksheet 3: Time of Concentration ($T_c$) or travel time ($T_t$)

| Project | Heavenly Acres | By | DW | Date | 10/6/85 |
|---|---|---|---|---|---|
| Location | Dyer County, Tennessee | Checked | NM | Date | 10/8/85 |

Check one: ☐ Present ☒ Developed

Check one: ☒ $T_c$ ☐ $T_t$ through subarea

Notes: Space for as many as two segments per flow type can be used for each worksheet.
Include a map, schematic, or description of flow segments.

**Sheet flow (Applicable to $T_c$ only)**

| | Segment ID | AB | |
|---|---|---|---|
| 1. | Surface description (table 3-1) | Dense Grass | |
| 2. | Manning's roughness coefficient, n (table 3-1) | 0.24 | |
| 3. | Flow length, L (total L ≤ 300 ft) ft | 100 | |
| 4. | Two-year 24-hour rainfall, $P_2$ in | 3.6 | |
| 5. | Land slope, s ft/ft | 0.01 | |
| 6. | $T_t = \frac{0.007\ (nL)^{0.8}}{P_2^{0.5}\ s^{0.4}}$ Compute $T_t$ hr | 0.30 + | = 0.30 |

**Shallow concentrated flow**

| | Segment ID | BC | |
|---|---|---|---|
| 7. | Surface description (paved or unpaved) | Unpaved | |
| 8. | Flow length, L ft | 1400 | |
| 9. | Watercourse slope, s ft/ft | 0.01 | |
| 10. | Average velocity, V (figure 3-1) ft/s | 1.6 | |
| 11. | $T_t = \frac{L}{3600\ V}$ Compute $T_t$ hr | 0.24 + | = 0.24 |

**Channel flow**

| | Segement ID | CD | |
|---|---|---|---|
| 12. | Cross sectional flow area, a $ft^2$ | 27 | |
| 13. | Wetted perimeter, $p_w$ ft | 28.2 | |
| 14. | Hydraulic radius, $r = \frac{a}{p_w}$ Compute r ft | 0.957 | |
| 15 | Channel slope, s ft/ft | 0.005 | |
| 16. | Manning's roughness coefficient, n | 0.05 | |
| 17. | $V = \frac{1.49\ r^{2/3}\ s^{1/2}}{n}$ Compute V ft/s | 2.05 | |
| 18. | Flow length, L ft | 7300 | |
| 19. | $T_t = \frac{L}{3600\ V}$ Compute $T_t$ hr | 0.99 + | = 0.99 |
| 20. | Watershed or subarea $T_c$ or $T_t$ (add $T_t$ in steps 6, 11, and 19) Hr | | 1.53 |

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CLIENT Carbon Resources
PROJECT Kinney Mine Hydrology
FEATURE Mountain Watershed Lag Time
PROJECT NO 308.01.400

SHEET ____ OF ____
COMPUTED TDS
CHECKED ____
DATE 6-4-07

# Lag Time for Mountain Watersheds

## Watershed Calcs

$$t_{lag} = 0.0051 \times width^{0.594} \times slope^{-0.150} \times S_{nat}^{0.313}$$

$$width = \frac{\text{watershed area}}{\text{watershed length}}$$

$$slope = \frac{\text{max elevation difference}}{\text{longest flow path}}$$

$$S_{nat} = \frac{1000}{CN} - 10$$

## ① UDC-1

$$width = \frac{3,936,738\ ft^2}{3,030\ ft} = 1299\ ft$$

$$slope = \frac{8810 - 7850}{3,080\ ft} = 0.314$$

$$S_{nat} = \frac{1000}{CN} - 10 = \frac{1000}{75} - 10 = 3.33$$

$$t_{lag} = 0.0051 \times (1299)^{0.594} \times (0.314)^{-0.15} \times (3.33)^{0.313}$$

$$= 0.63\ hrs = \underline{\underline{37.8\ min}} \leftarrow$$

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CHECKED ____
DATE 8-3-07

(2) UDD-1

$$\text{width} = \frac{2,829,870\ ft^2}{2,320\ ft} = 1,220\ ft$$

$$\text{slope} = \frac{8,610\ ft - 7,840\ ft}{2,670\ ft} = 0.288$$

$$S_{nat} = \frac{1000}{CN} - 10 = \frac{1000}{75} - 10 = 3.33$$

$$t_{lag} = 0.0051 \times (1,220\ ft)^{0.594} \times (0.288)^{-0.15} \times (3.33)^{0.313}$$

$$= 0.61\ hrs = \underline{36.6\ min} \leftarrow$$

# Lag time characteristics for small watersheds in the U.S.

M.J. Simas[1], R.H. Hawkins[2]

**Abstract**

Lag time, defined as the time from the centroid of rainfall excess to the centroid of direct runoff, was evaluated for over 50,000 rainfall-runoff events in 168 small watersheds in the United States ranging from 0.243 to 3490 acres. In most watersheds a stable value of lag time was observed for the larger storms, with peak flow the variable that best showed this tendency. The watersheds were divided into groups to explain the variation of lag time between watersheds. The groups that had a significant effect in the regression equation were geographical regions, watershed management practices, and the stability of the lag time value for the bigger storms. Separation of watersheds by land use and hydrologic behavior did not significantly improve the regression analyses. When only watersheds with stable behavior were used (N=78), no group significantly improved the regression equation, $t_{lag} = 0.0051 \times width^{0.594} \times slope^{-0.150} \times S_{nat}^{0.313}$, which exhibited $R^2$=58%.

## Introduction

Public investment in surface drainage improvements in developing urban areas involves an annual capital investment on the order of a few billion of dollars (Pilgrim and Cordery, 1993). The average annual expenditure for works in small rural drainage basins amounts to 46 percent of the total expenditure on structures and works, making

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flood estimation for these small drainage basins of great importance in terms of national expenditure.

In design flood estimation, characteristic response times are required for the determination of hydrograph parameters and critical duration of flood producing rainfall (Ward et al., 1980). A given volume of water may or may not represent a flood hazard, as the hazard will depend on the time distribution of the flood runoff. Almost all hydrologic analysis of rainfall and runoff usually require the value of at least one time parameter as input (McCuen, 1989).

Most hydrologic models require a watershed characteristic that reflects the timing of runoff. One of the most widely used methods for estimating floods on small drainage basins is the U.S. Soil Conservation Service (SCS) method. The SCS method uses lag time, defined as the time difference between the centroid of the effective rainfall and the peak of direct runoff.

There is some inconsistency in the definition of lag time, and this leads to difficulty in analyzing the results from the different models that use it. Singh (1988) gathered nine different definitions for lag time. Still another constraint in the applicability of the time parameters is the lack of diversity of data (McCuen et al., 1984), since most empirical equations were developed for urbanized areas, rather than for rural areas (Miller et al., 1995).

The accuracy of the design flood estimate is directly related to the accuracy with which an estimate of the watershed response time is made (Singh, 1988). Errors on the order of 75% in the estimation of the peak discharge can be attributed to errors in the estimated value of the time parameter (McCuen, 1989; Singh, 1988). Little is known about the accuracy of estimates of response times on ungaged watersheds. For a specified recurrence interval, a first approximation of the design flood estimate is inversely proportional to the response time (Singh, 1988). In performing hydrologic computations of runoff, a particular synthetic unit hydrograph is often selected, and as such, a particular time parameter consistent with the unit hydrograph theory adopted. However, if a unit hydrograph method is chosen and the selected time parameter is inconsistent with it, unknowingly significant errors may be introduced in runoff computations (Miller et al., 1995).

Lag time is affected by watershed and rainstorm parameters. The physiographic parameters that affect lag time are areal extent, form, slope, surface topographic characteristics, vegetation, and land use. The rainfall characteristics are intensity in time and space, rainfall duration, and direction of runoff. There are still other factors that affect lag time, like the antecedent moisture conditions, infiltration characteristics, wind velocity, and weather condition (Singh, 1988).

Lag time used in this study was defined as the time from the centroid of rainfall excess to the centroid of direct runoff. This definition has been accepted as being the most stable measure of lag time (Schultz and Lopez, 1974).

## Methodology

Lag time values were evaluated from rainfall-runoff data in over 50,000 events from 168 small watersheds in the United States. The watersheds ranged from 0.243 to 3490 acres, with periods of rainfall-runoff records from 3 to 58 years.

The data used in this study was obtained entirely from the Water Data Center maintained by the US Department of Agriculture, the Agricultural Research Service (ARS) in Beltsville, Maryland. This national archive of variable time-series readings for precipitation and runoff contains sufficient detail to reconstruct storm hydrographs and hyetographs. Textual files containing watershed descriptive information, land use and soils are published in the Hydrologic Data for Experimental Agricultural Watersheds in the United States book series.

Rainfall and runoff events were separated using GETPQ, a software developed at the University of Arizona which uses breakpoint rainfall-runoff data, and separates hydrographs using a constant baseflow separation slope. It then matches the rainfall to this hydrograph by comparing the times of occurrence of both the hydrograph and the hyetograph.

The lag time definition used in this study is the difference from the centroid of effective rainfall and the centroid of direct runoff.

Effective rainfall was defined and computed by an initial loss followed by a continuing loss rate (phi index). The phi was determined iteratively by adjusting its value until the effective rainfall hyetograph matched observed direct runoff depth. This done, the centroid of effective rainfall is computed.

Direct runoff was defined and computed as the runoff that has occurred once the baseflow has been deducted. The baseflow separation was done by using a constant baseflow separation slope (0.0002 in/hr$^2$).

The rainfall-runoff events were selected based on some pre-defined criteria. This filtering followed the approaches of Gray (1961) and Eagleson (1962) to select only those hydrographs with a single peak followed by an uninterrupted recession. All rainfall-runoff events were visually inspected. The rainfall-runoff events were discarded if the hydrographs were multi-peaked; if the hydrographs started before the hyetographs, suggesting inconsistency in the timing of rainfall and runoff data; if the hydrographs started after the hyetograph ended, because effective rainfall contributing to that runoff event cannot be computed; or if the events presented a negative lag time (the centroid of effective rainfall occurring after the centroid of runoff) suggesting that there is some inconsistency in the timing of rainfall and runoff data.

A total of 31,030 events were selected (out of 55,645) for further analysis of the 168 watersheds under study. Most of the factors described above that affect lag time were evaluated in this study. The study was separated in two parts. The first one evaluated the rainfall characteristics and how they affect lag time, and the second part evaluated how the watershed characteristics affected it.

Lag time should be a constant for all storms of a given watershed if the excess rainfall-direct runoff process was truly linear. However, some differences were observed when computing lag time from observed data (Barnes, 1959; Minshall, 1960; Gray, 1961; Eagleson, 1962; Diskin, 1964; Rastogi and Jones, 1969; Laureson, 1964; Askew, 1970).

In the present study, four rainfall-runoff characteristics were used to evaluate the variation of lag time within a watershed. These factors were degree of saturation of a watershed (Ramser, 1927) - represented by the previous 48 hour rainfall; effective

rainfall intensity (Ramser, 1927; Ragan and Duru, 1972; Singh and Agiralioglu, 1982) - defined as the average effective rainfall intensity, effective rainfall being defined as the rainfall that occurred after the hydrograph started; mean total discharge (Ramser, 1927; Barnes, 1959; Laureson, 1964; Askew, 1970) - ratio between total runoff depth and its duration; peak flow - introduced in this study as another hydrologic variable to explain the variation of lag time values within a watershed. Peak flow is represented by the maximum flow rate in a hydrograph.

Several watershed parameters were thought to be related to lag time, like for example length and slope of the catchment (Bell and Karr, 1969; Ragan and Duru, 1972). Vegetation cover seemed to be the most influential factor in the computation of lag time (Ragan and Duru; 1972). Imperviousness of a watershed was another factor that seemed to be important on lag time computation (Rao and Delleur, 1974).

The watershed variables observed in this study were watershed area (ac); watershed length (ft) - longest flow-path from the highest elevation to the watershed outlet; watershed slope - ratio between the maximum difference in elevation and the longest flow-path length; $S_{nat}$ - storage coefficient (in) used in the Curve Number (CN) method. Width (ft) is the watershed area divided by the watershed length. CN was computed using the asymptotic determination of runoff Curve Numbers from rainfall and runoff data technique (Hawkins, 1992).

Multiple linear regression analysis was performed on the data. The desired form of the fitted equation was $Lag = a_0 * width^{a_1} * slope^{a_2} * S_{nat}^{a_3}$.

The watersheds were separated into four diverse groups to clarify possible grouping relationships and give more reliable fittings. The groups represented qualitative characteristics of a watershed and were: regions (East, Midwest, Central, Southwest); land use (pasture, mixed, agriculture, forest); management (high, medium and low disturbance); behavior (Complacent, Standard, Violent) (Hawkins, 1992).

**Results and Discussion**

Variations of lag time within a watershed

Lag time was not a constant for a watershed but varied considerably. Some watersheds showed a tendency towards a constant value of lag time for the bigger storms. Unlike what is described in the literature, the degree of saturation of a watershed, represented by the prior 48-hour rainfall, showed no significant or consistent relationship to lag time. As for the effective rainfall intensity, previous studies had found that time of concentration (directly related to lag time) should decrease for the higher rainfall intensity storms (Ramser, 1927; Ragan and Duru, 1972; Agiraloglu and Singh, 1981; Singh, 1982). Such relationship was not observed in this study. A non-linear relation between lag time and mean total discharge was suggested by Askew (1970). In this study, only 5 of the 168 watersheds had a coefficient of determination ($r^2$) above 0.50 upon for such relationships.

However, some watersheds showed a tendency to a constant value of lag time at the higher values of previous 48-hour rainfall, suggesting that the scatter observed under 'drier' conditions is perhaps because of partial area contribution to runoff. The same is true for the higher intensity storms, suggesting that the watershed might not be

at equilibrium for the small storms, when the hydrology of the watershed is still not well developed. The same tendency towards a constant value of lag time at the high mean runoff rate values was found, suggesting that the hydrology of the watershed is better defined for bigger storms. Also, for bigger storms the watershed may reach steady-state conditions. The variable introduced in this study was peak flow, and similarly to the previous evaluations, lag time showed a stable value for larger peak flow values. The higher peak flow suggests bigger storms, that might be better distributed both in time and space. This might represent steady-state conditions, and the value of lag time should not be affected by the size of the storm, once these conditions are met. The best estimate of lag time was computed for each watershed.

Variations of lag time between watersheds

All variables (width, slope, $S_{nat}$) were significant in explaining the variation of lag time in regression analysis. Two sets of watersheds were evaluated, the first being all watersheds, and the second being composed of the watersheds that showed a stable value for the larger storms. For the first set, the groups that had a significant effect were geographical regions, watershed management practices, and the tendency towards a constant value of lag time for the bigger storms. Separation of watersheds by land use and hydrologic behavior did not significantly improve the regression analyses. When the second set of watersheds was used, no group significantly improved the regression equation. The final regression equation (second set) was

$$t_{lag} = 0.0051 \times width^{0.594} \times slope^{-0.150} \times S_{nat}^{0.313} .$$

This equation had $R^2$= 58, and N= 78. It bears repeating that $t_{lag}$ is in hours, *width* is in feet, *slope* is a decimal fraction, and $S_{nat}$ is in inches.

**Conclusions**

There was a tendency towards a stable value of lag time for the larger storms. Peak flow was the hydrologic variable that best showed this tendency. Hydrologic relationships previously described in the literature were not verified in this study.

In order to compute lag time rainfall-runoff data should be used, especially for the larger storms. If there is not enough data available, grouping the watersheds into regions and management practices will improve the regression equation. Width, slope and $S_{nat}$ are good variables for prediction of lag time. The model developed in this study had a higher coefficient of determination compared to other models presented in the literature.

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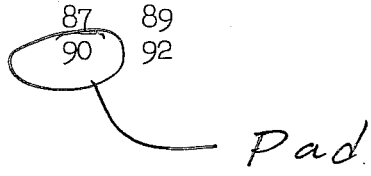
Table 9.1.--Runoff curve numbers for hydrologic soil-cover complexes

(Antecedent moisture condition II, and $I_a = 0.2\ S$)

| Land use | Cover: Treatment or practice | Cover: Hydrologic condition | Hydrologic soil group: A | B | C | D |
|---|---|---|---|---|---|---|
| Fallow | Straight row | ---- | 77 | 86 | 91 | 94 |
| Row crops | " | Poor | 72 | 81 | 88 | 91 |
| | " | Good | 67 | 78 | 85 | 89 |
| | Contoured | Poor | 70 | 79 | 84 | 88 |
| | " | Good | 65 | 75 | 82 | 86 |
| | "and terraced | Poor | 66 | 74 | 80 | 82 |
| | " " " | Good | 62 | 71 | 78 | 81 |
| Small grain | Straight row | Poor | 65 | 76 | 84 | 88 |
| | | Good | 63 | 75 | 83 | 87 |
| | Contoured | Poor | 63 | 74 | 82 | 85 |
| | | Good | 61 | 73 | 81 | 84 |
| | "and terraced | Poor | 61 | 72 | 79 | 82 |
| | | Good | 59 | 70 | 78 | 81 |
| Close-seeded legumes 1/ or rotation meadow | Straight row | Poor | 66 | 77 | 85 | 89 |
| | " " | Good | 58 | 72 | 81 | 85 |
| | Contoured | Poor | 64 | 75 | 83 | 85 |
| | " | Good | 55 | 69 | 78 | 83 |
| | "and terraced | Poor | 63 | 73 | 80 | 83 |
| | "and terraced | Good | 51 | 67 | 76 | 80 |
| Pasture or range | | Poor | 68 | 79 | 86 | 89 |
| | | Fair | 49 | 69 | 79 | 84 |
| | | Good | 39 | 61 | 74 | 80 |
| | Contoured | Poor | 47 | 67 | 81 | 88 |
| | " | Fair | 25 | 59 | 75 | 83 |
| | " | Good | 6 | 35 | 70 | 79 |
| Meadow | | Good | 30 | 58 | 71 | 78 |
| Woods | | Poor | 45 | 66 | 77 | 83 |
| | | Fair | 36 | 60 | 73 | 79 |
| | | Good | 25 | 55 | 70 | 77 |
| Farmsteads | | ---- | 59 | 74 | 82 | 86 |
| Roads (dirt) 2/ | | ---- | 72 | 82 | 87 | 89 |
| (hard surface) 2/ | | --- | 74 | 84 | 90 | 92 |

1/ Close-drilled or broadcast.
2/ Including right-of-way.



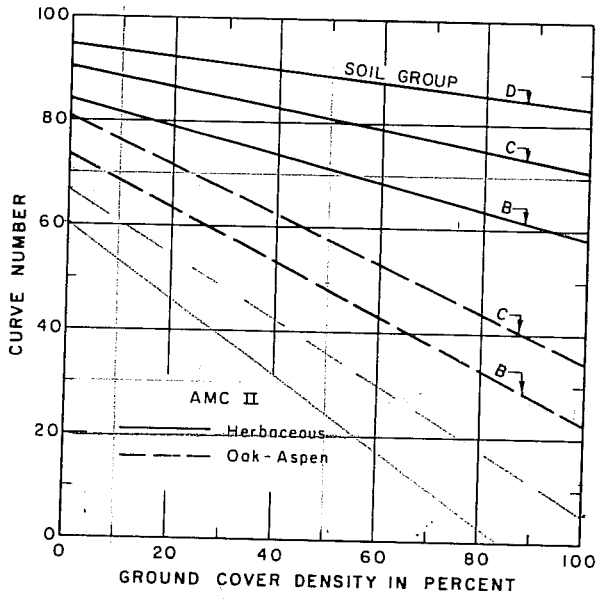



Figure 9.5.--Graph for estimating runoff curve numbers of forest-range complexes in western United States: herbaceous and oak-aspen complexes.

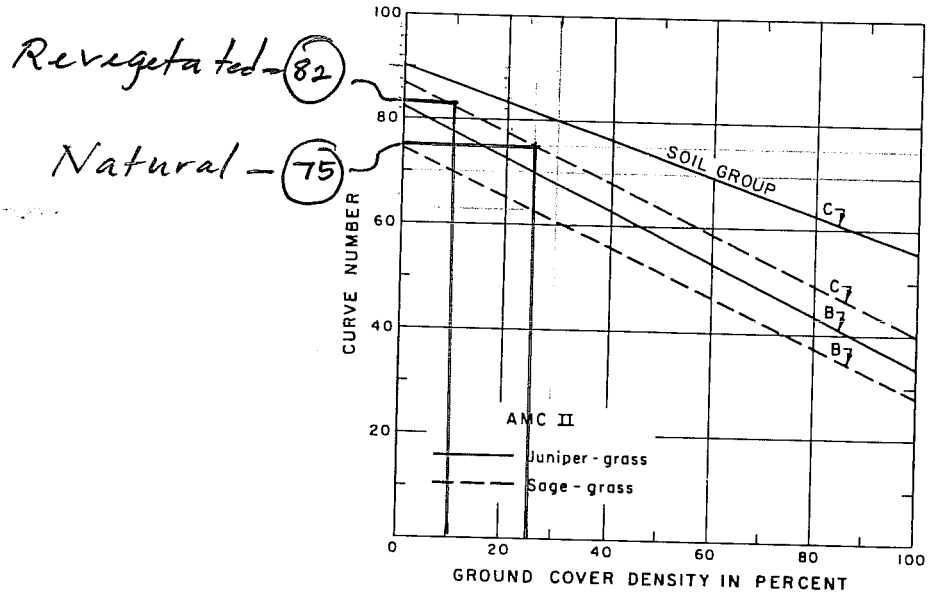



Figure 9.6.--Graph for estimating runoff curve numbers of forest-range complexes in western United States: juniper-grass and sage-grass complexes.

96
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©2007 Navteq
Google
Pointer 39°43'57.18" N 111°09'15.73" W
Streaming 100%
Eye alt 3365 ft

# POINT PRECIPITATION FREQUENCY ESTIMATES FROM NOAA ATLAS 14

**Utah 39.730247 N 111.1550194 W 7998 feet**

from "Precipitation-Frequency Atlas of the United States" NOAA Atlas 14, Volume 1, Version 4
G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley
NOAA, National Weather Service, Silver Spring, Maryland, 2006

Extracted: Wed May 30 2007

Confidence Limits | Seasonality | Location Maps | Other Info. | GIS data | Maps | Help | Docs | U.S. Map

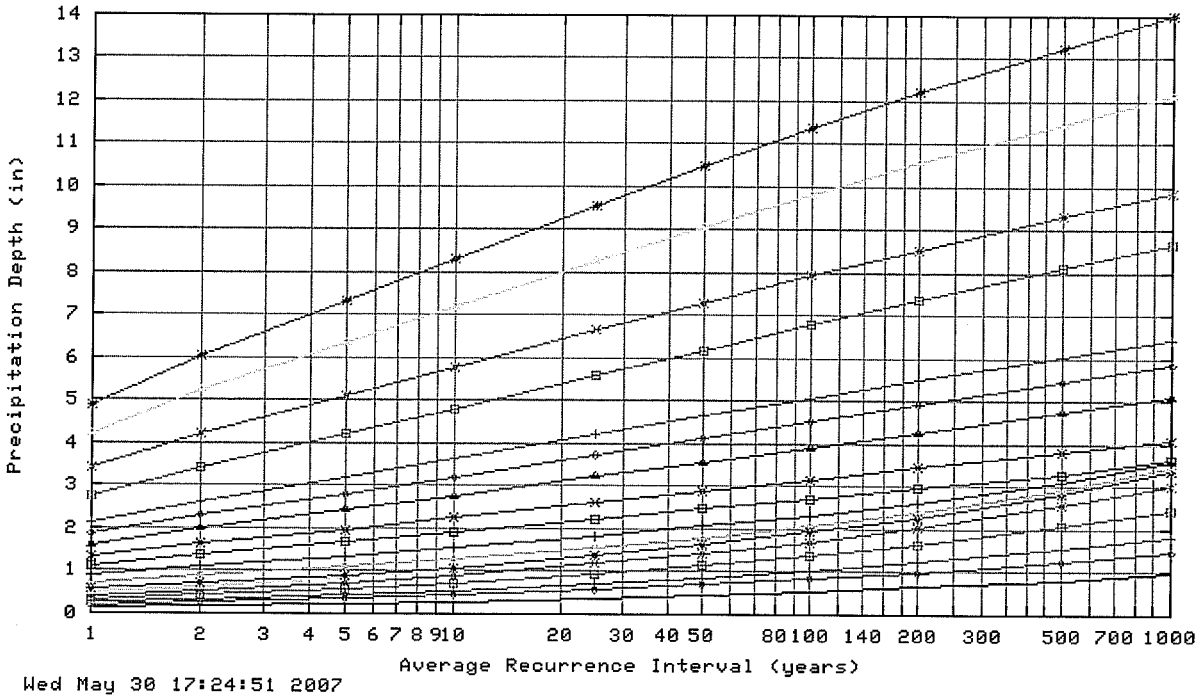
**Precipitation Frequency Estimates (inches)**

| ARI* (years) | 5 min | 10 min | 15 min | 30 min | 60 min | 120 min | 3 hr | 6 hr | 12 hr | 24 hr | 48 hr | 4 day | 7 day | 10 day | 20 day | 30 day | 45 day | 60 day |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.13 | 0.20 | 0.24 | 0.33 | 0.41 | 0.50 | 0.56 | 0.71 | 0.90 | 1.12 | 1.31 | 1.62 | 1.88 | 2.13 | 2.77 | 3.40 | 4.22 | 4.89 |
| 2 | 0.17 | 0.25 | 0.32 | 0.42 | 0.53 | 0.63 | 0.70 | 0.89 | 1.11 | 1.39 | 1.62 | 2.00 | 2.32 | 2.64 | 3.44 | 4.21 | 5.23 | 6.06 |
| 5 | 0.23 | 0.35 | 0.44 | 0.59 | 0.73 | 0.84 | 0.90 | 1.10 | 1.35 | 1.69 | 1.97 | 2.42 | 2.82 | 3.20 | 4.21 | 5.10 | 6.34 | 7.35 |
| 10 | 0.29 | 0.44 | 0.54 | 0.73 | 0.90 | 1.03 | 1.08 | 1.28 | 1.56 | 1.92 | 2.25 | 2.77 | 3.21 | 3.64 | 4.81 | 5.78 | 7.18 | 8.32 |
| 25 | 0.38 | 0.57 | 0.71 | 0.95 | 1.18 | 1.33 | 1.38 | 1.54 | 1.84 | 2.24 | 2.61 | 3.22 | 3.74 | 4.22 | 5.60 | 6.66 | 8.27 | 9.57 |
| 50 | 0.45 | 0.69 | 0.86 | 1.15 | 1.43 | 1.59 | 1.63 | 1.78 | 2.07 | 2.48 | 2.89 | 3.58 | 4.14 | 4.65 | 6.19 | 7.30 | 9.05 | 10.48 |
| 100 | 0.54 | 0.83 | 1.03 | 1.38 | 1.71 | 1.90 | 1.94 | 2.08 | 2.31 | 2.73 | 3.17 | 3.93 | 4.55 | 5.08 | 6.78 | 7.94 | 9.82 | 11.36 |
| 200 | 0.65 | 0.99 | 1.22 | 1.65 | 2.04 | 2.26 | 2.29 | 2.40 | 2.61 | 2.97 | 3.45 | 4.28 | 4.95 | 5.51 | 7.36 | 8.55 | 10.56 | 12.20 |
| 500 | 0.81 | 1.24 | 1.53 | 2.07 | 2.56 | 2.82 | 2.85 | 2.95 | 3.13 | 3.29 | 3.81 | 4.75 | 5.47 | 6.05 | 8.12 | 9.32 | 11.47 | 13.25 |
| 1000 | 0.96 | 1.46 | 1.81 | 2.44 | 3.02 | 3.34 | 3.37 | 3.46 | 3.62 | 3.65 | 4.09 | 5.11 | 5.87 | 6.46 | 8.68 | 9.88 | 12.13 | 13.99 |

Text version of table

* These precipitation frequency estimates are based on a partial duration series. **ARI** is the Average Recurrence Interval. Please refer to the documentation for more information. NOTE: Formatting forces estimates near zero to appear as zero.

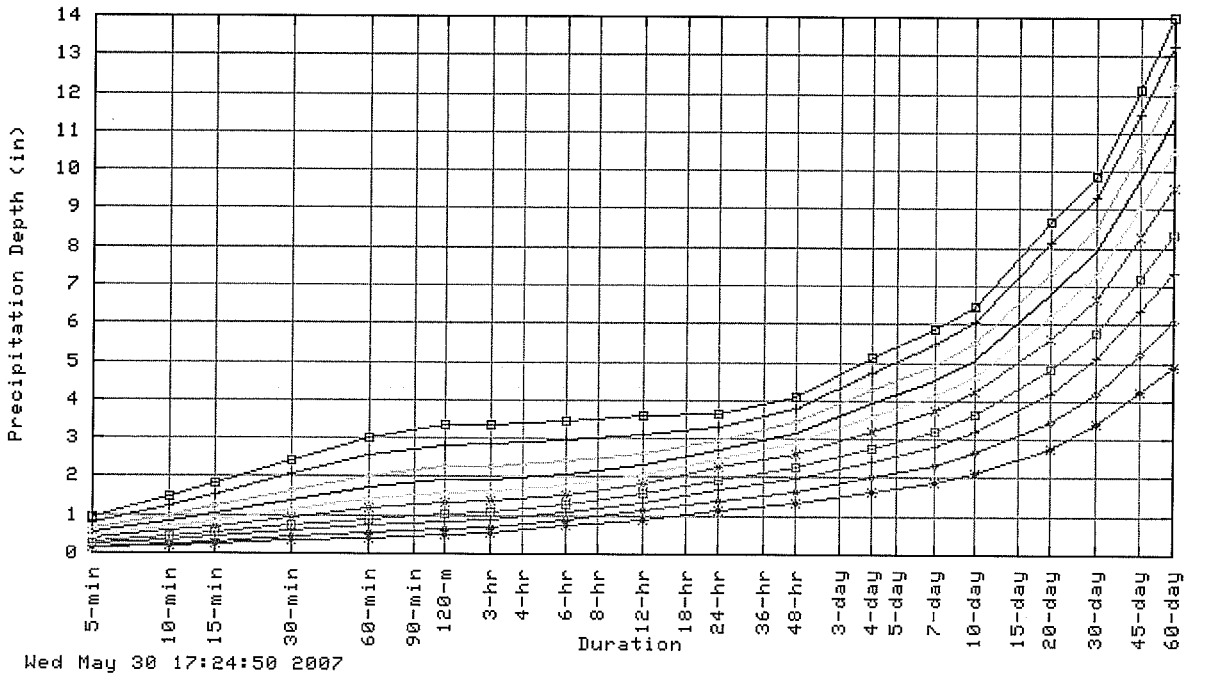
Partial duration based Point Precipitation Frequency Estimates Version: 4
39.730247 N 111.1550194 W 7998 ft




Wed May 30 17:24:51 2007

| Duration | | | |
|---|---|---|---|
| 5-min | 120-min | 48-hr | 30-day |
| 10-min | 3-hr | 4-day | 45-day |
| 15-min | 6-hr | 7-day | 60-day |
| 30-min | 12-hr | 10-day | |
| 60-min | 24-hr | 20-day | |

Partial duration based Point Precipitation Frequency Estimates Version: 4
39.730247 N 111.1550194 W 7998 ft




Wed May 30 17:24:50 2007

| Average Recurrence Interval (years) | |
|---|---|
| 1 | 50 |
| 2 | 100 |
| 5 | 200 |
| 10 | 500 |
| 25 | 1000 |

## Confidence Limits -

| * Upper bound of the 90% confidence interval Precipitation Frequency Estimates (inches) | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARI** (years) | 5 min | 10 min | 15 min | 30 min | 60 min | 120 min | 3 hr | 6 hr | 12 hr | 24 hr | 48 hr | 4 day | 7 day | 10 day | 20 day | 30 day | 45 day | 60 day |
| 1 | 0.16 | 0.24 | 0.29 | 0.40 | 0.49 | 0.60 | 0.66 | 0.82 | 1.01 | 1.27 | 1.48 | 1.86 | 2.18 | 2.46 | 3.31 | 4.02 | 5.03 | 5.74 |
| 2 | 0.20 | 0.31 | 0.38 | 0.51 | 0.63 | 0.75 | 0.82 | 1.01 | 1.24 | 1.57 | 1.83 | 2.30 | 2.69 | 3.05 | 4.11 | 4.99 | 6.25 | 7.13 |
| 5 | 0.28 | 0.42 | 0.52 | 0.71 | 0.87 | 1.00 | 1.07 | 1.26 | 1.51 | 1.91 | 2.22 | 2.79 | 3.26 | 3.71 | 5.05 | 6.07 | 7.60 | 8.65 |
| 10 | 0.35 | 0.53 | 0.65 | 0.88 | 1.09 | 1.23 | 1.28 | 1.47 | 1.74 | 2.18 | 2.53 | 3.18 | 3.72 | 4.22 | 5.79 | 6.88 | 8.61 | 9.79 |
| 25 | 0.45 | 0.69 | 0.86 | 1.15 | 1.43 | 1.59 | 1.63 | 1.78 | 2.07 | 2.54 | 2.95 | 3.70 | 4.34 | 4.90 | 6.76 | 7.94 | 9.92 | 11.29 |
| 50 | 0.55 | 0.84 | 1.04 | 1.40 | 1.73 | 1.92 | 1.94 | 2.07 | 2.34 | 2.82 | 3.26 | 4.12 | 4.82 | 5.41 | 7.50 | 8.71 | 10.89 | 12.41 |
| 100 | 0.66 | 1.01 | 1.25 | 1.68 | 2.08 | 2.31 | 2.32 | 2.43 | 2.62 | 3.10 | 3.59 | 4.53 | 5.30 | 5.93 | 8.23 | 9.48 | 11.84 | 13.48 |
| 200 | 0.79 | 1.21 | 1.50 | 2.02 | 2.50 | 2.76 | 2.77 | 2.83 | 3.00 | 3.38 | 3.92 | 4.94 | 5.79 | 6.45 | 8.97 | 10.26 | 12.78 | 14.52 |
| 500 | 1.01 | 1.54 | 1.91 | 2.57 | 3.18 | 3.50 | 3.52 | 3.54 | 3.65 | 3.77 | 4.37 | 5.52 | 6.46 | 7.13 | 9.97 | 11.24 | 13.96 | 15.87 |
| 1000 | 1.21 | 1.85 | 2.29 | 3.08 | 3.81 | 4.22 | 4.27 | 4.31 | 4.35 | 4.40 | 4.70 | 5.97 | 6.97 | 7.65 | 10.72 | 11.98 | 14.86 | 16.86 |

* The **upper** bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are **greater** than.

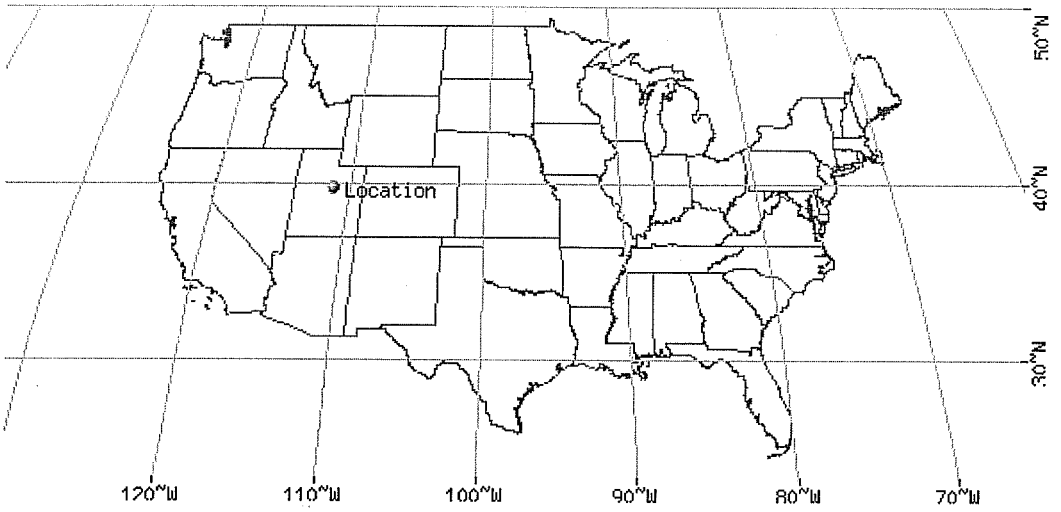
** These precipitation frequency estimates are based on a partial duration series. **ARI** is the Average Recurrence Interval.
Please refer to the documentation for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

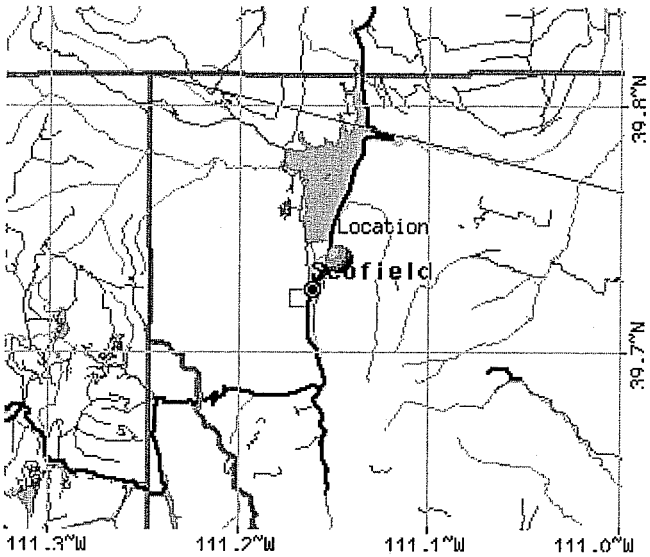
| * Lower bound of the 90% confidence interval Precipitation Frequency Estimates (inches) | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARI** (years) | 5 min | 10 min | 15 min | 30 min | 60 min | 120 min | 3 hr | 6 hr | 12 hr | 24 hr | 48 hr | 4 day | 7 day | 10 day | 20 day | 30 day | 45 day | 60 day |
| 1 | 0.11 | 0.17 | 0.21 | 0.28 | 0.35 | 0.43 | 0.49 | 0.64 | 0.81 | 1.00 | 1.17 | 1.42 | 1.66 | 1.86 | 2.39 | 2.92 | 3.63 | 4.22 |
| 2 | 0.14 | 0.22 | 0.27 | 0.36 | 0.45 | 0.54 | 0.61 | 0.79 | 1.00 | 1.24 | 1.44 | 1.75 | 2.04 | 2.30 | 2.97 | 3.62 | 4.50 | 5.24 |
| 5 | 0.20 | 0.30 | 0.37 | 0.50 | 0.61 | 0.72 | 0.78 | 0.97 | 1.22 | 1.50 | 1.74 | 2.12 | 2.48 | 2.78 | 3.61 | 4.37 | 5.42 | 6.34 |
| 10 | 0.24 | 0.37 | 0.45 | 0.61 | 0.76 | 0.87 | 0.94 | 1.13 | 1.39 | 1.71 | 1.98 | 2.41 | 2.82 | 3.15 | 4.11 | 4.93 | 6.13 | 7.17 |
| 25 | 0.31 | 0.47 | 0.58 | 0.78 | 0.96 | 1.10 | 1.17 | 1.34 | 1.63 | 1.98 | 2.29 | 2.79 | 3.26 | 3.63 | 4.75 | 5.64 | 7.01 | 8.19 |
| 50 | 0.36 | 0.55 | 0.69 | 0.92 | 1.14 | 1.29 | 1.35 | 1.53 | 1.81 | 2.18 | 2.52 | 3.07 | 3.58 | 3.98 | 5.21 | 6.15 | 7.64 | 8.91 |
| 100 | 0.43 | 0.65 | 0.80 | 1.08 | 1.34 | 1.50 | 1.57 | 1.75 | 2.00 | 2.38 | 2.74 | 3.35 | 3.90 | 4.32 | 5.67 | 6.63 | 8.27 | 9.60 |
| 200 | 0.49 | 0.75 | 0.93 | 1.25 | 1.55 | 1.73 | 1.82 | 1.99 | 2.23 | 2.57 | 2.97 | 3.61 | 4.22 | 4.65 | 6.11 | 7.09 | 8.82 | 10.23 |
| 500 | 0.59 | 0.90 | 1.12 | 1.50 | 1.86 | 2.07 | 2.18 | 2.38 | 2.62 | 2.81 | 3.25 | 3.96 | 4.62 | 5.05 | 6.63 | 7.63 | 9.49 | 10.99 |
| 1000 | 0.67 | 1.02 | 1.27 | 1.71 | 2.12 | 2.36 | 2.49 | 2.72 | 2.97 | 2.99 | 3.45 | 4.20 | 4.90 | 5.34 | 7.02 | 8.03 | 9.97 | 11.53 |

* The **lower** bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are **less** than.

** These precipitation frequency estimates are based on a partial duration maxima series. **ARI** is the Average Recurrence Interval.
Please refer to the documentation for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

## Maps -




These maps were produced using a direct map request from the U.S. Census Bureau Mapping and Cartographic Resources Tiger Map Server.

*Please read disclaimer for more information.*

LEGEND

State
County
Indian Resv
Lake/Pond/Ocean
Street
Expressway
Highway
Connector
Stream
Military Area
National Park
Other Park
City
County

Scale 1:228583
0 2 4 6 8 mi
0 2 4 6 8 10 km
*average--true scale depends on monitor resolution

## Other Maps/Photographs -

**View USGS digital orthophoto quadrangle (DOQ)** covering this location from TerraServer; **USGS Aerial Photograph** may also be available
from this site. A DOQ is a computer-generated image of an aerial photograph in which image displacement caused by terrain relief and camera tilts has been removed. It combines the image characteristics of a photograph with the geometric qualities of a map. Visit the USGS for more information.

## Watershed/Stream Flow Information -

Find the Watershed for this location using the U.S. Environmental Protection Agency's site.

## Climate Data Sources -

*Precipitation frequency results are based on data from a variety of sources, but largely NCDC. The following links provide general information*
*about observing sites in the area, regardless of if their data was used in this study. For detailed information about the stations used in this study,*
*please refer to our documentation.*

Using the **National Climatic Data Center's (NCDC)** station search engine, locate other climate stations within:

+/-30 minutes ...OR... +/-1 degree of this location (39.730247/-111.1550194). Digital ASCII data can be obtained directly from **NCDC**.

Find Natural Resources Conservation Service (NRCS) SNOTEL (SNOwpack TELemetry) stations by visiting the **Western Regional Climate Center's state-specific SNOTEL station maps**.

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**Hydrometeorological Design Studies Center**
**DOC/NOAA/National Weather Service**
**1325 East-West Highway**
**Silver Spring, MD 20910**
**(301) 713-1669**
Questions?: HDSC.Questions@noaa.gov

Disclaimer

SCS CURVE NUMBER
Kinney Mine Hydrology

SB_F1

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 2288.29 | 0.05 | 0.00008 | 1.4 | 98 | 0.20 | 1.1 | 202.9 | 1.7 | 323.2 | 1.9 | 353.5 |
| Pad | 122526.6 | 2.81 | 0.00440 | 75.7 | 90 | 1.11 | 0.5 | 5267.5 | 1.0 | 10478.0 | 1.2 | 11869.8 |
| Natural | 21443.42 | 0.49 | 0.00077 | 13.2 | 75 | 3.33 | 0.1 | 170.3 | 0.3 | 612.0 | 0.4 | 752.0 |
| Revegetated | 15641.47 | 0.36 | 0.00056 | 9.7 | 82 | 2.20 | 0.2 | 303.6 | 0.6 | 777.7 | 0.7 | 915.0 |
| TOTALS | 161899.8 | 3.72 | 0.00581 | 100 | 87 | | | 5944.3 | | 12190.9 | | 13890.2 |
| | | | | | | | | | | 0.28 ac-ft | | 0.32 ac-ft |

SB_D1

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 2165.29 | 0.05 | 0.00008 | 2.5 | 98 | 0.20 | 1.1 | 192.0 | 1.7 | 305.9 | 1.9 | 334.5 |
| Pad | 40914.9 | 0.94 | 0.00147 | 33.7 | 90 | 1.11 | 0.5 | 1758.9 | 1.0 | 3498.9 | 1.2 | 3963.6 |
| Natural | 67374.28 | 1.55 | 0.00242 | 55.5 | 75 | 3.33 | 0.1 | 535.2 | 0.3 | 1922.9 | 0.4 | 2362.7 |
| Revegetated | 10895.72 | 0.25 | 0.00039 | 9.0 | 82 | 2.20 | 0.2 | 211.5 | 0.6 | 541.7 | 0.7 | 637.4 |
| TOTALS | 121350.2 | 2.79 | 0.00435 | 101 | 81 | | | 2697.6 | | 6269.3 | | 7298.2 |
| | | | | | | | | | | 0.14 ac-ft | | 0.17 ac-ft |

SB_D2

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 2442.07 | 0.06 | 0.00009 | 2.8 | 98 | 0.20 | 1.1 | 216.5 | 1.7 | 345.0 | 1.9 | 377.2 |
| Pad | 12679.13 | 0.29 | 0.00045 | 14.8 | 90 | 1.11 | 0.5 | 545.1 | 1.0 | 1084.3 | 1.2 | 1228.3 |
| Natural | 59411.24 | 1.36 | 0.00213 | 69.1 | 75 | 3.33 | 0.1 | 471.9 | 0.3 | 1695.6 | 0.4 | 2083.5 |
| Revegetated | 11426.79 | 0.26 | 0.00041 | 13.3 | 82 | 2.20 | 0.2 | 221.8 | 0.6 | 568.1 | 0.7 | 668.4 |
| TOTALS | 85959.23 | 1.97 | 0.00308 | 100 | 79 | | | 1455.3 | | 3693.0 | | 4357.4 |
| | | | | | | | | | | 0.08 ac-ft | | 0.10 ac-ft |

SB_F2

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 10732.04 | 0.25 | 0.00038 | 19.4 | 98 | 0.20 | 1.1 | 951.5 | 1.7 | 1516.0 | 1.9 | 1657.8 |
| Natural | 0 | 0.00 | 0.00000 | 0.0 | 75 | 3.33 | 0.1 | 0.0 | 0.3 | 0.0 | 0.4 | 0.0 |
| Revegetated | 44561.29 | 1.02 | 0.00160 | 80.6 | 82 | 2.20 | 0.2 | 865.0 | 0.6 | 2215.6 | 0.7 | 2606.7 |
| TOTALS | 55293.33 | 1.27 | 0.00198 | 100 | 85 | | | 1816.6 | | 3731.6 | | 4264.5 |
| | | | | | | | | | | 0.09 ac-ft | | 0.10 ac-ft |

SB_E1

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Pad | 143106.9 | 3.29 | 0.00513 | 74.1 | 90 | 1.11 | 0.5 | 6152.2 | 1.0 | 12237.9 | 1.2 | 13863.5 |
| Natural | 9446.91 | 0.22 | 0.00034 | 4.9 | 75 | 3.33 | 0.1 | 75.0 | 0.3 | 269.6 | 0.4 | 331.3 |
| Revegetated | 40693.85 | 0.93 | 0.00146 | 21.1 | 82 | 2.20 | 0.2 | 789.9 | 0.6 | 2023.3 | 0.7 | 2380.5 |
| TOTALS | 193247.7 | 4.44 | 0.00693 | 100 | 88 | | | 7017.2 | | 14530.8 | | 16575.3 |
| | | | | | | | | | | 0.33 ac-ft | | 0.38 ac-ft |

SB_D3

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 11513.94 | 0.26 | 0.00041 | 19.7 | 98 | 0.20 | 1.1 | 1020.9 | 1.7 | 1626.4 | 1.9 | 1778.6 |
| Natural | 39630.22 | 0.91 | 0.00142 | 20.5 | 75 | 3.33 | 0.1 | 314.8 | 0.3 | 1131.0 | 0.4 | 1389.8 |
| Revegetated | 7211.62 | 0.17 | 0.00026 | 12.4 | 82 | 2.20 | 0.2 | 140.0 | 0.6 | 358.6 | 0.7 | 421.9 |
| TOTALS | 58355.78 | 1.34 | 0.00209 | 53 | 80 | | | 1475.6 | | 3116.0 | | 3590.2 |
| | | | | | | | | | | 0.07 ac-ft | | 0.08 ac-ft |

SB_A1

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 19147.5 | 0.44 | 0.00069 | 32.8 | 98 | 0.20 | 1.1 | 1697.7 | 1.7 | 2704.7 | 1.9 | 2957.8 |
| Natural | 63174.77 | 1.45 | 0.00227 | 32.7 | 75 | 3.33 | 0.1 | 501.8 | 0.3 | 1803.0 | 0.4 | 2215.5 |
| Pad | 42016.47 | 0.96 | 0.00151 | 21.7 | 90 | 1.11 | 0.5 | 1806.3 | 1.0 | 3593.1 | 1.2 | 4070.4 |
| Revegetated | 54006.16 | 1.24 | 0.00194 | 30.3 | 82 | 2.20 | 0.2 | 1048.4 | 0.6 | 2685.2 | 0.7 | 3159.2 |
| TOTALS | 178344.9 | 4.09 | 0.00640 | 118 | 83 | | | 5054.1 | | 10786.0 | | 12402.8 |
| | | | | | | | | | | 0.25 ac-ft | | 0.28 ac-ft |

SB_B1

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Pad | 91371.01 | 2.10 | 0.00328 | 47.3 | 90 | 1.11 | 0.5 | 3928.1 | 1.0 | 7813.7 | 1.2 | 8851.6 |
| Natural | 26384.94 | 0.61 | 0.00095 | 13.7 | 75 | 3.33 | 0.1 | 209.6 | 0.3 | 753.0 | 0.4 | 925.3 |
| Revegetated | 34907.15 | 0.80 | 0.00125 | 22.9 | 82 | 2.20 | 0.2 | 677.6 | 0.6 | 1735.6 | 0.7 | 2042.0 |
| TOTALS | 152663.1 | 3.50 | 0.00548 | 84 | 86 | | | 677.6 | | 1735.6 | | 2042.0 |
| | | | | | | | | | | 0.04 ac-ft | | 0.05 ac-ft |

SB_C1

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 0 | 0.00 | 0.00000 | 0.0 | 98 | 0.20 | 1.1 | 0.0 | 1.7 | 0.0 | 1.9 | 0.0 |
| Pad | 91265.3 | 2.10 | 0.00327 | 136.8 | 90 | 1.11 | 0.5 | 3923.5 | 1.0 | 7804.6 | 1.2 | 8841.3 |
| Natural | 52325.33 | 1.20 | 0.00188 | 27.1 | 75 | 3.33 | 0.1 | 415.6 | 0.3 | 1493.4 | 0.4 | 1835.0 |
| Revegetated | 38502.3 | 0.88 | 0.00138 | 21.1 | 82 | 2.20 | 0.2 | 747.4 | 0.6 | 1914.3 | 0.7 | 2252.3 |
| TOTALS | 182092.9 | 4.18 | 0.00653 | 185 | 84 | | | 5086.5 | | 11212.3 | | 12928.6 |
| | | | | | | | | | | 0.26 ac-ft | | 0.30 ac-ft |

SB_E2

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 13703.95 | 0.31 | 0.00049 | 7.5 | 98 | 0.20 | 1.1 | 1215.0 | 1.7 | 1935.8 | 1.9 | 2116.9 |
| Pad | 0 | 0.00 | 0.00000 | 0.0 | 90 | 1.11 | 0.5 | 0.0 | 1.0 | 0.0 | 1.2 | 0.0 |
| Natural | 26904.93 | 0.62 | 0.00097 | 13.9 | 75 | 3.33 | 0.1 | 213.7 | 0.3 | 767.9 | 0.4 | 943.5 |
| Revegetated | 32464.12 | 0.75 | 0.00116 | 17.8 | 82 | 2.20 | 0.2 | 630.2 | 0.6 | 1614.1 | 0.7 | 1899.1 |
| TOTALS | 73073 | 1.68 | 0.00262 | 39 | 82 | | | 2058.9 | | 4317.8 | | 4959.5 |
| | | | | | | | | | | 0.10 ac-ft | | 0.11 ac-ft |

SB_E4

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Natural | 50993.98 | 1.17 | 0.00183 | 76.5 | 75 | 3.33 | 0.1 | 405.0 | 0.3 | 1455.4 | 0.4 | 1788.3 |
| Revegetated | 15708.03 | 0.36 | 0.00056 | 23.5 | 82 | 2.20 | 0.2 | 304.9 | 0.6 | 781.0 | 0.7 | 918.9 |
| TOTALS | 66702.01 | 1.53 | 0.00239 | 100 | 77 | | | 710.0 | | 2236.4 | | 2707.2 |
| | | | | | | | | | | 0.05 ac-ft | | 0.06 ac-ft |

SB_E3

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Revegetated | 23139.08 | 0.53 | 0.00083 | 34.7 | 82 | 2.20 | 0.2 | 449.2 | 0.6 | 1150.5 | 0.7 | 1353.6 |
| TOTALS | 23139.08 | 0.53 | 0.00083 | 35 | 82 | | | 449.2 | | 1150.5 | | 1353.6 |
| | | | | | | | | | | 0.03 ac-ft | | 0.03 ac-ft |

SB_Pond1

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Detention Pond | 19356.6 | 0.44 | 0.00069 | 20.6 | 100 | 0.00 | 1.3 | 2064.7 | 1.9 | 3097.1 | 2.1 | 3355.1 |
| Revegetated | 46571.36 | 1.07 | 0.00167 | 69.8 | 82 | 2.20 | 0.2 | 904.0 | 0.6 | 2315.5 | 0.7 | 2724.3 |
| Natural | 28145.53 | 0.65 | 0.00101 | 29.9 | 75 | 3.33 | 0.1 | 223.6 | 0.3 | 803.3 | 0.4 | 987.0 |
| TOTALS | 94073.49 | 2.16 | 0.00337 | 120 | 84 | | | 3192.3 | | 6215.8 | | 7066.5 |
| | | | | | | | | | | 0.14 ac-ft | | 0.16 ac-ft |

SB_AltA

| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | 10-YR 6-HR Rainfall (in) 1.28 Runoff (cfs) | 10-YR 6-HR Rainfall (in) 1.28 Vol (cf) | 10-yr 24-HR Rainfall (in) 1.92 Runoff (cfs) | 10-yr 24-HR Rainfall (in) 1.92 Vol (cf) | 100-YR 6-HR Rainfall (in) 2.08 Runoff (cfs) | 100-YR 6-HR Rainfall (in) 2.08 Vol (cf) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Revegetated | 111806.6 | 2.57 | 0.00401 | 167.6 | 82 | 2.20 | 0.2 | 2170.4 | 0.6 | 5559.0 | 0.7 | 6540.3 |
| TOTALS | 111806.6 | 2.57 | 0.00401 | 168 | 82 | | | 2170.4 | | 5559.0 | | 6540.3 |
| | | | | | | | | | | 0.13 ac-ft | | 0.15 ac-ft |

SB_AltB

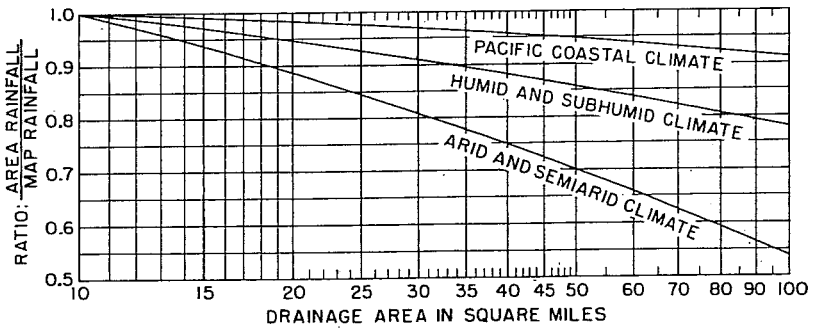
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | 10-YR 6-HR Rainfall (in) 1.28 Runoff (cfs) | 10-YR 6-HR Rainfall (in) 1.28 Vol (cf) | 10-yr 24-HR Rainfall (in) 1.92 Runoff (cfs) | 10-yr 24-HR Rainfall (in) 1.92 Vol (cf) | 100-YR 6-HR Rainfall (in) 2.08 Runoff (cfs) | 100-YR 6-HR Rainfall (in) 2.08 Vol (cf) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Roads | 4030.63 | 0.09 | 0.00014 | 2.2 | 98 | 0.20 | 1.1 | 357.4 | 1.7 | 569.4 | 1.9 | 622.6 |
| Revegetated | 21513.94 | 0.49 | 0.00077 | 32.3 | 82 | 2.20 | 0.2 | 417.6 | 0.6 | 1069.7 | 0.7 | 1258.5 |
| TOTALS | 25544.57 | 0.59 | 0.00092 | 34 | 85 | | | 775.0 | | 1639.0 | | 1881.1 |
| | | | | | | | | | | 0.04 ac-ft | | 0.04 ac-ft |

SB_AltC

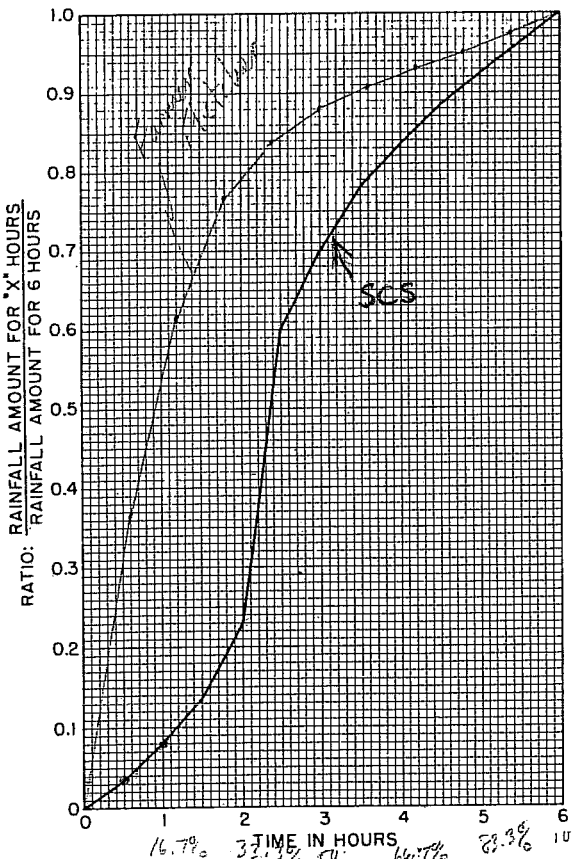
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | 10-YR 6-HR Rainfall (in) 1.28 Runoff (cfs) | 10-YR 6-HR Rainfall (in) 1.28 Vol (cf) | 10-yr 24-HR Rainfall (in) 1.92 Runoff (cfs) | 10-yr 24-HR Rainfall (in) 1.92 Vol (cf) | 100-YR 6-HR Rainfall (in) 2.08 Runoff (cfs) | 100-YR 6-HR Rainfall (in) 2.08 Vol (cf) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Roads | 3773.2 | 0.09 | 0.00014 | 2.1 | 98 | 0.20 | 1.1 | 334.5 | 1.7 | 533.0 | 1.9 | 582.9 |
| Revegetated | 15615.05 | 0.36 | 0.00056 | 23.4 | 82 | 2.20 | 0.2 | 303.1 | 0.6 | 776.4 | 0.7 | 913.4 |
| TOTALS | 19388.25 | 0.45 | 0.00070 | 25 | 85 | | | 637.7 | | 1309.4 | | 1496.3 |
| | | | | | | | | | | 0.03 ac-ft | | 0.03 ac-ft |
| Overall Totals | 1602934 | 36.80 | 0.0575 | | 84 | | | | | | | |

Total Approximate Storage Volumes = 2.06 ac-ft 2.37 ac-ft

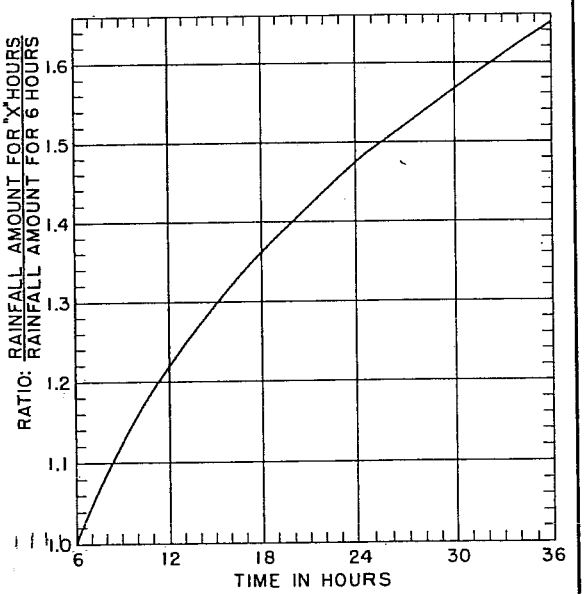
# HYDROLOGY: CRITERIA FOR DESIGN STORMS USED IN DEVELOPING EMERGENCY SPILLWAY DESIGN AND FREEBOARD HYDROGRAPHS




(a) RAINFALL RATIOS FOR DRAINAGE AREAS OF 10 TO 100 SQUARE MILES




(b) SIX HOUR DESIGN STORM DISTRIBUTION




(c) RELATIVE INCREASE IN RAINFALL AMOUNT FOR STORM DURATIONS OVER SIX HOURS

FIGURE 21.2

| REFERENCE | U. S. DEPARTMENT OF AGRICULTURE<br>SOIL CONSERVATION SERVICE<br>ENGINEERING DIVISION - CENTRAL TECHNICAL UNIT | STANDARD DWG. NO.<br>ES-1003<br>SHEET 1 OF 1<br>DATE 7-2-56<br>REVISED 9-10-63 |
|---|---|---|

Ref: NEH-4

```
      PROGRAM HYDRO
C.    This is the new version of hydro. Updated Nov 17, 1987.
C..   This version allows time and flow to be saved on disk.
C...  It also has been modified for output page formating.
C.... This version has been modified to ease input for subsequent
C..... runs by screen editing of input data.
$DEBUG
$LARGE
      DIMENSION GAMMA(2),DRAN(100),RANFF(11),RANSCS(13),RNSC24(49)
     1,DIMRAN(50),SDIMRN(1701),STMACC(1701),RAINEX(1701),Q(1701)
     1,QT(1701),DIMO(1701),QH(1701),GS(1701),UPL1(21),UPL2(21),UPL3(21)
     1,XX(220),YY(220),RANF2(21)
      CHARACTER ASED*1,ADIST*1,ATITLE*62,ADISTR*20,AGR*1,AFILE*3,AF*12,
     1AGAIN*3,ANEW*1,IOUT*1
      DATA RANFF/0.0,.365,.615,.769,.839,.88,.908,.932,.952,.977,1./
      DATA RANF2/0.0,.002,.009,.015,.026,.05,.10,.19,.30,.44,.586
     1,.73,.82,.87,.91,.935,.96,.97,.98,.99,1.00/
      DATA RANSCS/0.,.035,.08,.135,.23,.6,.7,.78,.835,.885,.925,.965
     1,1./
      DATA RNSC24/0.,.008,.011,.017,.022,.029,.034,.042,.048,.057
     1,.062,.072,.08,.09,.1,.111,.12,.132,.147,.163,.181,.204,.236
     1,.283,.663,.735,.772,.799,.82,.84,.854,.868,.88,.891,.901,.912
     1,.921,.930,.938,.946,.952,.96,.968,.974,.979,.985,.99,.995,1./
      DATA UPL1/0.0,.18,.36,.54,.61,.675,.74,.79,.835,.87,.895,.905,
     1.91,.91,.91,.915,.925,.94,.955,.975,1.0/
      DATA UPL2/0.0,.02,.04,.07,.105,.15,.2,.285,.485,.64,.705,.74,
     1.775,.805,.84,.875,.91,.935,.965,.985,1.0/
      DATA UPL3/0.0,.005,.015,.03,.04,.06,.07,.1,.12,.155,.215,.38,
     1.52,.70,.775,.83,.87,.91,.95,.975,1.0/
      DATA XX/0.,1.,2.,3.,4.,5.,6.,7.,8.,9.,10.,11.,12.,13.,14.,15.,16.,
     117.,18.,19.,20.,21.,22.,23.,24.,25.,26.,27.,28.,29.,30.,31.,32.,33
     1.,34.,35.,36.,37.,38.,39.,40.,41.,42.,43.,44.,45.,46.,47.,48.,49.,
     150.,51.,52.,53.,54.,55.,56.,57.,58.,59.,60.,61.,62.,63.,64.,65.,
     166.,67.,68.,69.,70.,71.,72.,73.,74.,75.,76.,77.,78.,79.,80.,81.,
     182.,83.,84.,85.,86.,87.,88.,89.,90.,91.,92.,93.,94.,95.,96.,97.,
     198.,99.,100.,101.,102.,103.,104.,105.,106.,107.,108.,109.,110.,
     1111.,112.,113.,114.,115.,116.,117.,118.,119.,120.,121.,122.,123.,
     1124.,125.,126.,127.,128.,129.,130.,131.,132.,133.,134.,135.,136.,
     1137.,138.,139.,140.,141.,142.,143.,144.,145.,146.,147.,148.,149.,
     1150.,151.,152.,153.,154.,155.,156.,157.,158.,159.,160.,161.,162.,
     1163.,164.,165.,166.,167.,168.,169.,
     1170.,180.,190.,200.,210.,220.,230.,240.,250.,260.,
     1270.,280.,290.,300.,310.,320.,330.,340.,350.,360.,370.,380.,390.,
     1400.,410.,420.,430.,440.,450.,460.,470.,480.,490.,500.,510.,520.,
     1530.,540.,550.,560.,570.,580.,590.,600.,610.,620.,630.,640.,650.,
     1660./
      DATA YY/0.,.06,.12,.18,.24,.3,.37,.47,.58,.72,.9,1.09,1.31,1.58,
     11.91,2.3,2.54,2.81,3.11,3.44,3.8,4.09,4.41,4.74,5.11,5.5,5.74,5.99
```

SCS 6 hr distribution (30 min intervals)

72 min interval

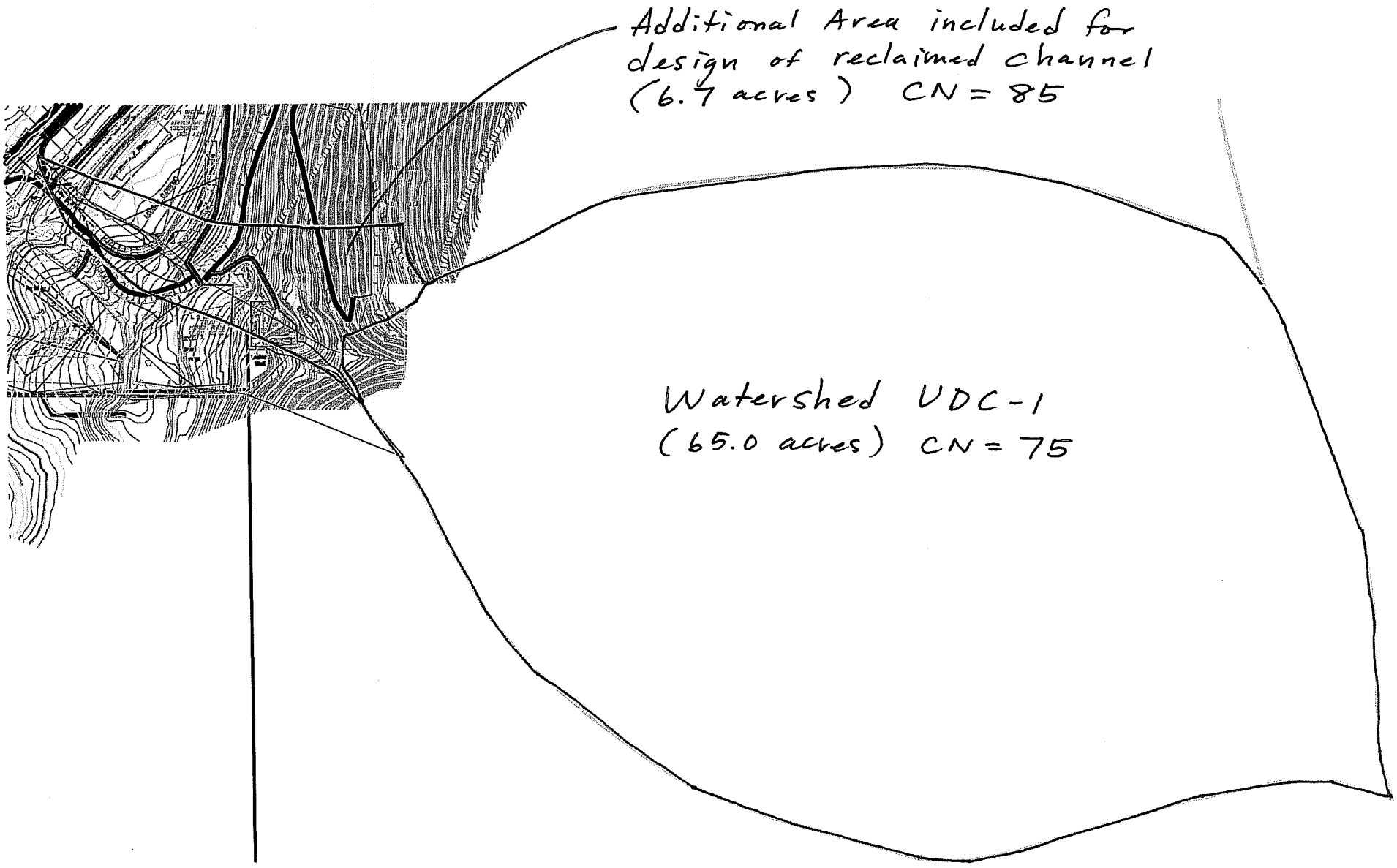
Reclaimed Channel designed for the 100yr 6hr event.

HEC-HMS analysis was performed to determine 100 yr 6hr discharge for design of the reclaimed channel.

Area weighted CN for area =

$$CN_{weighted} = \frac{(6.7\,acres)(85) + (65.0\,acres)(75)}{(6.7\,acres + 65.0\,acres)}$$

$$= \underline{\underline{76}}$$

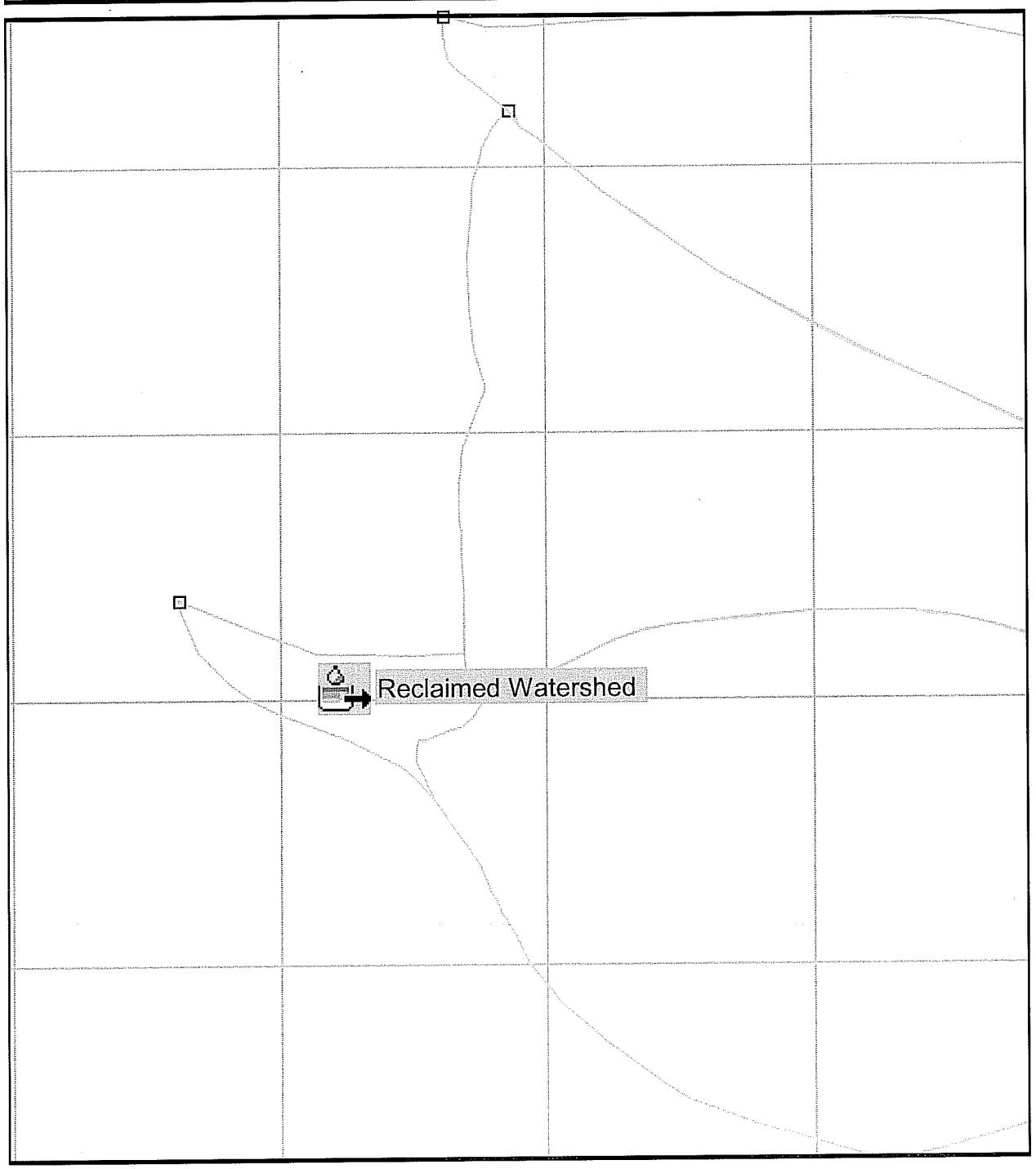

Additional Area included for design of reclaimed channel (6.7 acres) CN = 85
Watershed UDC-1 (65.0 acres) CN = 75
N
Scale: 1" = 500'

HEC-HMS

# Project : Reclaimed Watershed-A

Basin Model : Kinney Mine

Aug 03 16:52:28 MDT 2007



| Hydrologic Element | Drainage Area (mi2) | 100yr 6hr Peak Discharge (cfs) | Time of Peak | Volume (in) |
|---|---|---|---|---|
| Reclaimed Watershed | 0.112 | 11.5 | 01Jul2007, 04:14 | 0.45 |

HANSEN ALLEN & LUCE inc
ENGINEERS

CLIENT Carbon Resources
PROJECT Kinney Mine Hydrology
FEATURE Reclaimed Channel Design (UDC-1)
PROJECT NO 305.01.400

SHEET 5 OF 7
COMPUTED TDS
CHECKED
DATE 7-6-07

# Reclamation Channel Design (UDC-1)

## Design Procedure:

Estimated a D50 size of 1 feet diameter from the Chart 27 from "Design of Stable Channels with Flexible Linings" - October 1975. The D50 size was based on a slope of approximately 130% and a calculated maximum flow depth of 0.5 ft (see spreadsheet calcs).

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (UDC-1)* | Chck'd
Project # *308.01.400* | Date *06-Jul-07*

# *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 11.50 | cfs |
| | Bottom Width: | 3.0 | feet |
| | Side Slope1: | 2.0 | m1 |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 1.0 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.040 | |
| | Min. Bottom Slope: | 0.13 | ft/ft |
| | Max. Bottom Slope: | 0.13 | ft/ft |
| | Freeboard: | 0.5 | feet |

**Depth Check**

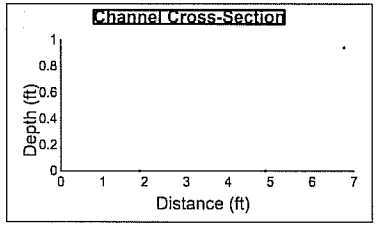
| | | | |
|---|---|---|---|
| | Depth (Min. Slope): | 0.44 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| | Required Depth: | 0.94 | feet |
| | Area: | 1.72 | ft2 |
| | Perimeter: | 4.98 | feet |
| | Hydraulic Radius: | 0.35 | feet |
| | Velocity: | 6.69 | ft/sec |
| | Froude Number: | 1.96 | |

**Velocity Check**

| | | | |
|---|---|---|---|
| | Depth (Max. Slope): | 0.44 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| | Required Depth: | 0.94 | feet |
| | Area: | 1.72 | ft2 |
| | Perimeter: | 4.98 | feet |
| | Hydraulic Radius: | 0.35 | feet |
| | Velocity: | 6.69 | ft/sec |
| | Froude Number: | 1.96 | |

## *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 3.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.13 | ft/ft |
| Max. Bottom Slope: | 0.13 | ft/ft |
| Min. Channel Depth: | 0.94 | feet |
| Channel Top Width: | 6.77 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (UDC-1)* | Chck'd
Project # *308.01.400* | Date *06-Aug-07*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 11.50 | cfs |
| | Bottom Width: | 3.00 | feet |
| | Side Slope1: | 2.00 | 1/m1 |
| | Side Slope2: | 2.00 | 1/m2 |
| | Friction Factor: | 0.04 | |
| | Min. Bottom Slope: | 13.0 | % |
| | Max. Bottom Slope: | 13.0 | % |
| | Flow Depth (Min. S): | 0.44 | feet |
| | Flow Depth (Max. S): | 0.44 | feet |
| | Angle Repose (Ar): | 42.0 | degrees |
| | Specific Gravity | 2.65 | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | | |
|---|---|---|
| U=(gRS)^0.5 for Smin | 1.20 | |
| Reynolds # for Smin | 85,860 | |
| U=(gRS)^0.5 for Smax | 1.20 | |
| Reynolds # for Smax | 85,860 | |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.064 | |
| K for S max (See K vs. R Chart) | 0.064 | |
| F for S min | 14.9 | |
| F for S max | 14.9 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

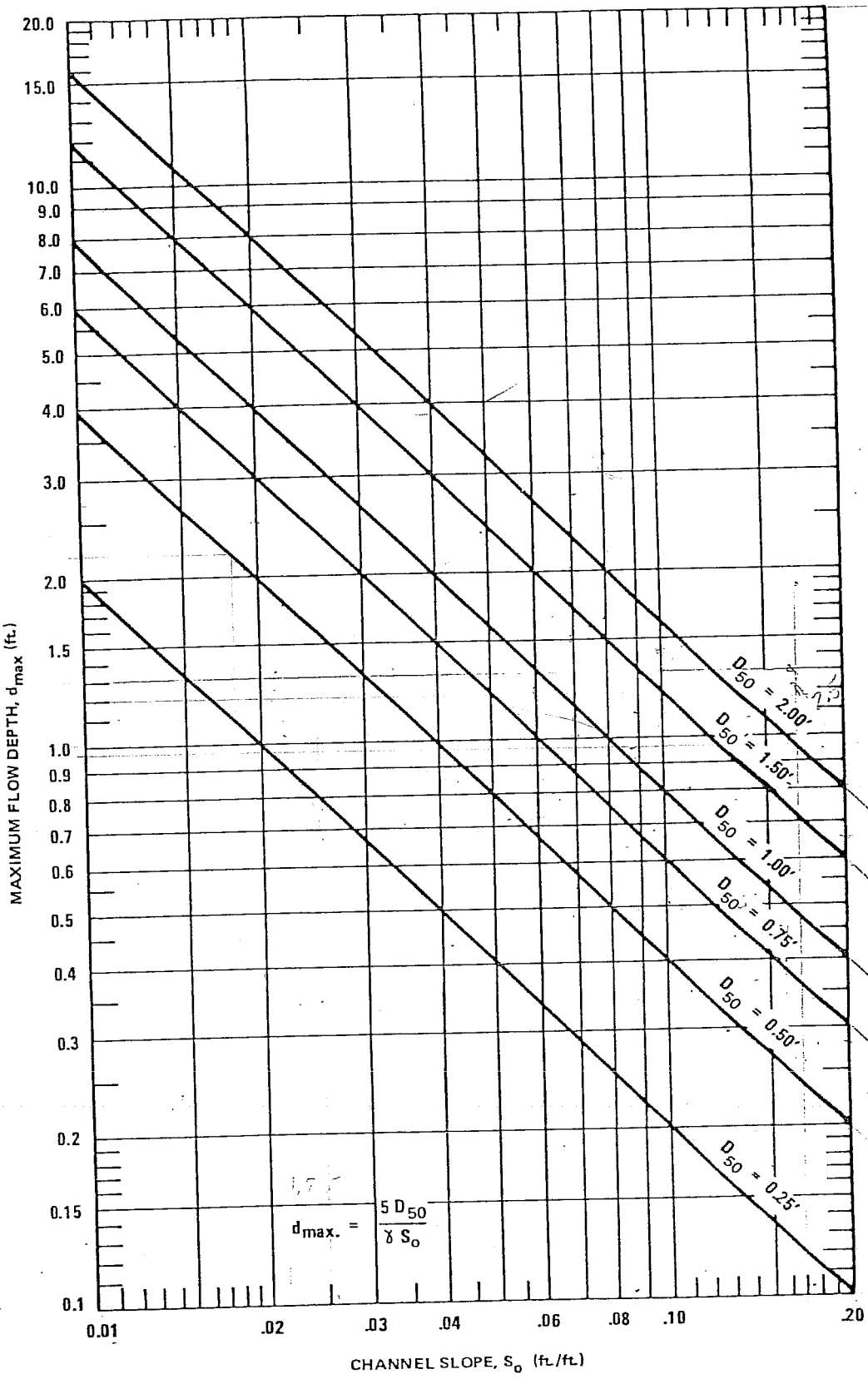
Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 1.00 | 1.00 | feet |
| T | 3.59 | 3.59 | lb/ft2 |
| Nb | 0.52 | 0.52 | |
| Tmax | 2.73 | 2.73 | lb/ft2 |
| Ns | 0.39 | 0.39 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 20.53 | 20.53 | degrees |
| Nsp | 0.29 | 0.29 | |
| SFb | 1.50 | 1.50 | |
| SFs | 1.18 | 1.18 | |

Chart 27




MAXIMUM PERMISSIBLE DEPTH OF FLOW ($d_{max}$)
FOR CHANNELS LINED WITH ROCK RIPRAP



Ref: "Design of Stable Channels with Flexible Linings"

# Ditches and Culverts

CULVERT/DITCH DESIGN FLOWS

| | System Element | 10yr 6hr Peak Discharge (cfs) | 100yr 6hr Peak Discharge (cfs) | Model Element |
|---|---|---|---|---|
| Culverts | CB-1 | 0.9 | 2.9 | CB-1 |
| | CB-2 | 2.0 | 5.8 | CB-2 |
| | CC-1 | 2.9 | 8.7 | J-10 |
| | CD-1 | 0.3 | 1.6 | CD-1 |
| | CD-2 | 0.6 | 2.9 | CD-2 |
| | CE-1 | 2.4 | 7.8 | CE-1 |
| | CF-1 | 1.7 | 4.4 | J-3 |
| Ditches | DA-1 | 0.6 | 1.6 | SB-A1 |
| | DC-1 | 1.1 | 2.9 | SB_C1 |
| | DC-2 | 2.9 | 8.7 | J-10 |
| | DC-3 | 2.9 | 8.7 | J-10 |
| | DC-4 | 1.1 | 2.9 | SB_C1 |
| | DC-5 | 2.9 | 8.7 | J-10 |
| | DC-6 | 3.5 | 10.3 | J-10 + SB_Pond1 |
| | DD-1 | 0.2 | 0.7 | SB_D3 |
| | DD-2 | 0.2 | 0.9 | SB_D2 |
| | DD-3 | 0.3 | 1.6 | CD-1 |
| | DE-1 | 0.6 | 2.9 | J-13 |
| | DE-2 | 0.2 | 0.9 | SB_E2 |
| | DE-3 | 4.1 | 12.4 | J-6 |
| | DE-4 | 4.2 | 12.9 | J-11 |
| | DF-1 | 0.4 | 1.0 | SB_F2 |
| | DF-2 | 0.4 | 1.0 | SB_F2 |
| | DF-3 | 1.3 | 3.3 | SB_F1 |
| | DF-4 | 1.7 | 4.4 | J-4 |
| | DF-5 | 1.7 | 4.4 | CF-2 |
| | ALT C-1 | 0.2 | 0.5 | SB_AltB |
| | ALT B-1 | 0.2 | 0.5 | SB_AltB |
| | ALT A-1 | 0.4 | 1.5 | SB_AltA |
| | ALT A-2 | 0.4 | 1.5 | SB_AltA |

HANSEN ALLEN & LUCE inc
ENGINEERS

CLIENT Carbon Resources
PROJECT Kinney Mine Hydrology
FEATURE Culvert Sizing
PROJECT NO 308.01.400

SHEET ____ OF ____
COMPUTED TDS
CHECKED ____
DATE 6-7-07

Determined the size of culverts based of Chart 5 in the "Hydraulic Charts for the Selection of Highway Culverts" assuming HW/D = 1.0 with a projecting entrance type. Design discharge for culverts were estimated from HEC-HMS results. A minimum size culvert was assumed to be 18 in.

| Culvert | 10 yr 24 hr Q (cfs) | Required Diameter Based on Chart 5 (in) | Actual Diameter (in) |
|---|---|---|---|
| CF-1 | 1.7 | 12 | 18 |
| CE-1 | 2.4 | 15 | 18 |
| CB-1 | 2.0 | 15 | 18 |
| CB-2 | 2.0 | 15 | 18 |
| CD-2 | 0.6 | 10 | 18 |
| CD-1 | 0.4 | 10 | 18 |
| CF-2 | 1.7 | 12 | 18 |
| CC-1 | 2.9 | 15 | 18 |

HANSEN ALLEN & LUCE inc
ENGINEERS

CLIENT Carbon Resources
PROJECT Kinney Mine Hydrology
FEATURE UDC-1 Culvert
PROJECT NO 308.01.400

SHEET ____ OF ____
COMPUTED GLO
CHECKED ____
DATE 12/20/07

UDC-1

Design flow = 14.3 cfs

(Based on the 100 yr - 6 hr event)

Based on Chart 5 in the "Hydraulic Charts for the selection of Highway Culverts," assuming HW/D = 1.0 with a projecting entrance type, D = 27.5 in, 30 used

D = 30 in

## Culvert #1 (CDC-2)

Design Flow ($Q_1$) = 9.4 cfs
(Comes from UDD1 for 100yr 6hr event)

Based on Chart 5 in the "Hydraulic Charts for the Selection of Highway Culverts," assuming $H_w/D = 1.0$ with a projecting entrance type, $D_1 = 23$ in

So use $D_1 = 24$ in

## Culvert #2 (CP-1)

$D_2 = 24$ in (Design based on overflow discharge from detention basin - see detention basin calculations)

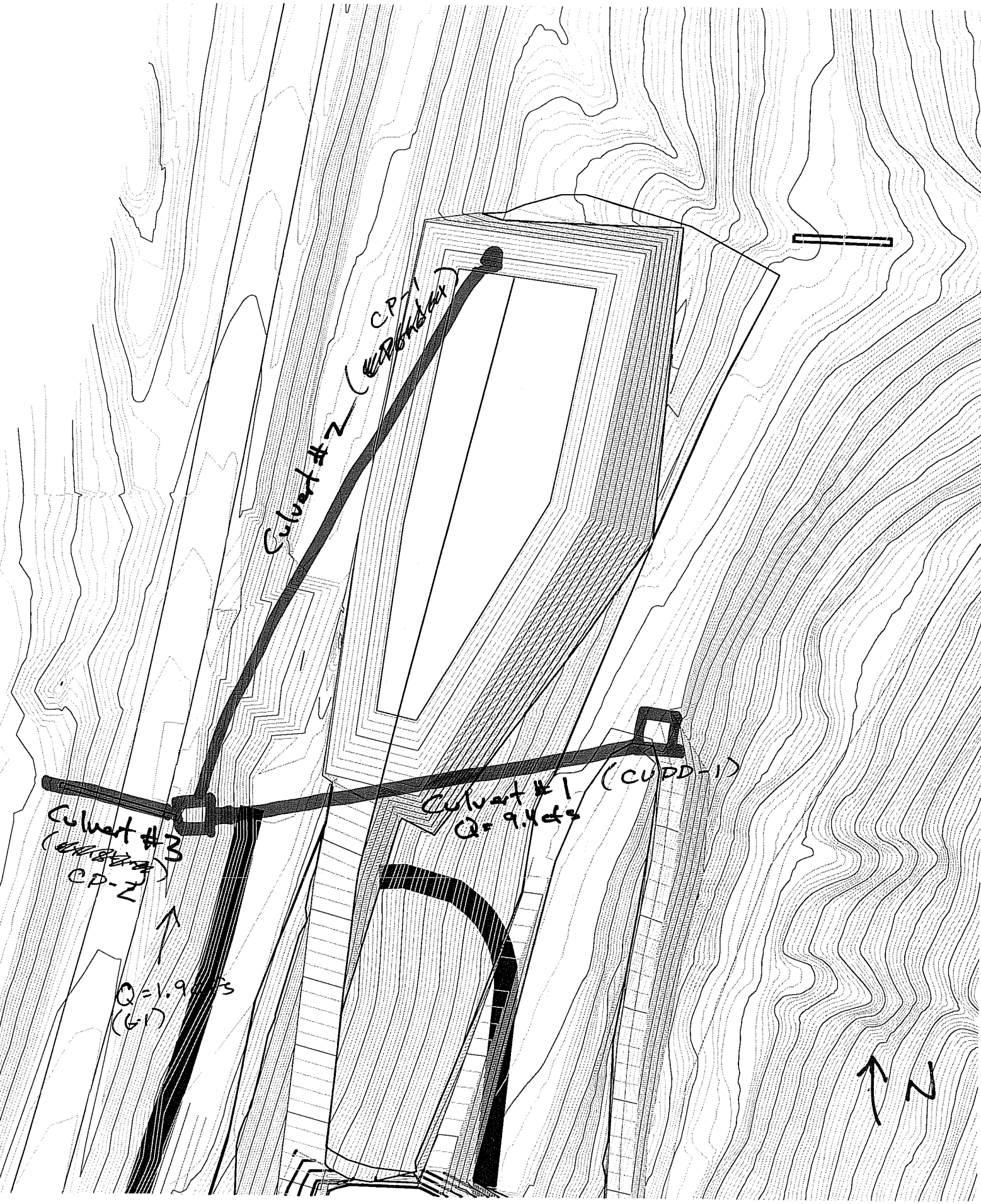
## Culvert #3 (CP-2)

Design Flow ($Q_3$) = 33.8 cfs

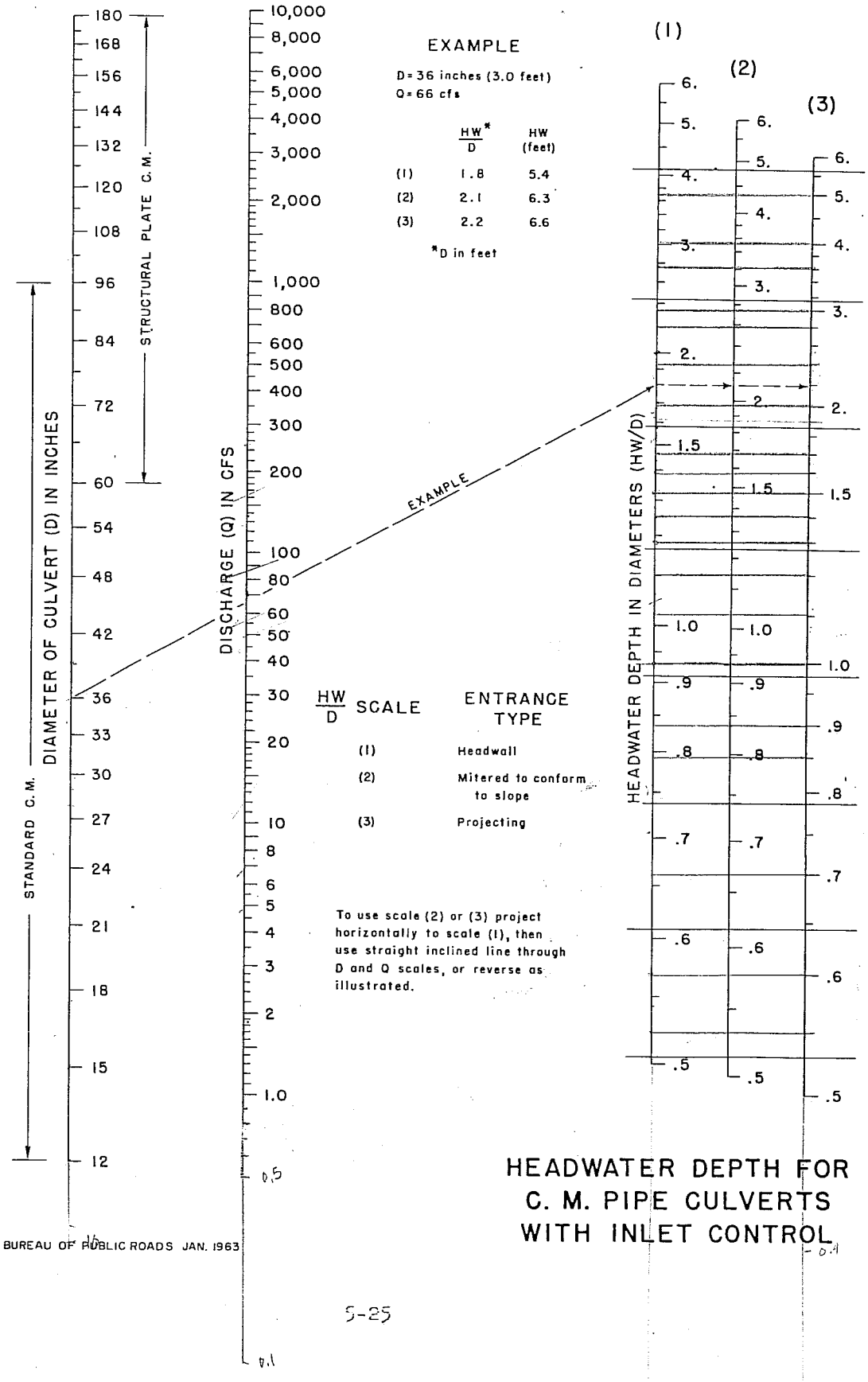
(Combination of flows from culvert #1 & #2, a subbasin 6-1 of, 22.5 cfs, 9.4 cfs and 1.9 cfs respectively)

Based on Chart 5 in the "Hydraulic Charts for the Selection of Highway Culverts," assuming $H_w/D = 1.0$ with a projecting entrance type, $D_3 = 42$"

There is an existing 36" diameter pipe at this location


Culvert #2
CP-1
Culvert #1
(CUDD-1)
Culvert #3
CP-2
N

# CHART 5




## HEADWATER DEPTH FOR C. M. PIPE CULVERTS WITH INLET CONTROL

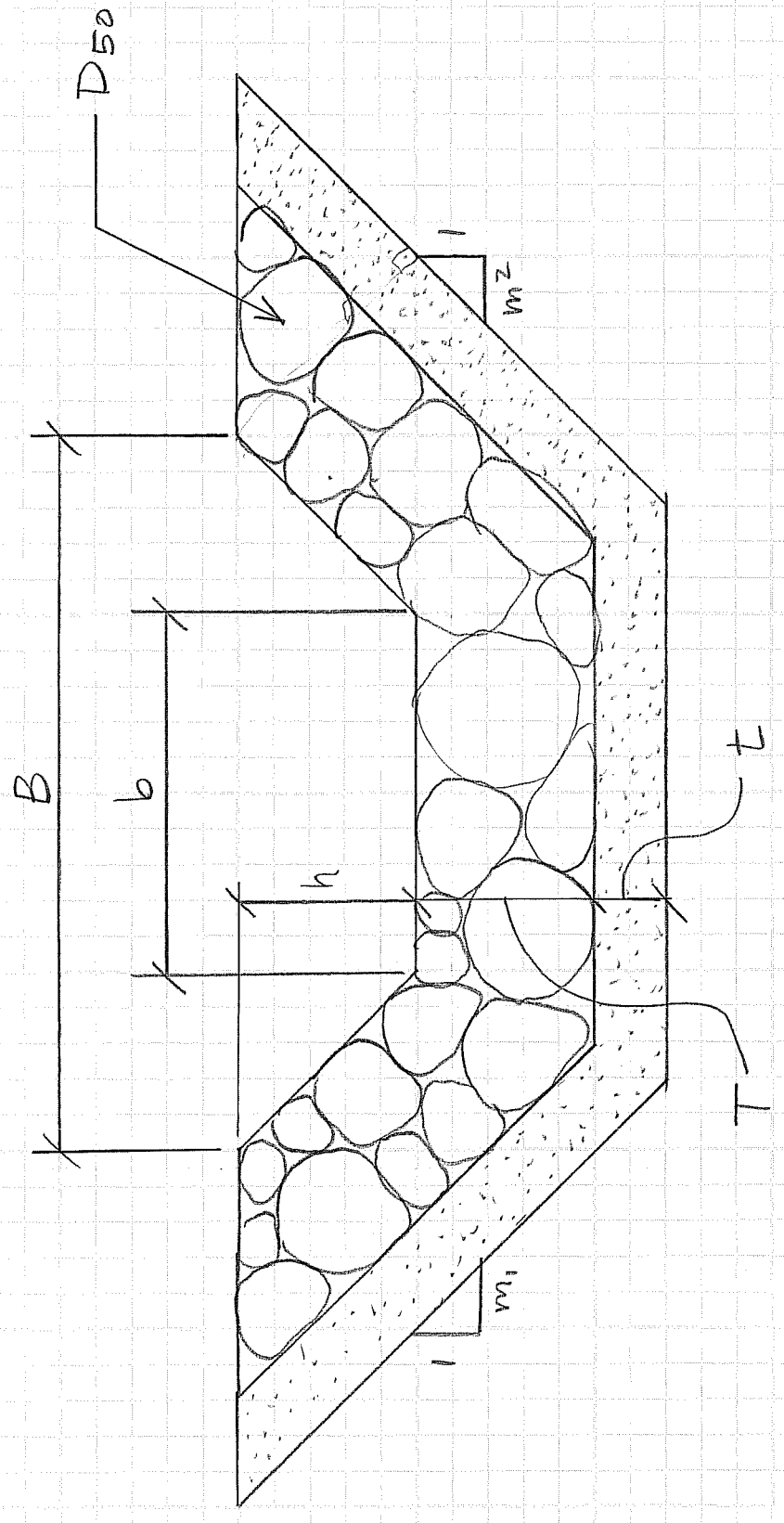


Ref: Hydraulic Charts for the Selection of Highway Culverts

HANSEN ALLEN & LUCE inc
ENGINEERS

CLIENT Carbon Resources
PROJECT Kinney Mine Hydrology
FEATURE Typical Ditch Cross Section
PROJECT NO 308.01.403

SHEET ____ OF ____
COMPUTED TDS
CHECKED ____
DATE 7-3-07



# Ditch Design Procedure:

1. Determined velocities in ditch based on minimum and maximum slopes.
2. Ditches with velocities less than 4 ft/s will not require any rip-rap.
3. Ditches with velocities greater than or equal to 4 ft/s will require rip-rap.
   - (a) Estimated D50 size in order to achieve a minimum safety factor of 1.5.
   - (b) If D50 size was an unreasonable size for the associated ditch, the D50 size was determined to be 0.25 ft (diameter) and the ditch will need to be grouted. (This was the case for all ditches with velocities greater than 4 ft/s)

* Sizing details for each ditch are shown in "Ditch Design Details" spreadsheet.

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DA-1))* | Chck'd
Project # *308.01.400* | Date *26-Dec-07*

# *Trapezoidal Channel Flow Calculations*

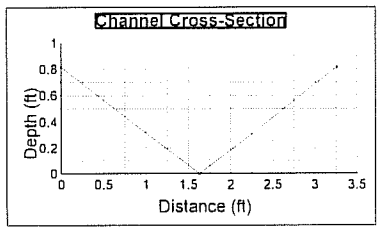
**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 0.90 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 2.0 | ml |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 1.50 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.05 | ft/ft |
| | Max. Bottom Slope: | 0.14 | ft/ft |
| | Freeboard: | 0.5 | feet |

| | | | |
|---|---|---|---|
| Depth Check | Depth (Min. Slope): | 0.32 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| | Required Depth: | 0.82 | feet |
| | Area: | 0.20 | ft2 |
| | Perimeter: | 1.41 | feet |
| | Hydraulic Radius: | 0.14 | feet |
| | Velocity: | 4.52 | ft/sec |
| | Froude Number: | 2.00 | |
| Velocity Check | Depth (Max. Slope): | 0.26 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.76 | feet |
| | Area: | 0.14 | ft2 |
| | Perimeter: | 1.16 | feet |
| | Hydraulic Radius: | 0.12 | feet |
| | Velocity: | 6.64 | ft/sec |
| | Froude Number: | 3.25 | |

***Channel Design Summary:***

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.05 | ft/ft |
| Max. Bottom Slope: | 0.14 | ft/ft |
| Min. Channel Depth: | 0.82 | feet |
| Channel Top Width: | 3.26 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DA-1))* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 0.90 | | cfs |
| Bottom Width: | 0.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 5.0 | % | |
| Max. Bottom Slope: | 14.0 | % | |
| Flow Depth (Min. S): | 0.32 | | feet |
| Flow Depth (Max. S): | 0.26 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | | |
|---|---|---|
| U=(gRS)^0.5 for Smin | 0.48 | |
| Reynolds # for Smin | 51,075 | |
| U=(gRS)^0.5 for Smax | 0.72 | |
| Reynolds # for Smax | 77,606 | |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.065 | |
| K for S max (See K vs. R Chart) | 0.068 | |
| F for S min | 15.8 | |
| F for S max | 15.1 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax = Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 1.50 | 1.50 | feet |
| T | 0.98 | 2.27 | lb/ft2 |
| Nb | 0.10 | 0.22 | |
| Tmax | 0.75 | 1.73 | lb/ft2 |
| Ns | 0.08 | 0.17 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 4.39 | 9.35 | degrees |
| Nsp | 0.04 | 0.11 | |
| SFb | 6.39 | 2.62 | |
| SFs | 1.66 | 1.49 | |

HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-1)* | Chck'd
Project # *308.01.400* | Date *02-Jan-08*

## *Trapezoidal Channel Flow Calculations*

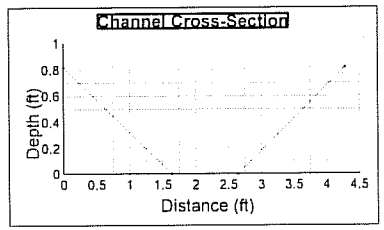
**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 1.00 | cfs |
| | Bottom Width: | 1.0 | feet |
| | Side Slope1: | 2.0 | m1 |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 0.20 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.005 | ft/ft |
| | Max. Bottom Slope: | 0.005 | ft/ft |
| | Freeboard: | 0.5 | feet |

| | | | |
|---|---|---|---|
| Depth Check | Depth (Min. Slope): | 0.32 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.82 | feet |
| | Area: | 0.53 | ft2 |
| | Perimeter: | 2.43 | feet |
| | Hydraulic Radius: | 0.22 | feet |
| | Velocity: | 1.90 | ft/sec |
| | Froude Number: | 0.70 | |
| Velocity Check | Depth (Max. Slope): | 0.32 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.82 | feet |
| | Area: | 0.53 | ft2 |
| | Perimeter: | 2.43 | feet |
| | Hydraulic Radius: | 0.22 | feet |
| | Velocity: | 1.90 | ft/sec |
| | Froude Number: | 0.70 | |

### *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 1.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.005 | ft/ft |
| Max. Bottom Slope: | 0.005 | ft/ft |
| Min. Channel Depth: | 0.82 | feet |
| Channel Top Width: | 4.28 | feet |




HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-1)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 1.00 | | cfs |
| Bottom Width: | 1.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 0.5 | % | |
| Max. Bottom Slope: | 0.5 | % | |
| Flow Depth (Min. S): | 0.32 | | feet |
| Flow Depth (Max. S): | 0.32 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | |
|---|---|
| U=(gRS)^0.5 for Smin | 0.19 |
| Reynolds # for Smin | 2,666 |
| U=(gRS)^0.5 for Smax | 0.19 |
| Reynolds # for Smax | 2,666 |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.062 | |
| K for S max (See K vs. R Chart) | 0.062 | |
| F for S min | 16.1 | |
| F for S max | 16.1 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan(Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 0.20 | 0.20 | feet |
| T | 0.10 | 0.10 | lb/ft2 |
| Nb | 0.08 | 0.08 | |
| Tmax | 0.08 | 0.08 | lb/ft2 |
| Ns | 0.06 | 0.06 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 3.43 | 3.43 | degrees |
| Nsp | 0.03 | 0.03 | |
| SFb | 11.91 | 11.91 | |
| SFs | 1.70 | 1.70 | |

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-2)* | Chck'd
Project # *308.01.400* | Date *02-Jan-08*

# *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 2.90 | cfs |
| | Bottom Width: | 1.0 | feet |
| | Side Slope1: | 2.0 | ml |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 1.50 | |

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

If X=5, n=input n value

| | | |
|---|---|---|
| X: | 1 | |
| Input n Value when X=5: | | |
| Calc (used) n Value: | 0.020 | |
| Min. Bottom Slope: | 0.006 | ft/ft |
| Max. Bottom Slope: | 0.150 | ft/ft |
| Freeboard: | 0.5 | feet |

**Depth Check**

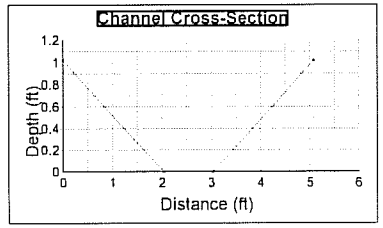
| | | |
|---|---|---|
| Depth (Min. Slope): | 0.52 | feet |
| Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| Required Depth: | 1.02 | feet |
| Area: | 1.06 | ft2 |
| Perimeter: | 3.32 | feet |
| Hydraulic Radius: | 0.32 | feet |
| Velocity: | 2.75 | ft/sec |
| Froude Number: | 0.83 | |

**Velocity Check**

| | | |
|---|---|---|
| Depth (Max. Slope): | 0.23 | feet |
| Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| Required Depth: | 0.73 | feet |
| Area: | 0.33 | ft2 |
| Perimeter: | 2.02 | feet |
| Hydraulic Radius: | 0.17 | feet |
| Velocity: | 8.68 | ft/sec |
| Froude Number: | 3.66 | |

## *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 1.00 | feet |
| Side Slope1: | 2.00 | 1/ml |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.00625 | ft/ft |
| Max. Bottom Slope: | 0.15 | ft/ft |
| Min. Channel Depth: | 1.02 | feet |
| Channel Top Width: | 5.07 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-2)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 2.90 | | cfs |
| Bottom Width: | 1.00 | | feet |
| Side Slope1: | 2.00 | | 1/ml |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 0.6 | % | |
| Max. Bottom Slope: | 15.0 | % | |
| Flow Depth (Min. S): | 0.52 | | feet |
| Flow Depth (Max. S): | 0.23 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | |
|---|---|
| U=(gRS)^0.5 for Smin | 0.25 |
| Reynolds # for Smin | 27,116 |
| U=(gRS)^0.5 for Smax | 0.89 |
| Reynolds # for Smax | 95,652 |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.062 | |
| K for S max (See K vs. R Chart) | 0.070 | |
| F for S min | 16.1 | |
| F for S max | 14.6 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

| | |
|---|---|
| Ks: | 0.76 |

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 1.50 | 1.50 | feet |
| T | 0.20 | 2.14 | lb/ft2 |
| Nb | 0.02 | 0.20 | |
| Tmax | 0.15 | 1.63 | lb/ft2 |
| Ns | 0.02 | 0.15 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 0.93 | 8.55 | degrees |
| Nsp | 0.01 | 0.10 | |
| SFb | 35.63 | 2.68 | |
| SFs | 1.77 | 1.51 | |

HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-3)* | Chck'd
Project # *308.01.400* | Date *02-Jan-08*

# *Trapezoidal Channel Flow Calculations*

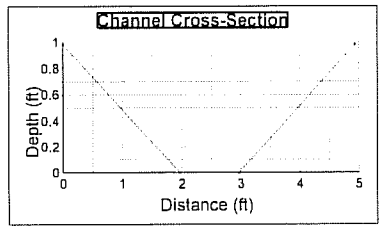
**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 2.90 | cfs |
| | Bottom Width: | 1.0 | feet |
| | Side Slope1: | 2.0 | m1 |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 0.20 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.008 | ft/ft |
| | Max. Bottom Slope: | 0.008 | ft/ft |
| | Freeboard: | 0.5 | feet |

| | | | |
|---|---|---|---|
| Depth Check | Depth (Min. Slope): | 0.48 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.98 | feet |
| | Area: | 0.95 | ft2 |
| | Perimeter: | 3.16 | feet |
| | Hydraulic Radius: | 0.30 | feet |
| | Velocity: | 3.05 | ft/sec |
| | Froude Number: | 0.94 | |
| Velocity Check | Depth (Max. Slope): | 0.48 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.98 | feet |
| | Area: | 0.95 | ft2 |
| | Perimeter: | 3.16 | feet |
| | Hydraulic Radius: | 0.30 | feet |
| | Velocity: | 3.05 | ft/sec |
| | Froude Number: | 0.94 | |

## *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 1.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.0083 | ft/ft |
| Max. Bottom Slope: | 0.0083 | ft/ft |
| Min. Channel Depth: | 0.98 | feet |
| Channel Top Width: | 4.93 | feet |




HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-3)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 2.90 | | cfs |
| Bottom Width: | 1.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 0.8 | % | |
| Max. Bottom Slope: | 0.8 | % | |
| Flow Depth (Min. S): | 0.48 | | feet |
| Flow Depth (Max. S): | 0.48 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |
| Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity | | | |
| U=(gRS)^0.5 for Smin | 0.28 | | |
| Reynolds # for Smin | 4,051 | | |
| U=(gRS)^0.5 for Smax | 0.28 | | |
| Reynolds # for Smax | 4,051 | | |
| T = G*d*S where G=Unit weight of Water | | | |
| Nb = F*T/(G(SD-1)D50) | | | |
| F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500 | | | |
| F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000 | | | |
| F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger | | | |
| K for S min (See K vs. R Chart) | 0.062 | | |
| K for S max (See K vs. R Chart) | 0.062 | | |
| F for S min | 16.1 | | |
| F for S max | 16.1 | | |
| SFb = (Cos a tan b)/(sin a + Nb tan b) | | | |
| Tmax= Ks*G*d*S | | | |
| Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope | | | |
| Ks: | 0.76 | | |
| Ns = F*Tmax/(G(SG-1)D) | | | |
| A = Atan(1/m) | | | |
| B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar)) | | | |
| Nsp = Ns(1+Sin(Ar+B)/2) | | | |
| SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B)) | | | |

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 0.20 | 0.20 | feet |
| T | 0.25 | 0.25 | lb/ft2 |
| Nb | 0.20 | 0.20 | |
| Tmax | 0.19 | 0.19 | lb/ft2 |
| Ns | 0.15 | 0.15 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 8.53 | 8.53 | degrees |
| Nsp | 0.09 | 0.09 | |
| SFb | 4.87 | 4.87 | |
| SFs | 1.55 | 1.55 | |

HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-4)* | Chck'd
Project # *308.01.400* | Date *02-Jan-08*

## *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 1.00 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 2.0 | ml |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 1.25 | |

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

If X=5, n=input n value

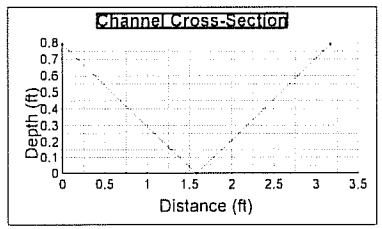
| | | |
|---|---|---|
| X: | 1 | |
| Input n Value when X=5: | | |
| Calc (used) n Value: | 0.020 | |
| Min. Bottom Slope: | 0.093 | ft/ft |
| Max. Bottom Slope: | 0.093 | ft/ft |
| Freeboard: | 0.5 | feet |

| Depth Check | | | |
|---|---|---|---|
| | Depth (Min. Slope): | 0.29 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| | Required Depth: | 0.79 | feet |
| | Area: | 0.17 | ft2 |
| | Perimeter: | 1.31 | feet |
| | Hydraulic Radius: | 0.13 | feet |
| | Velocity: | 5.86 | ft/sec |
| | Froude Number: | 2.70 | |

| Velocity Check | | | |
|---|---|---|---|
| | Depth (Max. Slope): | 0.29 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| | Required Depth: | 0.79 | feet |
| | Area: | 0.17 | ft2 |
| | Perimeter: | 1.31 | feet |
| | Hydraulic Radius: | 0.13 | feet |
| | Velocity: | 5.86 | ft/sec |
| | Froude Number: | 2.70 | |

### *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.0932 | ft/ft |
| Max. Bottom Slope: | 0.0932 | ft/ft |
| Min. Channel Depth: | 0.79 | feet |
| Channel Top Width: | 3.17 | feet |




HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-4)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 1.00 | | cfs |
| Bottom Width: | 0.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 9.3 | % | |
| Max. Bottom Slope: | 9.3 | % | |
| Flow Depth (Min. S): | 0.29 | | feet |
| Flow Depth (Max. S): | 0.29 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | |
|---|---|
| U=(gRS)^0.5 for Smin | 0.63 |
| Reynolds # for Smin | 55,912 |
| U=(gRS)^0.5 for Smax | 0.63 |
| Reynolds # for Smax | 55,912 |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0.25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.062 | |
| K for S max (See K vs. R Chart) | 0.062 | |
| F for S min | 15.7 | |
| F for S max | 15.7 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax = Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 1.25 | 1.25 | feet |
| T | 1.70 | 1.70 | lb/ft2 |
| Nb | 0.21 | 0.21 | |
| Tmax | 1.29 | 1.29 | lb/ft2 |
| Ns | 0.16 | 0.16 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 8.83 | 8.83 | degrees |
| Nsp | 0.10 | 0.10 | |
| SFb | 3.21 | 3.21 | |
| SFs | 1.52 | 1.52 | |

HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-5)* | Chck'd
Project # *308.01.400* | Date *02-Jan-08*

# *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 2.90 | cfs |
| | Bottom Width: | 1.0 | feet |
| | Side Slope1: | 2.0 | m1 |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 0.20 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.008 | ft/ft |
| | Max. Bottom Slope: | 0.008 | ft/ft |
| | Freeboard: | 0.5 | feet |

**Depth Check**

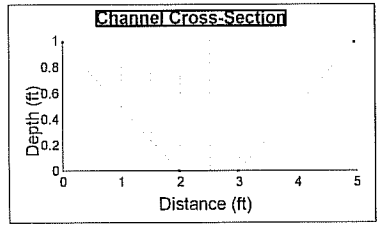
| | | |
|---|---|---|
| Depth (Min. Slope): | 0.49 | feet |
| Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| Required Depth: | 0.99 | feet |
| Area: | 0.96 | ft2 |
| Perimeter: | 3.18 | feet |
| Hydraulic Radius: | 0.30 | feet |
| Velocity: | 3.01 | ft/sec |
| Froude Number: | 0.93 | |

**Velocity Check**

| | | |
|---|---|---|
| Depth (Max. Slope): | 0.49 | feet |
| Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| Required Depth: | 0.99 | feet |
| Area: | 0.96 | ft2 |
| Perimeter: | 3.18 | feet |
| Hydraulic Radius: | 0.30 | feet |
| Velocity: | 3.01 | ft/sec |
| Froude Number: | 0.93 | |

## *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 1.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.008 | ft/ft |
| Max. Bottom Slope: | 0.008 | ft/ft |
| Min. Channel Depth: | 0.99 | feet |
| Channel Top Width: | 4.95 | feet |




HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-5)* | Chck'd
Project # *308.01.400* | Date *08-Jan-08*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 2.90 | | cfs |
| Bottom Width: | 1.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 0.8 | % | |
| Max. Bottom Slope: | 0.8 | % | |
| Flow Depth (Min. S): | 0.49 | | feet |
| Flow Depth (Max. S): | 0.49 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | |
|---|---|
| U=(gRS)^0.5 for Smin | 0.28 |
| Reynolds # for Smin | 3,992 |
| U=(gRS)^0.5 for Smax | 0.28 |
| Reynolds # for Smax | 3,992 |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.062 | |
| K for S max (See K vs. R Chart) | 0.062 | |
| F for S min | 16.1 | |
| F for S max | 16.1 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan(Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 0.20 | 0.20 | feet |
| T | 0.24 | 0.24 | lb/ft2 |
| Nb | 0.19 | 0.19 | |
| Tmax | 0.19 | 0.19 | lb/ft2 |
| Ns | 0.15 | 0.15 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 8.30 | 8.30 | degrees |
| Nsp | 0.08 | 0.08 | |
| SFb | 5.01 | 5.01 | |
| SFs | 1.56 | 1.56 | |

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-6)* | Chck'd
Project # *308.01.400* | Date *02-Jan-08*

# *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 3.50 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 2.0 | m1 |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 2.25 | |

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

If X=5, n=input n value

| | | | |
|---|---|---|---|
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.123 | ft/ft |
| | Max. Bottom Slope: | 0.123 | ft/ft |
| | Freeboard: | 0.5 | feet |

**Depth Check**

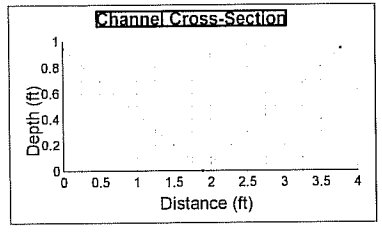
| | | |
|---|---|---|
| Depth (Min. Slope): | 0.44 | feet |
| Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| Required Depth: | 0.94 | feet |
| Area: | 0.39 | ft2 |
| Perimeter: | 1.99 | feet |
| Hydraulic Radius: | 0.20 | feet |
| Velocity: | 8.88 | ft/sec |
| Froude Number: | 3.32 | |

**Velocity Check**

| | | |
|---|---|---|
| Depth (Max. Slope): | 0.44 | feet |
| Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| Required Depth: | 0.94 | feet |
| Area: | 0.39 | ft2 |
| Perimeter: | 1.99 | feet |
| Hydraulic Radius: | 0.20 | feet |
| Velocity: | 8.88 | ft/sec |
| Froude Number: | 3.32 | |

## *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.1225 | ft/ft |
| Max. Bottom Slope: | 0.1225 | ft/ft |
| Min. Channel Depth: | 0.94 | feet |
| Channel Top Width: | 3.78 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DC-6)* | Chck'd
Project # *308.01.400* | Date *08-Jan-08*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 3.50 | | cfs |
| Bottom Width: | 0.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 12.3 | % | |
| Max. Bottom Slope: | 12.3 | % | |
| Flow Depth (Min. S): | 0.44 | | feet |
| Flow Depth (Max. S): | 0.44 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | |
|---|---|
| U=(gRS)^0.5 for Smin | 0.89 |
| Reynolds # for Smin | 142,240 |
| U=(gRS)^0.5 for Smax | 0.89 |
| Reynolds # for Smax | 142,240 |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | |
|---|---|
| K for S min (See K vs. R Chart) | 0.062 |
| K for S max (See K vs. R Chart) | 0.062 |
| F for S min | 13.4 |
| F for S max | 13.4 |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

| | |
|---|---|
| Ks: | 0.76 |

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 2.25 | 2.25 | feet |
| T | 3.39 | 3.39 | lb/ft2 |
| Nb | 0.20 | 0.20 | |
| Tmax | 2.58 | 2.58 | lb/ft2 |
| Ns | 0.15 | 0.15 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 8.34 | 8.34 | degrees |
| Nsp | 0.09 | 0.09 | |
| SFb | 2.99 | 2.99 | |
| SFs | 1.53 | 1.53 | |

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DD-1)* | Chck'd
Project # *308.01.400* | Date *26-Dec-07*

## *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 0.20 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 2.0 | ml |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 0.50 | |

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

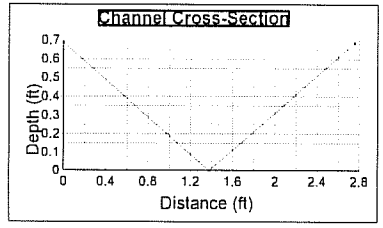
If X=5, n=input n value

| | | |
|---|---|---|
| X: | 1 | |
| Input n Value when X=5: | | |
| Calc (used) n Value: | 0.020 | |
| Min. Bottom Slope: | 0.038 | ft/ft |
| Max. Bottom Slope: | 0.038 | ft/ft |
| Freeboard: | 0.5 | feet |

| | | | |
|---|---|---|---|
| Depth Check | Depth (Min. Slope): | 0.19 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| | Required Depth: | 0.69 | feet |
| | Area: | 0.07 | ft2 |
| | Perimeter: | 0.85 | feet |
| | Hydraulic Radius: | 0.08 | feet |
| | Velocity: | 2.80 | ft/sec |
| | Froude Number: | 1.60 | |
| Velocity Check | Depth (Max. Slope): | 0.19 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| | Required Depth: | 0.69 | feet |
| | Area: | 0.07 | ft2 |
| | Perimeter: | 0.85 | feet |
| | Hydraulic Radius: | 0.08 | feet |
| | Velocity: | 2.80 | ft/sec |
| | Froude Number: | 1.60 | |

### *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.038 | ft/ft |
| Max. Bottom Slope: | 0.038 | ft/ft |
| Min. Channel Depth: | 0.69 | feet |
| Channel Top Width: | 2.76 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DD-1)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 0.20 | | cfs |
| Bottom Width: | 0.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 3.8 | % | |
| Max. Bottom Slope: | 3.8 | % | |
| Flow Depth (Min. S): | 0.19 | | feet |
| Flow Depth (Max. S): | 0.19 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | |
|---|---|
| U=(gRS)^0.5 for Smin | 0.32 |
| Reynolds # for Smin | 11,487 |
| U=(gRS)^0.5 for Smax | 0.32 |
| Reynolds # for Smax | 11,487 |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0.25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.062 | |
| K for S max (See K vs. R Chart) | 0.062 | |
| F for S min | 16.1 | |
| F for S max | 16.1 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

| | |
|---|---|
| Ks: | 0.76 |

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 0.50 | 0.50 | feet |
| T | 0.45 | 0.45 | lb/ft2 |
| Nb | 0.14 | 0.14 | |
| Tmax | 0.34 | 0.34 | lb/ft2 |
| Ns | 0.11 | 0.11 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 6.10 | 6.10 | degrees |
| Nsp | 0.06 | 0.06 | |
| SFb | 5.47 | 5.47 | |
| SFs | 1.61 | 1.61 | |

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DD-2)* Chck'd
Project # *308.01.400* Date *26-Dec-07*

## *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

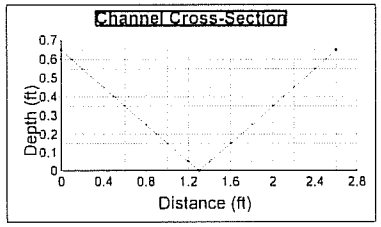
| | | | |
|---|---|---|---|
| | Design Flow: | 0.20 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 2.0 | m1 |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 1.00 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.130 | ft/ft |
| | Max. Bottom Slope: | 0.130 | ft/ft |
| | Freeboard: | 0.5 | feet |

| | | | |
|---|---|---|---|
| Depth Check | Depth (Min. Slope): | 0.15 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| | Required Depth: | 0.65 | feet |
| | Area: | 0.05 | ft2 |
| | Perimeter: | 0.67 | feet |
| | Hydraulic Radius: | 0.07 | feet |
| | Velocity: | 4.44 | ft/sec |
| | Froude Number: | 2.85 | |

| | | | |
|---|---|---|---|
| Velocity Check | Depth (Max. Slope): | 0.15 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| | Required Depth: | 0.65 | feet |
| | Area: | 0.05 | ft2 |
| | Perimeter: | 0.67 | feet |
| | Hydraulic Radius: | 0.07 | feet |
| | Velocity: | 4.44 | ft/sec |
| | Froude Number: | 2.85 | |

### *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.13 | ft/ft |
| Max. Bottom Slope: | 0.13 | ft/ft |
| Min. Channel Depth: | 0.65 | feet |
| Channel Top Width: | 2.60 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet *of*
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DD-2)* Chck'd
Project # *308.01.400* Date *03-Jan-08*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 0.20 | | cfs |
| Bottom Width: | 0.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 13.0 | % | |
| Max. Bottom Slope: | 13.0 | % | |
| Flow Depth (Min. S): | 0.15 | | feet |
| Flow Depth (Max. S): | 0.15 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | |
|---|---|
| U=(gRS)^0.5 for Smin | 0.53 |
| Reynolds # for Smin | 37,866 |
| U=(gRS)^0.5 for Smax | 0.53 |
| Reynolds # for Smax | 37,866 |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500
F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000
F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.063 | |
| K for S max (See K vs. R Chart) | 0.063 | |
| F for S min | 16.1 | |
| F for S max | 16.1 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

| | |
|---|---|
| Ks: | 0.76 |

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 1.00 | 1.00 | feet |
| T | 1.22 | 1.22 | lb/ft2 |
| Nb | 0.19 | 0.19 | |
| Tmax | 0.93 | 0.93 | lb/ft2 |
| Ns | 0.14 | 0.14 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 8.08 | 8.08 | degrees |
| Nsp | 0.09 | 0.09 | |
| SFb | 2.96 | 2.96 | |
| SFs | 1.53 | 1.53 | |

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DD-3)* Chck'd
Project # *308.01.400* Date *26-Dec-07*

# *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 0.30 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 2.0 | m1 |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 0.50 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.038 | ft/ft |
| | Max. Bottom Slope: | 0.038 | ft/ft |
| | Freeboard: | 0.5 | feet |

**Depth Check**

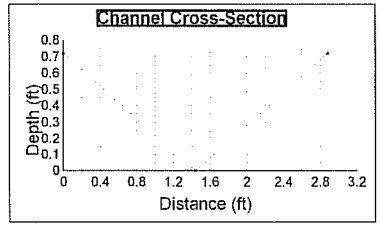
| | | | |
|---|---|---|---|
| | Depth (Min. Slope): | 0.22 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.72 | feet |
| | Area: | 0.10 | ft2 |
| | Perimeter: | 0.98 | feet |
| | Hydraulic Radius: | 0.10 | feet |
| | Velocity: | 3.10 | ft/sec |
| | Froude Number: | 1.64 | |

**Velocity Check**

| | | | |
|---|---|---|---|
| | Depth (Max. Slope): | 0.22 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.72 | feet |
| | Area: | 0.10 | ft2 |
| | Perimeter: | 0.98 | feet |
| | Hydraulic Radius: | 0.10 | feet |
| | Velocity: | 3.10 | ft/sec |
| | Froude Number: | 1.64 | |

## *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.038 | ft/ft |
| Max. Bottom Slope: | 0.038 | ft/ft |
| Min. Channel Depth: | 0.72 | feet |
| Channel Top Width: | 2.88 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet *of*
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DD-3)* Chck'd
Project # *308.01.400* Date *08-Jan-08*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 0.30 | | cfs |
| Bottom Width: | 0.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 3.8 | % | |
| Max. Bottom Slope: | 3.8 | % | |
| Flow Depth (Min. S): | 0.22 | | feet |
| Flow Depth (Max. S): | 0.22 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | | |
|---|---|---|
| U=(gRS)^0.5 for Smin | 0.35 | |
| Reynolds # for Smin | 12,395 | |
| U=(gRS)^0.5 for Smax | 0.35 | |
| Reynolds # for Smax | 12,395 | |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.062 | |
| K for S max (See K vs. R Chart) | 0.062 | |
| F for S min | 16.1 | |
| F for S max | 16.1 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 0.50 | 0.50 | feet |
| T | 0.52 | 0.52 | lb/ft2 |
| Nb | 0.16 | 0.16 | |
| Tmax | 0.40 | 0.40 | lb/ft2 |
| Ns | 0.12 | 0.12 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 7.09 | 7.09 | degrees |
| Nsp | 0.07 | 0.07 | |
| SFb | 4.86 | 4.86 | |
| SFs | 1.58 | 1.58 | |

HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DE-1)* | Chck'd
Project # *308.01.400* | Date *26-Dec-07*

# *Trapezoidal Channel Flow Calculations*

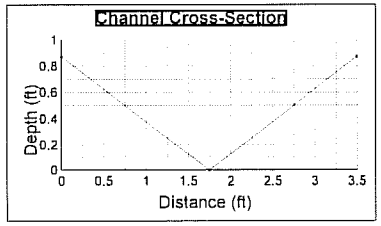
**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 0.60 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 2.0 | ml |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 0.20 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt, et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.009 | ft/ft |
| | Max. Bottom Slope: | 0.009 | ft/ft |
| | Freeboard: | 0.5 | feet |

| | | | |
|---|---|---|---|
| Depth Check | Depth (Min. Slope): | 0.37 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.87 | feet |
| | Area: | 0.28 | ft2 |
| | Perimeter: | 1.67 | feet |
| | Hydraulic Radius: | 0.17 | feet |
| | Velocity: | 2.15 | ft/sec |
| | Froude Number: | 0.87 | |
| Velocity Check | Depth (Max. Slope): | 0.37 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.87 | feet |
| | Area: | 0.28 | ft2 |
| | Perimeter: | 1.67 | feet |
| | Hydraulic Radius: | 0.17 | feet |
| | Velocity: | 2.15 | ft/sec |
| | Froude Number: | 0.87 | |

***Channel Design Summary:***

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.009 | ft/ft |
| Max. Bottom Slope: | 0.009 | ft/ft |
| Min. Channel Depth: | 0.87 | feet |
| Channel Top Width: | 3.50 | feet |




HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DE-1)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 0.60 | cfs |
| | Bottom Width: | 0.00 | feet |
| | Side Slope1: | 2.00 | 1/m1 |
| | Side Slope2: | 2.00 | 1/m2 |
| | Friction Factor: | 0.02 | |
| | Min. Bottom Slope: | 0.9 | % |
| | Max. Bottom Slope: | 0.9 | % |
| | Flow Depth (Min. S): | 0.37 | feet |
| | Flow Depth (Max. S): | 0.37 | feet |
| | Angle Repose (Ar): | 42.0 | degrees |
| | Specific Gravity | 2.65 | |
| | Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity | | |
| | U=(gRS)^0.5 for Smin | 0.22 | |
| | Reynolds # for Smin | 3,145 | |
| | U=(gRS)^0.5 for Smax | 0.22 | |
| | Reynolds # for Smax | 3,145 | |
| | T = G*d*S where G=Unit weight of Water | | |
| | Nb = F*T/(G(SD-1)D50) | | |
| | F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500 | | |
| | F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000 | | |
| | F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger | | |
| | K for S min (See K vs. R Chart) | 0.062 | |
| | K for S max (See K vs. R Chart) | 0.062 | |
| | F for S min | 16.1 | |
| | F for S max | 16.1 | |
| | SFb = (Cos a tan b)/(sin a + Nb tan b) | | |
| | Tmax= Ks*G*d*S | | |
| | Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope | | |
| | Ks: | 0.76 | |
| | Ns = F*Tmax/(G(SG-1)D) | | |
| | A = Atan(1/m) | | |
| | B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar)) | | |
| | Nsp = Ns(1+Sin(Ar+B)/2) | | |
| | SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B)) | | |

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 0.20 | 0.20 | feet |
| T | 0.21 | 0.21 | lb/ft2 |
| Nb | 0.16 | 0.16 | |
| Tmax | 0.16 | 0.16 | lb/ft2 |
| Ns | 0.13 | 0.13 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 7.16 | 7.16 | degrees |
| Nsp | 0.07 | 0.07 | |
| SFb | 5.73 | 5.73 | |
| SFs | 1.59 | 1.59 | |

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DE-2)* Chck'd
Project # *308.01.400* Date *02-Jan-08*

# *Trapezoidal Channel Flow Calculations*

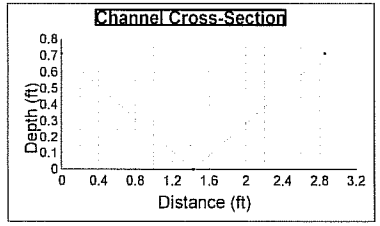
**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 0.20 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 2.0 | m1 |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 0.25 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.020 | ft/ft |
| | Max. Bottom Slope: | 0.020 | ft/ft |
| | Freeboard: | 0.5 | feet |

| | | | |
|---|---|---|---|
| Depth Check | Depth (Min. Slope): | 0.21 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.71 | feet |
| | Area: | 0.09 | ft2 |
| | Perimeter: | 0.96 | feet |
| | Hydraulic Radius: | 0.10 | feet |
| | Velocity: | 2.18 | ft/sec |
| | Froude Number: | 1.18 | |
| Velocity Check | Depth (Max. Slope): | 0.21 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.71 | feet |
| | Area: | 0.09 | ft2 |
| | Perimeter: | 0.96 | feet |
| | Hydraulic Radius: | 0.10 | feet |
| | Velocity: | 2.18 | ft/sec |
| | Froude Number: | 1.18 | |

## *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.01961 | ft/ft |
| Max. Bottom Slope: | 0.01961 | ft/ft |
| Min. Channel Depth: | 0.71 | feet |
| Channel Top Width: | 2.86 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet *of*
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DE-2)* Chck'd
Project # *308.01.400* Date *08-Jan-08*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 0.20 | | cfs |
| Bottom Width: | 0.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 2.0 | % | |
| Max. Bottom Slope: | 2.0 | % | |
| Flow Depth (Min. S): | 0.21 | | feet |
| Flow Depth (Max. S): | 0.21 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | |
|---|---|
| U=(gRS)^0.5 for Smin | 0.25 |
| Reynolds # for Smin | 4,390 |
| U=(gRS)^0.5 for Smax | 0.25 |
| Reynolds # for Smax | 4,390 |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | |
|---|---|
| K for S min (See K vs. R Chart) | 0.062 |
| K for S max (See K vs. R Chart) | 0.062 |
| F for S min | 16.1 |
| F for S max | 16.1 |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 0.25 | 0.25 | feet |
| T | 0.26 | 0.26 | lb/ft2 |
| Nb | 0.16 | 0.16 | |
| Tmax | 0.20 | 0.20 | lb/ft2 |
| Ns | 0.12 | 0.12 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 7.14 | 7.14 | degrees |
| Nsp | 0.07 | 0.07 | |
| SFb | 5.38 | 5.38 | |
| SFs | 1.59 | 1.59 | |

HANSEN ALLEN & LUCE inc
ENGINEERS

Client: Carbon Resources | Sheet:
Project: Kinney Mine Hydrology | Comp.: TDS
Feature: West Side Ditch Design (DE-3) | Chck'd:
Project #: 308.01.400 | Date: 20-Dec-07

# Trapezoidal Channel Flow Calculations

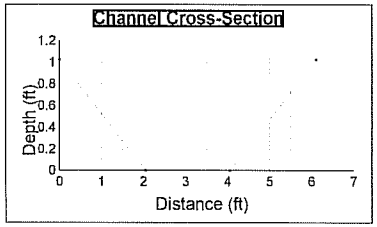
**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 4.10 | cfs |
| | Bottom Width: | 2.0 | feet |
| | Side Slope1: | 2.0 | m1 |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 0.25 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 5 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.030 | |
| | Min. Bottom Slope: | 0.01 | ft/ft |
| | Max. Bottom Slope: | 0.01 | ft/ft |
| | Freeboard: | 0.5 | feet |

| | | | |
|---|---|---|---|
| Depth Check | Depth (Min. Slope): | 0.53 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 1.03 | feet |
| | Area: | 1.61 | ft2 |
| | Perimeter: | 4.35 | feet |
| | Hydraulic Radius: | 0.37 | feet |
| | Velocity: | 2.55 | ft/sec |
| | Froude Number: | 0.72 | |
| Velocity Check | Depth (Max. Slope): | 0.53 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 1.03 | feet |
| | Area: | 1.61 | ft2 |
| | Perimeter: | 4.35 | feet |
| | Hydraulic Radius: | 0.37 | feet |
| | Velocity: | 2.55 | ft/sec |
| | Froude Number: | 0.72 | |

## Channel Design Summary:

| | | |
|---|---|---|
| Bottom Width: | 2.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.01 | ft/ft |
| Max. Bottom Slope: | 0.01 | ft/ft |
| Min. Channel Depth: | 1.03 | feet |
| Channel Top Width: | 6.10 | feet |




HANSEN ALLEN & LUCE inc
ENGINEERS

Client: Carbon Resources | Sheet: of
Project: Kinney Mine Hydrology | Comp.: TDS
Feature: West Side Ditch Design (DE-3) | Chck'd:
Project #: 308.01.400 | Date: 08-Jan-08

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 4.10 | | cfs |
| Bottom Width: | 2.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.03 | | |
| Min. Bottom Slope: | 1.0 | % | |
| Max. Bottom Slope: | 1.0 | % | |
| Flow Depth (Min. S): | 0.53 | | feet |
| Flow Depth (Max. S): | 0.53 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |
| Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity | | | |
| U=(gRS)^0.5 for Smin | 0.34 | | |
| Reynolds # for Smin | 6,154 | | |
| U=(gRS)^0.5 for Smax | 0.34 | | |
| Reynolds # for Smax | 6,154 | | |
| T = G*d*S where G=Unit weight of Water | | | |
| Nb = F*T/(G(SD-1)D50) | | | |
| F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500 | | | |
| F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000 | | | |
| F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger | | | |
| K for S min (See K vs. R Chart) | 0.062 | | |
| K for S max (See K vs. R Chart) | 0.062 | | |
| F for S min | 16.1 | | |
| F for S max | 16.1 | | |
| SFb = (Cos a tan b)/(sin a + Nb tan b) | | | |
| Tmax= Ks*G*d*S | | | |
| Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope | | | |
| Ks: | 0.76 | | |
| Ns = F*Tmax/(G(SG-1)D) | | | |
| A = Atan(1/m) | | | |
| B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar)) | | | |
| Nsp = Ns(1+Sin(Ar+B)/2) | | | |
| SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B)) | | | |

**RIPRAP DESIGN:**

| | 0.2 | Smax | |
|---|---|---|---|
| D50 | 0.25 | 0.25 | feet |
| T | 0.33 | 0.33 | lb/ft2 |
| Nb | 0.21 | 0.21 | |
| Tmax | 0.25 | 0.25 | lb/ft2 |
| Ns | 0.16 | 0.16 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 8.93 | 8.93 | degrees |
| Nsp | 0.09 | 0.09 | |
| SFb | 4.61 | 4.61 | |
| SFs | 1.54 | 1.54 | |

HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *West Side Ditch Design (DE-4)* | Chck'd
Project # *308.01.400* | Date *20-Dec-07*

# *Trapezoidal Channel Flow Calculations*

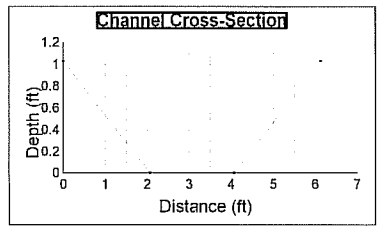
**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 4.20 | cfs |
| | Bottom Width: | 2.0 | feet |
| | Side Slope1: | 2.0 | m1 |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 0.25 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 5 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.030 | |
| | Min. Bottom Slope: | 0.01 | ft/ft |
| | Max. Bottom Slope: | 0.01 | ft/ft |
| | Freeboard: | 0.5 | feet |

| | | | |
|---|---|---|---|
| Depth Check | Depth (Min. Slope): | 0.53 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 1.03 | feet |
| | Area: | 1.63 | ft2 |
| | Perimeter: | 4.38 | feet |
| | Hydraulic Radius: | 0.37 | feet |
| | Velocity: | 2.57 | ft/sec |
| | Froude Number: | 0.72 | |
| Velocity Check | Depth (Max. Slope): | 0.53 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 1.03 | feet |
| | Area: | 1.63 | ft2 |
| | Perimeter: | 4.38 | feet |
| | Hydraulic Radius: | 0.37 | feet |
| | Velocity: | 2.57 | ft/sec |
| | Froude Number: | 0.72 | |

## *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 2.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.01 | ft/ft |
| Max. Bottom Slope: | 0.01 | ft/ft |
| Min. Channel Depth: | 1.03 | feet |
| Channel Top Width: | 6.13 | feet |




HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *West Side Ditch Design (DE-4)* | Chck'd
Project # *308.01.400* | Date *08-Jan-08*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 4.20 | | cfs |
| Bottom Width: | 2.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.03 | | |
| Min. Bottom Slope: | 1.0 | % | |
| Max. Bottom Slope: | 1.0 | % | |
| Flow Depth (Min. S): | 0.53 | | feet |
| Flow Depth (Max. S): | 0.53 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |
| Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity | | | |
| U=(gRS)^0.5 for Smin | 0.35 | | |
| Reynolds # for Smin | 6,186 | | |
| U=(gRS)^0.5 for Smax | 0.35 | | |
| Reynolds # for Smax | 6,186 | | |

T = G*d*S where G=Unit weight of Water
Nb = F*T/(G(SD-1)D50)
F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500
F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000
F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.062 | |
| K for S max (See K vs. R Chart) | 0.062 | |
| F for S min | 16.1 | |
| F for S max | 16.1 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)
Tmax= Ks*G*d*S
Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

| | |
|---|---|
| Ks: | 0.76 |

Ns = F*Tmax/(G(SG-1)D)
A = Atan(1/m)
B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))
Nsp = Ns(1+Sin(Ar+B)/2)
SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | 0.2 | Smax | |
|---|---|---|---|
| D50 | 0.25 | 0.25 | feet |
| T | 0.33 | 0.33 | lb/ft2 |
| Nb | 0.21 | 0.21 | |
| Tmax | 0.25 | 0.25 | lb/ft2 |
| Ns | 0.16 | 0.16 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 9.04 | 9.04 | degrees |
| Nsp | 0.09 | 0.09 | |
| SFb | 4.56 | 4.56 | |
| SFs | 1.53 | 1.53 | |

HANSEN ALLEN & LUCE INC ENGINEERS

Client Carbon Resources | Sheet
Project Kinney Mine Hydrology | Comp. TDS
Feature Ditch Design (DF-1)) | Chck'd
Project # 308.01.400 | Date 26-Dec-07

# Trapezoidal Channel Flow Calculations

**GENERAL CRITERIA:**

| | | |
|---|---|---|
| Design Flow: | 0.40 | cfs |
| Bottom Width: | 0.0 | feet |
| Side Slope1: | 2.0 | ml |
| Side Slope2: | 2.0 | m2 |
| Friction Factor: | | |
| Assumed D50: | 1.25 | |

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

If X=5, n=input n value

| | | |
|---|---|---|
| X: | 1 | |
| Input n Value when X=5: | | |
| Calc (used) n Value: | 0.020 | |
| Min. Bottom Slope: | 0.033 | ft/ft |
| Max. Bottom Slope: | 0.143 | ft/ft |
| Freeboard: | 0.5 | feet |

**Depth Check**

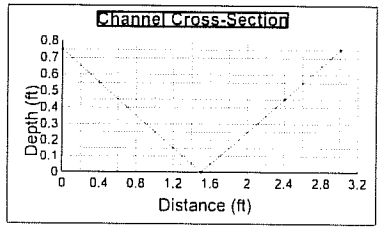
| | | |
|---|---|---|
| Depth (Min. Slope): | 0.25 | feet |
| Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| Required Depth: | 0.75 | feet |
| Area: | 0.13 | ft2 |
| Perimeter: | 1.13 | feet |
| Hydraulic Radius: | 0.11 | feet |
| Velocity: | 3.16 | ft/sec |
| Froude Number: | 1.57 | |

**Velocity Check**

| | | |
|---|---|---|
| Depth (Max. Slope): | 0.19 | feet |
| Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| Required Depth: | 0.69 | feet |
| Area: | 0.07 | ft2 |
| Perimeter: | 0.86 | feet |
| Hydraulic Radius: | 0.09 | feet |
| Velocity: | 5.47 | ft/sec |
| Froude Number: | 3.12 | |

## Channel Design Summary:

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.033 | ft/ft |
| Max. Bottom Slope: | 0.143 | ft/ft |
| Min. Channel Depth: | 0.75 | feet |
| Channel Top Width: | 3.01 | feet |




HANSEN ALLEN & LUCE INC ENGINEERS

Client Carbon Resources | Sheet of
Project Kinney Mine Hydrology | Comp. TDS
Feature Ditch Design (DF-1)) | Chck'd
Project # 308.01.400 | Date 03-Jan-08

**DESIGN CRITERIA:**

| | | |
|---|---|---|
| Design Flow: | 0.40 | cfs |
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Friction Factor: | 0.02 | |
| Min. Bottom Slope: | 3.3 | % |
| Max. Bottom Slope: | 14.3 | % |
| Flow Depth (Min. S): | 0.25 | feet |
| Flow Depth (Max. S): | 0.19 | feet |
| Angle Repose (Ar): | 42.0 | degrees |
| Specific Gravity | 2.65 | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | |
|---|---|
| U=(gRS)^0.5 for Smin | 0.35 |
| Reynolds # for Smin | 30,883 |
| U=(gRS)^0.5 for Smax | 0.63 |
| Reynolds # for Smax | 56,029 |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.063 | |
| K for S max (See K vs. R Chart) | 0.063 | |
| F for S min | 16.1 | |
| F for S max | 15.7 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

| | |
|---|---|
| Ks: | 0.76 |

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 1.25 | 1.25 | feet |
| T | 0.52 | 1.71 | lb/ft2 |
| Nb | 0.06 | 0.21 | |
| Tmax | 0.39 | 1.30 | lb/ft2 |
| Ns | 0.05 | 0.16 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 2.84 | 8.75 | degrees |
| Nsp | 0.03 | 0.10 | |
| SFb | 9.83 | 2.70 | |
| SFs | 1.71 | 1.51 | |

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-2)* | Chck'd
Project # *308.01.400* | Date *26-Dec-07*

# *Trapezoidal Channel Flow Calculations*

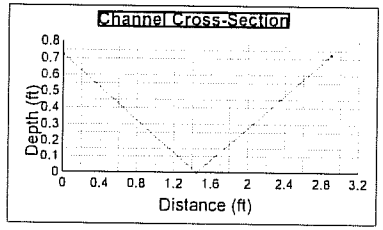
**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 0.40 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 2.0 | ml |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 0.75 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.061 | ft/ft |
| | Max. Bottom Slope: | 0.061 | ft/ft |
| | Freeboard: | 0.5 | feet |

| | | | |
|---|---|---|---|
| Depth Check | Depth (Min. Slope): | 0.22 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.72 | feet |
| | Area: | 0.10 | ft2 |
| | Perimeter: | 1.00 | feet |
| | Hydraulic Radius: | 0.10 | feet |
| | Velocity: | 3.97 | ft/sec |
| | Froude Number: | 2.09 | |
| Velocity Check | Depth (Max. Slope): | 0.22 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.72 | feet |
| | Area: | 0.10 | ft2 |
| | Perimeter: | 1.00 | feet |
| | Hydraulic Radius: | 0.10 | feet |
| | Velocity: | 3.97 | ft/sec |
| | Froude Number: | 2.09 | |

## *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.061 | ft/ft |
| Max. Bottom Slope: | 0.061 | ft/ft |
| Min. Channel Depth: | 0.72 | feet |
| Channel Top Width: | 2.90 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-2)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 0.40 | | cfs |
| Bottom Width: | 0.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 6.1 | % | |
| Max. Bottom Slope: | 6.1 | % | |
| Flow Depth (Min. S): | 0.22 | | feet |
| Flow Depth (Max. S): | 0.22 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | |
|---|---|
| U=(gRS)^0.5 for Smin | 0.44 |
| Reynolds # for Smin | 23,786 |
| U=(gRS)^0.5 for Smax | 0.44 |
| Reynolds # for Smax | 23,786 |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.062 | |
| K for S max (See K vs. R Chart) | 0.062 | |
| F for S min | 16.1 | |
| F for S max | 16.1 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax = Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 0.75 | 0.75 | feet |
| T | 0.85 | 0.85 | lb/ft2 |
| Nb | 0.18 | 0.18 | |
| Tmax | 0.65 | 0.65 | lb/ft2 |
| Ns | 0.14 | 0.14 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 7.69 | 7.69 | degrees |
| Nsp | 0.08 | 0.08 | |
| SFb | 4.05 | 4.05 | |
| SFs | 1.56 | 1.56 | |

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-3)* | Chck'd
Project # *308.01.400* | Date *26-Dec-07*

## *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

| | | |
|---|---|---|
| Design Flow: | 1.30 | cfs |
| Bottom Width: | 0.0 | feet |
| Side Slope1: | 2.0 | m1 |
| Side Slope2: | 2.0 | m2 |
| Friction Factor: | | |
| Assumed D50: | 1.50 | |

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

If X=5, n=input n value

| | | |
|---|---|---|
| X: | 1 | |
| Input n Value when X=5: | | |
| Calc (used) n Value: | 0.020 | |
| Min. Bottom Slope: | 0.100 | ft/ft |
| Max. Bottom Slope: | 0.100 | ft/ft |
| Freeboard: | 0.5 | feet |

**Depth Check**

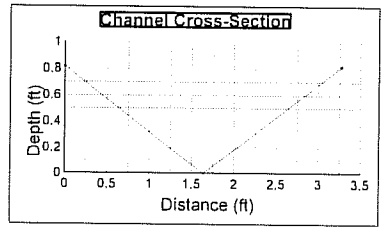
| | | |
|---|---|---|
| Depth (Min. Slope): | 0.32 | feet |
| Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| Required Depth: | 0.82 | feet |
| Area: | 0.20 | ft2 |
| Perimeter: | 1.42 | feet |
| Hydraulic Radius: | 0.14 | feet |
| Velocity: | 6.42 | ft/sec |
| Froude Number: | 2.84 | |

**Velocity Check**

| | | |
|---|---|---|
| Depth (Max. Slope): | 0.32 | feet |
| Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| Required Depth: | 0.82 | feet |
| Area: | 0.20 | ft2 |
| Perimeter: | 1.42 | feet |
| Hydraulic Radius: | 0.14 | feet |
| Velocity: | 6.42 | ft/sec |
| Froude Number: | 2.84 | |

### *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.1 | ft/ft |
| Max. Bottom Slope: | 0.1 | ft/ft |
| Min. Channel Depth: | 0.82 | feet |
| Channel Top Width: | 3.27 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-3)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

**DESIGN CRITERIA:**

| | | |
|---|---|---|
| Design Flow: | 1.30 | cfs |
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Friction Factor: | 0.02 | |
| Min. Bottom Slope: | 10.0 | % |
| Max. Bottom Slope: | 10.0 | % |
| Flow Depth (Min. S): | 0.32 | feet |
| Flow Depth (Max. S): | 0.32 | feet |
| Angle Repose (Ar): | 42.0 | degrees |
| Specific Gravity | 2.65 | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | |
|---|---|
| U=(gRS)^0.5 for Smin | 0.68 |
| Reynolds # for Smin | 72,524 |
| U=(gRS)^0.5 for Smax | 0.68 |
| Reynolds # for Smax | 72,524 |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0.25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.063 | |
| K for S max (See K vs. R Chart) | 0.063 | |
| F for S min | 15.2 | |
| F for S max | 15.2 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

| | |
|---|---|
| Ks: | 0.76 |

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 1.50 | 1.50 | feet |
| T | 1.99 | 1.99 | lb/ft2 |
| Nb | 0.20 | 0.20 | |
| Tmax | 1.51 | 1.51 | lb/ft2 |
| Ns | 0.15 | 0.15 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 8.36 | 8.36 | degrees |
| Nsp | 0.09 | 0.09 | |
| SFb | 3.24 | 3.24 | |
| SFs | 1.53 | 1.53 | |

HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-4)* | Chck'd
Project # *308.01.400* | Date *26-Dec-07*

# *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

| | | |
|---|---|---|
| Design Flow: | 1.70 | cfs |
| Bottom Width: | 0.0 | feet |
| Side Slope1: | 2.0 | m1 |
| Side Slope2: | 2.0 | m2 |
| Friction Factor: | | |
| Assumed D50: | 1.00 | |

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

If X=5, n=input n value

| | | |
|---|---|---|
| X: | 1 | |
| Input n Value when X=5: | | |
| Calc (used) n Value: | 0.020 | |
| Min. Bottom Slope: | 0.057 | ft/ft |
| Max. Bottom Slope: | 0.057 | ft/ft |
| Freeboard: | 0.5 | feet |

**Depth Check**

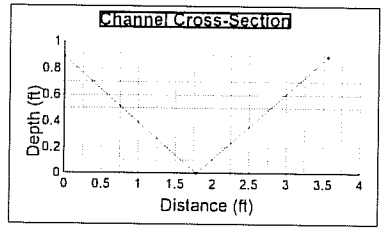
| | | |
|---|---|---|
| Depth (Min. Slope): | 0.39 | feet |
| Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| Required Depth: | 0.89 | feet |
| Area: | 0.31 | ft2 |
| Perimeter: | 1.75 | feet |
| Hydraulic Radius: | 0.17 | feet |
| Velocity: | 5.56 | ft/sec |
| Froude Number: | 2.22 | |

**Velocity Check**

| | | |
|---|---|---|
| Depth (Max. Slope): | 0.39 | feet |
| Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| Required Depth: | 0.89 | feet |
| Area: | 0.31 | ft2 |
| Perimeter: | 1.75 | feet |
| Hydraulic Radius: | 0.17 | feet |
| Velocity: | 5.56 | ft/sec |
| Froude Number: | 2.22 | |

## *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.057 | ft/ft |
| Max. Bottom Slope: | 0.057 | ft/ft |
| Min. Channel Depth: | 0.89 | feet |
| Channel Top Width: | 3.56 | feet |




HANSEN ALLEN & LUCE INC ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-4)* | Chck'd
Project # *308.01.400* | Date *03-Jan-08*

**DESIGN CRITERIA:**

| | | |
|---|---|---|
| Design Flow: | 1.70 | cfs |
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Friction Factor: | 0.02 | |
| Min. Bottom Slope: | 5.7 | % |
| Max. Bottom Slope: | 5.7 | % |
| Flow Depth (Min. S): | 0.39 | feet |
| Flow Depth (Max. S): | 0.39 | feet |
| Angle Repose (Ar): | 42.0 | degrees |
| Specific Gravity | 2.65 | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | |
|---|---|
| U=(gRS)^0.5 for Smin | 0.57 |
| Reynolds # for Smin | 40,463 |
| U=(gRS)^0.5 for Smax | 0.57 |
| Reynolds # for Smax | 40,463 |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0.25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.063 | |
| K for S max (See K vs. R Chart) | 0.063 | |
| F for S min | 16.1 | |
| F for S max | 16.1 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 1.00 | 1.00 | feet |
| T | 1.39 | 1.39 | lb/ft2 |
| Nb | 0.22 | 0.22 | |
| Tmax | 1.06 | 1.06 | lb/ft2 |
| Ns | 0.17 | 0.17 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 9.33 | 9.33 | degrees |
| Nsp | 0.10 | 0.10 | |
| SFb | 3.56 | 3.56 | |
| SFs | 1.51 | 1.51 | |

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DF-5)* Chck'd
Project # *308.01.400* Date *26-Dec-07*

# *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 1.70 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 2.0 | m1 |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 1.00 | |

Anderson et al. (1970) If X=1, n=0.0395(D50)^1/6

Abt. et al. (1987, 1988) If X=2, n=0.0456(D50*S)^0.0159

If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*|2.25+5.23*LOG(R/D50)|}

Generally Applicable for R/D50 > 0.5

Jarrett (1984) If X=4, n=0.39*(S^0.38)*(R^0.16)

If X=5, n=input n value

| | | |
|---|---|---|
| X: | 1 | |
| Input n Value when X=5: | | |
| Calc (used) n Value: | 0.020 | |
| Min. Bottom Slope: | 0.057 | ft/ft |
| Max. Bottom Slope: | 0.057 | ft/ft |
| Freeboard: | 0.5 | feet |

**Depth Check**

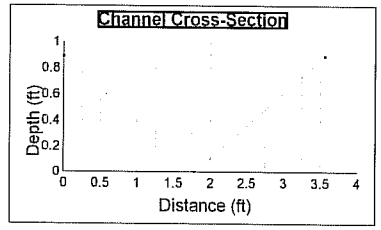
| | | |
|---|---|---|
| Depth (Min. Slope): | 0.39 | feet |
| Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| Required Depth: | 0.89 | feet |
| Area: | 0.31 | ft2 |
| Perimeter: | 1.75 | feet |
| Hydraulic Radius: | 0.17 | feet |
| Velocity: | 5.56 | ft/sec |
| Froude Number: | 2.22 | |

**Velocity Check**

| | | |
|---|---|---|
| Depth (Max. Slope): | 0.39 | feet |
| Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| Required Depth: | 0.89 | feet |
| Area: | 0.31 | ft2 |
| Perimeter: | 1.75 | feet |
| Hydraulic Radius: | 0.17 | feet |
| Velocity: | 5.56 | ft/sec |
| Froude Number: | 2.22 | |

## *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.057 | ft/ft |
| Max. Bottom Slope: | 0.057 | ft/ft |
| Min. Channel Depth: | 0.89 | feet |
| Channel Top Width: | 3.56 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* Sheet *of*
Project *Kinney Mine Hydrology* Comp. *TDS*
Feature *Ditch Design (DF-5)* Chck'd
Project # *308.01.400* Date *08-Jan-08*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 1.70 | | cfs |
| Bottom Width: | 0.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 5.7 | % | |
| Max. Bottom Slope: | 5.7 | % | |
| Flow Depth (Min. S): | 0.39 | | feet |
| Flow Depth (Max. S): | 0.39 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | |
|---|---|
| U=(gRS)^0.5 for Smin | 0.57 |
| Reynolds # for Smin | 40,463 |
| U=(gRS)^0.5 for Smax | 0.57 |
| Reynolds # for Smax | 40,463 |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.063 | |
| K for S max (See K vs. R Chart) | 0.063 | |
| F for S min | 16.1 | |
| F for S max | 16.1 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan(Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 1.00 | 1.00 | feet |
| T | 1.39 | 1.39 | lb/ft2 |
| Nb | 0.22 | 0.22 | |
| Tmax | 1.06 | 1.06 | lb/ft2 |
| Ns | 0.17 | 0.17 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 9.33 | 9.33 | degrees |
| Nsp | 0.10 | 0.10 | |
| SFb | 3.56 | 3.56 | |
| SFs | 1.51 | 1.51 | |

| | | |
|---|---|---|
| d | = | Depth of flow; |
| S | = | Channel slope in feet per feet; |
| SG | = | Specific gravity of rock, and |
| $D_{50}$ | = | Mean riprap size, in feet. |

An analysis of side slope stability was completed by applying equations 784.14-12 through 784.14-14.

$$SF = \frac{\cos \alpha \tan \phi}{\eta' \tan \phi + \sin \alpha \cos \beta} \qquad (742.312\text{-}12)$$

$$\beta = \arctan \left( \frac{\cos \theta}{\frac{2 \sin \alpha}{\eta \tan \phi} + \sin \theta} \right) \qquad (742.312\text{-}13)$$

$$\eta' = C \eta \left( \frac{1 + \sin (\theta + \beta)}{2} \right) \qquad (742.312\text{-}14)$$

where

| | | |
|---|---|---|
| $\alpha$ | = | $Tan^{-1}$ (1/sideslope); and |
| C | = | 0.76 for 2H:1V sideslopes |
| | = | 0.86 for 3H:1V sideslopes. |

Sideslope is defined as the number of feet horizontal per foot vertical of the channel embankments. All other variables are as previously defined.

Once mean riprap size is determined, a riprap gradation and thickness must be determined. Table 742.312a, Recommended Riprap Gradation Limits, shows the recommended gradation for both mild and steep channel conditions. In some cases, grout was used in riprapped sections to increase channel stability and/or reduce riprap size.

**Conveyor Lining.** A second type of channel lining utilized consists of overlapped conveyor belt material. This lining was installed in excavated channels in short pieces so that the upstream belt material overlapped the downstream piece thereby preventing water from washing beneath the downstream liner. Each section of channel lining was secured with wire and rebar anchors. The locations of lined channel sections are shown on Maps 731.720a through 731.720c.

TABLE 742.312a
Recommended Riprap Gradation Limits

| DESIGN RATIO | STEEP SLOPE | MILD SLOPE |
|---|---|---|
| $\frac{D_{max}}{D_{50}}$ | 1.25 | 2 |
| $\frac{D_{50}}{D_{10-20}}$ | 2-3 | 2-3 |

From "Surface Mining Water Diversion Design Manual", 1982

**Half Round CMP Pipe.** In other locations such as around Ponds 4 and 6, half round CMP pipe has been placed to provide the required erosion protection. CMP pipe has also been used in steep areas where channel flow is infeasible but yet the water must be conveyed down a hillside. Examples of such areas are noted near the upper mine portals and along the roadway leading to the upper mine offices located on the Lion Deck.

Ditch sections requiring erosion protection are shown on Maps 731.720a through 731.720c. Areas downstream from culvert installations requiring similar protection are shown on Maps 731.720d through 731.720f. Specific mention should be made with regard to the design of erosion protection at some of the locations shown on the maps. Current riprap design methodologies do not allow for the design of erosion protection on extremely steep slopes using such materials as rock riprap. In some locations, however, such as at Culverts 57A through 60A (as well as at other locations within the mine permit area), consideration must be given to the fact that local drainage must be transferred down a steep hillside or stream channel. At such locations, procedures are not available for designing riprap erosion protection and, therefore, calculations under such conditions have not been, nor can they be made.

An effort has been made by CPMC to reduce or eliminate the potential for serious erosion at these locations by placing culvert exits onto existing or man-made rock rubble piles, or onto rock ledges which act as energy dissipation devices and effectively reduce downstream erosion. CPMC will continue to monitor culvert outfalls at these locations and thereby determine the efficiency of the rock rubble piles and what additional action, if any, should or can be taken.

Conditions related to lining of individual ditches are shown on Maps 731.720a through 731.720c. Conditions related to culvert outfall linings are shown on Maps 731.720d through 731.720f. Channel and Culvert riprap calculations are presented in Exhibit 742.312a, Riprap Calculations.

**Culvert Design.**

Following the determination of a given peak watershed discharge, design sizes for culverts were calculated as part of the runoff diversion and conveyance facilities. Flow capacity calculations were made

In the design of riprap-lined channels, National Cooperative Highway Research Program Report No. 108, "Tentative Design Procedure for Riprap-Lined Channels"[10] details the procedure for determining a design stone size such that the stone is stable under the design flow conditions with a reasonable factor of safety. The design stone size used is the $d_{50}$, or median stone diameter, defined as that stone size which is exceeded in weight by 50 percent of the mixture.

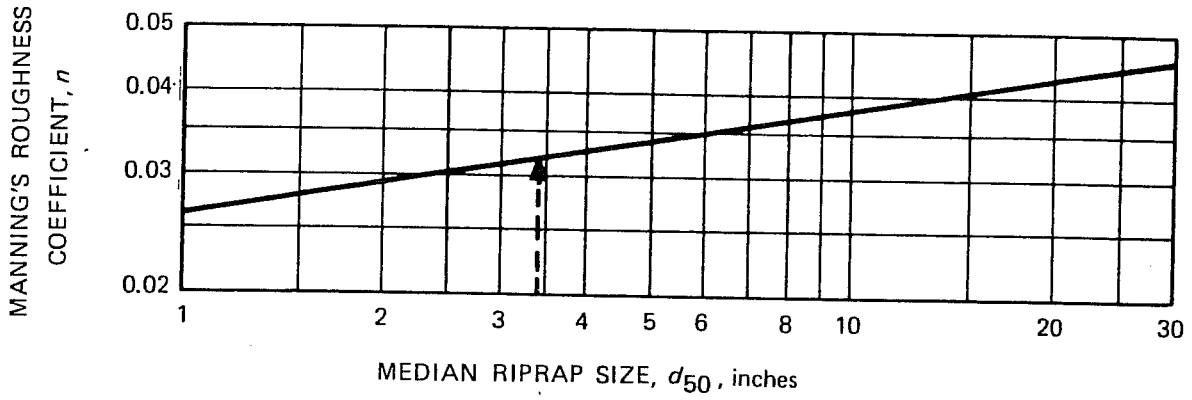



Figure I-17. Manning's $n$ for riprap-lined channels.[1]

Erosive forces of flowing water are greater in bends than in straight channels. Therefore, riprap size for bends and straights in the channel must be computed. If the riprap size ($d_{50}$) computed for bends is less than 10 percent greater than the riprap size for straight channels, then the riprap size for straight channels shall be considered to be of adequate size; otherwise, the larger riprap size shall be used in the bend. This is done in order to minimize the number of riprap sizes required. No more than two riprap sizes should be used on any single contract, in order to minimize construction problems caused by too many sizes. The riprap size to be used in a bend shall extend upstream from the point of curvature, and downstream from the point of tangency a distance equal to five times the channel bottom width (length = 5 $b$). This riprap size shall extend across the bottom and up both sides of the channel.

### Riprap

The riprap shall be composed of a well-graded mixture down to the 1-inch size particle, such that 50 percent of the mixture by weight shall be larger than the $d_{50}$ size. A well-graded mixture is defined as a mixture composed primarily of the larger stone sizes but with a sufficient mixture of other sizes to fill the progressively-smaller voids between the stones. The diameter of the largest stone size in such a mixture shall be considered to be 1.5 times the $d_{50}$ size. The riprap size as shown on the plans and specifications or for other construction purposes shall be the size of the largest stone in the mixture, i.e., 1.5 x $d_{50}$. The minimum thickness of the riprap layer shall be 1.5 times the maximum stone diameter but not less than 6 inches. The riprap shall extend up the banks to a height equal to maximum depth of flow or to a point where vegetation can be established to adequately protect the channel.

Ref: "Erosion and Sediment Control
Surface Mining in the Eastern U.S"
EPA Technology Transfer Seminar Publication
October 1976

In channels where there is no riprap or paving in the bottom, the toe of the bank riprap shall extend below the channel bottom a distance at least 1.5 times the maximum stone size, but in no case less than 1 foot. The only exception to this would be in the event that there is a non-erodible hard rock bottom. The channel bank shall not be steeper than 2.0 horizontal to 1.0 vertical.

After determining the riprap size that will be stable under the flow conditions, the designer shall consider that size to be a minimum size and then, based on riprap graduations actually available in the area, shall select the size or sizes that equal or exceed the minimum size. The possibility of damage by children shall be considered in selecting a riprap size, especially if there is nearby water to to toss the stones into.

### Filter

A filter is a layer of material placed between the riprap and the underlying soil surface to prevent soil movement into and through the riprap.

Riprap shall have a filter placed under it when either of the following conditions exist:

1. The riprap is not well graded down to the 1-inch size particle.

2. Riprap is placed on the side slopes of a channel and the soil is sand-size or finer with a plasticity index, *PI*, less than 10. This requirement applies to slopes having this soil in lenses or layers greater than 3 inches in thickness.

A filter can be of two general forms. One is a single layer of plastic filter cloth manufactured for that express purpose. The plastic filter cloth shall be woven of polypropylene monofilament yarns and shall be equivalent to "Poly-Filter X" as manufactured by Carthage Mills, Inc., Cincinnati, Ohio. Another is a properly graded layer of sand, gravel, or stone.

The criteria for the design of an aggregate filter are as follows:

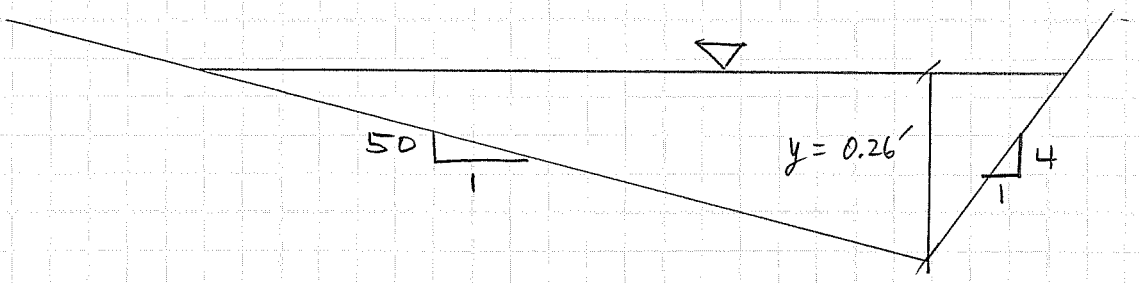
$$\frac{d_{15}\ \text{Riprap}}{d_{85}\ \text{Filter}} \leqslant 5 \qquad \frac{d_{15}\ \text{Filter}}{d_{85}\ \text{Base}} \leqslant 5$$

in which $d_{15}$ or $d_{85}$ is the size of base, filter or riprap material. In these equations, 15 and 85 percent, respectively, are finer. The base is the soil layer underneath the filter. The filter shall be graded down to sand-size particles. Riprap 12 inches and larger shall not be dumped directly onto the plastic filter cloth, since it may tear or displace the filter cloth. Instead, a 4-inch-minimum thickness blanket of gravel shall be placed over the filter cloth or the riprap shall be placed directly on the filter cloth by hand or by the bucket of the equipment. Side slopes shall be 2:1 or flatter to prevent the gravel from sliding down the filter cloth before placing the riprap.

### Soil Size Classification

Soil sizes given herein are according to the Unified Soil Classification System as shown on the following page.

Road / Ditch design to contain 100 yr 6hr discharge of 9.4 cfs.




Road w/ these minimum dimensions will pass the 100yr 6hr event of 9.4 cfs.

| | | | |
|---|---|---|---|
| Client | *Carbon Resources* | Sheet | |
| Project | *Kinney Mine Hydrology* | Comp. | *TDS* |
| Feature | *Ditch Design (UDD-1)* | Chck'd | |
| Project # | *308.01.400* | Date | *06-Jul-07* |

# *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

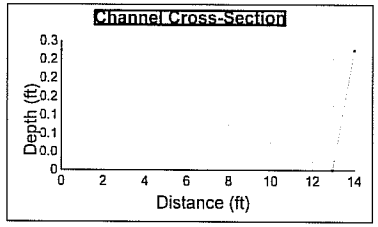
| | | | |
|---|---|---|---|
| | Design Flow: | 9.40 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 50.0 | m1 |
| | Side Slope2: | 4.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 0.1 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 5 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.07 | ft/ft |
| | Max. Bottom Slope: | 0.07 | ft/ft |
| | Freeboard: | 0.0 | feet |

| | | | |
|---|---|---|---|
| Depth Check | Depth (Min. Slope): | 0.26 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| | Required Depth: | 0.26 | feet |
| | Area: | 1.81 | ft2 |
| | Perimeter: | 14.03 | feet |
| | Hydraulic Radius: | 0.13 | feet |
| | Velocity: | 5.18 | ft/sec |
| | Froude Number: | 2.54 | |

| | | | |
|---|---|---|---|
| Velocity Check | Depth (Max. Slope): | 0.26 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| | Required Depth: | 0.26 | feet |
| | Area: | 1.81 | ft2 |
| | Perimeter: | 14.03 | feet |
| | Hydraulic Radius: | 0.13 | feet |
| | Velocity: | 5.18 | ft/sec |
| | Froude Number: | 2.54 | |

## *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 50.00 | 1/m1 |
| Side Slope2: | 4.00 | 1/m2 |
| Min. Bottom Slope: | 0.074 | ft/ft |
| Max. Bottom Slope: | 0.074 | ft/ft |
| Min. Channel Depth: | 0.26 | feet |
| Channel Top Width: | 14.00 | feet |




| | | | |
|---|---|---|---|
| Client | *Carbon Resources* | Sheet | *of* |
| Project | *Kinney Mine Hydrology* | Comp. | *TDS* |
| Feature | *Ditch Design (UDD-1)* | Chck'd | |
| Project # | *308.01.400* | Date | *06-Aug-07* |

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 9.40 | | cfs |
| Bottom Width: | 0.00 | | feet |
| Side Slope1: | 50.00 | | 1/m1 |
| Side Slope2: | 4.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 7.4 | % | |
| Max. Bottom Slope: | 7.4 | % | |
| Flow Depth (Min. S): | 0.26 | | feet |
| Flow Depth (Max. S): | 0.26 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |
| Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity | | | |
| U=(gRS)^0.5 for Smin | 0.56 | | |
| Reynolds # for Smin | 3,964 | | |
| U=(gRS)^0.5 for Smax | 0.56 | | |
| Reynolds # for Smax | 3,964 | | |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.062 | |
| K for S max (See K vs. R Chart) | 0.062 | |
| F for S min | 16.1 | |
| F for S max | 16.1 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

| | |
|---|---|
| Ks: | 0.76 |

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 0.10 | 0.10 | feet |
| T | 1.20 | 1.20 | lb/ft2 |
| Nb | 1.87 | 1.87 | |
| Tmax | 0.91 | 0.91 | lb/ft2 |
| Ns | 1.42 | 1.42 | |
| m Critical | 4.00 | 4.00 | |
| A (m crit) | 14.04 | 14.04 | degrees |
| B | 65.63 | 65.63 | degrees |
| Nsp | 1.38 | 1.38 | |
| SFb | 0.51 | 0.51 | |
| SFs | 0.65 | 0.65 | |

Area tributary
to UDD-1
(65.0 acres)

CN = 75

Q (100 yr 6 hr) = 9.4 cfs

↑ N

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-5)* | Chck'd
Project # *308.01.400* | Date *03-Aug-10*

## *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

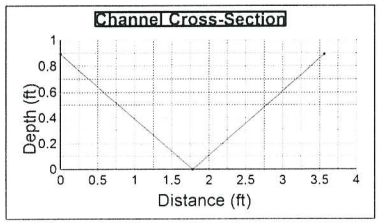
| | | | |
|---|---|---|---|
| | Design Flow: | 1.70 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 2.0 | m1 |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 1.00 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.057 | ft/ft |
| | Max. Bottom Slope: | 0.057 | ft/ft |
| | Freeboard: | 0.5 | feet |

| | | | |
|---|---|---|---|
| Depth Check | Depth (Min. Slope): | 0.39 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.89 | feet |
| | Area: | 0.31 | ft2 |
| | Perimeter: | 1.75 | feet |
| | Hydraulic Radius: | 0.17 | feet |
| | Velocity: | 5.56 | ft/sec |
| | Froude Number: | 2.22 | |

| | | | |
|---|---|---|---|
| Velocity Check | Depth (Max. Slope): | 0.39 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.89 | feet |
| | Area: | 0.31 | ft2 |
| | Perimeter: | 1.75 | feet |
| | Hydraulic Radius: | 0.17 | feet |
| | Velocity: | 5.56 | ft/sec |
| | Froude Number: | 2.22 | |

### *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.057 | ft/ft |
| Max. Bottom Slope: | 0.057 | ft/ft |
| Min. Channel Depth: | 0.89 | feet |
| Channel Top Width: | 3.56 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (DF-5)* | Chck'd
Project # *308.01.400* | Date *04-Aug-10*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 1.70 | | cfs |
| Bottom Width: | 0.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 5.7 | % | |
| Max. Bottom Slope: | 5.7 | % | |
| Flow Depth (Min. S): | 0.39 | | feet |
| Flow Depth (Max. S): | 0.39 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | |
|---|---|
| U=(gRS)^0.5 for Smin | 0.57 |
| Reynolds # for Smin | 40,463 |
| U=(gRS)^0.5 for Smax | 0.57 |
| Reynolds # for Smax | 40,463 |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0.25)=4 for Reynolds No. = 500,000 or larger

| | |
|---|---|
| K for S min (See K vs. R Chart) | 0.063 |
| K for S max (See K vs. R Chart) | 0.063 |
| F for S min | 16.1 |
| F for S max | 16.1 |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax = Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

Ks: 0.76

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 1.00 | 1.00 | feet |
| T | 1.39 | 1.39 | lb/ft2 |
| Nb | 0.22 | 0.22 | |
| Tmax | 1.06 | 1.06 | lb/ft2 |
| Ns | 0.17 | 0.17 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 9.33 | 9.33 | degrees |
| Nsp | 0.10 | 0.10 | |
| SFb | 3.56 | 3.56 | |
| SFs | 1.51 | 1.51 | |

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT C-1)* | Chck'd
Project # *308.01.400* | Date *03-Aug-10*

# *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 0.20 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 2.0 | m1 |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 1.00 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.053 | ft/ft |
| | Max. Bottom Slope: | 0.143 | ft/ft |
| | Freeboard: | 0.5 | feet |

**Depth Check**

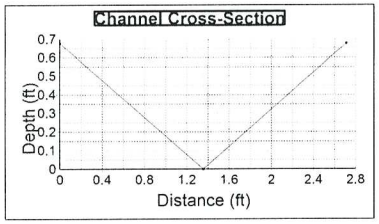
| | | | |
|---|---|---|---|
| | Depth (Min. Slope): | 0.18 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| | Required Depth: | 0.68 | feet |
| | Area: | 0.06 | ft2 |
| | Perimeter: | 0.79 | feet |
| | Hydraulic Radius: | 0.08 | feet |
| | Velocity: | 3.17 | ft/sec |
| | Froude Number: | 1.88 | |

**Velocity Check**

| | | | |
|---|---|---|---|
| | Depth (Max. Slope): | 0.15 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.65 | feet |
| | Area: | 0.04 | ft2 |
| | Perimeter: | 0.66 | feet |
| | Hydraulic Radius: | 0.07 | feet |
| | Velocity: | 4.60 | ft/sec |
| | Froude Number: | 2.98 | |

## *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.053 | ft/ft |
| Max. Bottom Slope: | 0.143 | ft/ft |
| Min. Channel Depth: | 0.68 | feet |
| Channel Top Width: | 2.71 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT C-1)* | Chck'd
Project # *308.01.400* | Date *04-Aug-10*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 0.20 | cfs |
| | Bottom Width: | 0.00 | feet |
| | Side Slope1: | 2.00 | 1/m1 |
| | Side Slope2: | 2.00 | 1/m2 |
| | Friction Factor: | 0.02 | |
| | Min. Bottom Slope: | 5.3 | % |
| | Max. Bottom Slope: | 14.3 | % |
| | Flow Depth (Min. S): | 0.18 | feet |
| | Flow Depth (Max. S): | 0.15 | feet |
| | Angle Repose (Ar): | 42.0 | degrees |
| | Specific Gravity | 2.65 | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | | |
|---|---|---|
| U=(gRS)^0.5 for Smin | 0.37 | |
| Reynolds # for Smin | 26,297 | |
| U=(gRS)^0.5 for Smax | 0.55 | |
| Reynolds # for Smax | 39,362 | |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.062 | |
| K for S max (See K vs. R Chart) | 0.062 | |
| F for S min | 16.1 | |
| F for S max | 16.1 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

| | |
|---|---|
| Ks: | 0.76 |

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan(Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 1.00 | 1.00 | feet |
| T | 0.59 | 1.32 | lb/ft2 |
| Nb | 0.09 | 0.21 | |
| Tmax | 0.45 | 1.00 | lb/ft2 |
| Ns | 0.07 | 0.16 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 4.01 | 8.68 | degrees |
| Nsp | 0.04 | 0.10 | |
| SFb | 6.62 | 2.72 | |
| SFs | 1.67 | 1.51 | |

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT B-1)* | Chck'd
Project # *308.01.400* | Date *03-Aug-10*

## *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

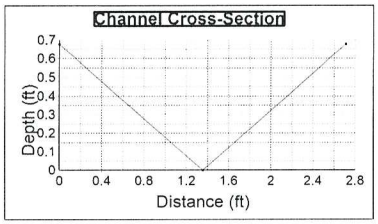
| | | | |
|---|---|---|---|
| | Design Flow: | 0.20 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 2.0 | m1 |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 1.00 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.053 | ft/ft |
| | Max. Bottom Slope: | 0.143 | ft/ft |
| | Freeboard: | 0.5 | feet |

| | | | |
|---|---|---|---|
| Depth Check | Depth (Min. Slope): | 0.18 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | 0.000 | Accuracy |
| | Required Depth: | 0.68 | feet |
| | Area: | 0.06 | ft2 |
| | Perimeter: | 0.79 | feet |
| | Hydraulic Radius: | 0.08 | feet |
| | Velocity: | 3.17 | ft/sec |
| | Froude Number: | 1.88 | |

| | | | |
|---|---|---|---|
| Velocity Check | Depth (Max. Slope): | 0.15 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.65 | feet |
| | Area: | 0.04 | ft2 |
| | Perimeter: | 0.66 | feet |
| | Hydraulic Radius: | 0.07 | feet |
| | Velocity: | 4.60 | ft/sec |
| | Froude Number: | 2.98 | |

### *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.053 | ft/ft |
| Max. Bottom Slope: | 0.143 | ft/ft |
| Min. Channel Depth: | 0.68 | feet |
| Channel Top Width: | 2.71 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT B-1)* | Chck'd
Project # *308.01.400* | Date *04-Aug-10*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| Design Flow: | 0.20 | | cfs |
| Bottom Width: | 0.00 | | feet |
| Side Slope1: | 2.00 | | 1/m1 |
| Side Slope2: | 2.00 | | 1/m2 |
| Friction Factor: | 0.02 | | |
| Min. Bottom Slope: | 5.3 | % | |
| Max. Bottom Slope: | 14.3 | % | |
| Flow Depth (Min. S): | 0.18 | | feet |
| Flow Depth (Max. S): | 0.15 | | feet |
| Angle Repose (Ar): | 42.0 | | degrees |
| Specific Gravity | 2.65 | | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | |
|---|---|
| U=(gRS)^0.5 for Smin | 0.37 |
| Reynolds # for Smin | 26,297 |
| U=(gRS)^0.5 for Smax | 0.55 |
| Reynolds # for Smax | 39,362 |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | |
|---|---|
| K for S min (See K vs. R Chart) | 0.062 |
| K for S max (See K vs. R Chart) | 0.062 |
| F for S min | 16.1 |
| F for S max | 16.1 |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

| | |
|---|---|
| Ks: | 0.76 |

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 1.00 | 1.00 | feet |
| T | 0.59 | 1.32 | lb/ft2 |
| Nb | 0.09 | 0.21 | |
| Tmax | 0.45 | 1.00 | lb/ft2 |
| Ns | 0.07 | 0.16 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 4.01 | 8.68 | degrees |
| Nsp | 0.04 | 0.10 | |
| SFb | 6.62 | 2.72 | |
| SFs | 1.67 | 1.51 | |

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT A-1)* | Chck'd
Project # *308.01.400* | Date *03-Aug-10*

## *Trapezoidal Channel Flow Calculations*

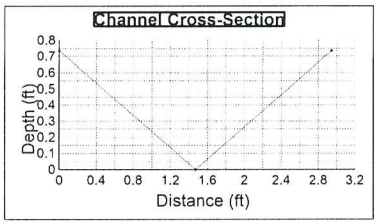
**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 0.40 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 2.0 | m1 |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 0.50 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.047 | ft/ft |
| | Max. Bottom Slope: | 0.047 | ft/ft |
| | Freeboard: | 0.5 | feet |

| | | | |
|---|---|---|---|
| Depth Check | Depth (Min. Slope): | 0.24 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.74 | feet |
| | Area: | 0.11 | ft2 |
| | Perimeter: | 1.05 | feet |
| | Hydraulic Radius: | 0.11 | feet |
| | Velocity: | 3.60 | ft/sec |
| | Froude Number: | 1.85 | |
| Velocity Check | Depth (Max. Slope): | 0.24 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.74 | feet |
| | Area: | 0.11 | ft2 |
| | Perimeter: | 1.05 | feet |
| | Hydraulic Radius: | 0.11 | feet |
| | Velocity: | 3.60 | ft/sec |
| | Froude Number: | 1.85 | |

### *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.047 | ft/ft |
| Max. Bottom Slope: | 0.047 | ft/ft |
| Min. Channel Depth: | 0.74 | feet |
| Channel Top Width: | 2.94 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT A-1)* | Chck'd
Project # *308.01.400* | Date *04-Aug-10*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 0.40 | cfs |
| | Bottom Width: | 0.00 | feet |
| | Side Slope1: | 2.00 | 1/m1 |
| | Side Slope2: | 2.00 | 1/m2 |
| | Friction Factor: | 0.02 | |
| | Min. Bottom Slope: | 4.7 | % |
| | Max. Bottom Slope: | 4.7 | % |
| | Flow Depth (Min. S): | 0.24 | feet |
| | Flow Depth (Max. S): | 0.24 | feet |
| | Angle Repose (Ar): | 42.0 | degrees |
| | Specific Gravity | 2.65 | |

Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity

| | | |
|---|---|---|
| U=(gRS)^0.5 for Smin | 0.40 | |
| Reynolds # for Smin | 14,262 | |
| U=(gRS)^0.5 for Smax | 0.40 | |
| Reynolds # for Smax | 14,262 | |

T = G*d*S where G=Unit weight of Water

Nb = F*T/(G(SD-1)D50)

F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500

F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000

F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger

| | | |
|---|---|---|
| K for S min (See K vs. R Chart) | 0.062 | |
| K for S max (See K vs. R Chart) | 0.062 | |
| F for S min | 16.1 | |
| F for S max | 16.1 | |

SFb = (Cos a tan b)/(sin a + Nb tan b)

Tmax= Ks*G*d*S

Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope

| | |
|---|---|
| Ks: | 0.76 |

Ns = F*Tmax/(G(SG-1)D)

A = Atan(1/m)

B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar))

Nsp = Ns(1+Sin(Ar+B)/2)

SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B))

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 0.50 | 0.50 | feet |
| T | 0.69 | 0.69 | lb/ft2 |
| Nb | 0.22 | 0.22 | |
| Tmax | 0.53 | 0.53 | lb/ft2 |
| Ns | 0.16 | 0.16 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 9.32 | 9.32 | degrees |
| Nsp | 0.10 | 0.10 | |
| SFb | 3.72 | 3.72 | |
| SFs | 1.52 | 1.52 | |

HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT A-2)* | Chck'd
Project # *308.01.400* | Date *03-Aug-10*

# *Trapezoidal Channel Flow Calculations*

**GENERAL CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 0.40 | cfs |
| | Bottom Width: | 0.0 | feet |
| | Side Slope1: | 2.0 | ml |
| | Side Slope2: | 2.0 | m2 |
| | Friction Factor: | | |
| | Assumed D50: | 0.50 | |
| Anderson et al. (1970) | If X=1, n=0.0395(D50)^1/6 | | |
| Abt. et al. (1987, 1988) | If X=2, n=0.0456(D50*S)^0.0159 | | |
| | If X=3, n={D50^1/6*(R/D50)^1/6}/{3.82*[2.25+5.23*LOG(R/D50)]} | | |
| | Generally Applicable for R/D50 > 0.5 | | |
| Jarrett (1984) | If X=4, n=0.39*(S^0.38)*(R^0.16) | | |
| | If X=5, n=input n value | | |
| | X: | 1 | |
| | Input n Value when X=5: | | |
| | Calc (used) n Value: | 0.020 | |
| | Min. Bottom Slope: | 0.047 | ft/ft |
| | Max. Bottom Slope: | 0.047 | ft/ft |
| | Freeboard: | 0.5 | feet |

**Depth Check**

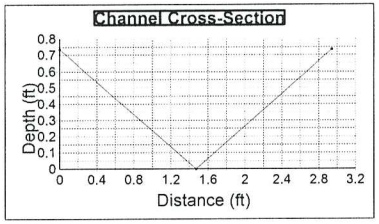
| | | | |
|---|---|---|---|
| | Depth (Min. Slope): | 0.24 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.74 | feet |
| | Area: | 0.11 | ft2 |
| | Perimeter: | 1.05 | feet |
| | Hydraulic Radius: | 0.11 | feet |
| | Velocity: | 3.60 | ft/sec |
| | Froude Number: | 1.85 | |

**Velocity Check**

| | | | |
|---|---|---|---|
| | Depth (Max. Slope): | 0.24 | feet |
| | Q-1.49AR(2/3)S(1/2)/n= | -0.000 | Accuracy |
| | Required Depth: | 0.74 | feet |
| | Area: | 0.11 | ft2 |
| | Perimeter: | 1.05 | feet |
| | Hydraulic Radius: | 0.11 | feet |
| | Velocity: | 3.60 | ft/sec |
| | Froude Number: | 1.85 | |

## *Channel Design Summary:*

| | | |
|---|---|---|
| Bottom Width: | 0.00 | feet |
| Side Slope1: | 2.00 | 1/m1 |
| Side Slope2: | 2.00 | 1/m2 |
| Min. Bottom Slope: | 0.047 | ft/ft |
| Max. Bottom Slope: | 0.047 | ft/ft |
| Min. Channel Depth: | 0.74 | feet |
| Channel Top Width: | 2.94 | feet |




HANSEN ALLEN & LUCE inc ENGINEERS

Client *Carbon Resources* | Sheet *of*
Project *Kinney Mine Hydrology* | Comp. *TDS*
Feature *Ditch Design (ALT A-2)* | Chck'd
Project # *308.01.400* | Date *04-Aug-10*

**DESIGN CRITERIA:**

| | | | |
|---|---|---|---|
| | Design Flow: | 0.40 | cfs |
| | Bottom Width: | 0.00 | feet |
| | Side Slope1: | 2.00 | 1/m1 |
| | Side Slope2: | 2.00 | 1/m2 |
| | Friction Factor: | 0.02 | |
| | Min. Bottom Slope: | 4.7 | % |
| | Max. Bottom Slope: | 4.7 | % |
| | Flow Depth (Min. S): | 0.24 | feet |
| | Flow Depth (Max. S): | 0.24 | feet |
| | Angle Repose (Ar): | 42.0 | degrees |
| | Specific Gravity | 2.65 | |
| | Reynolds No. = U*D50/v, where U=Shear Velocity, v=viscosity | | |
| | U=(gRS)^0.5 for Smin | 0.40 | |
| | Reynolds # for Smin | 14,262 | |
| | U=(gRS)^0.5 for Smax | 0.40 | |
| | Reynolds # for Smax | 14,262 | |
| | T = G*d*S where G=Unit weight of Water | | |
| | Nb = F*T/(G(SD-1)D50) | | |
| | F=(1/0.047)=21.3 for flat slopes with Reynolds No. < 500 | | |
| | F=(1/0.062)=16.1 for 500 < Reynolds No. < 40,000 | | |
| | F=varies from (1/0.062)=16.1 for Reynolds No. = 40,000 to (1/0,25)=4 for Reynolds No. = 500,000 or larger | | |
| | K for S min (See K vs. R Chart) | 0.062 | |
| | K for S max (See K vs. R Chart) | 0.062 | |
| | F for S min | 16.1 | |
| | F for S max | 16.1 | |
| | SFb = (Cos a tan b)/(sin a + Nb tan b) | | |
| | Tmax= Ks*G*d*S | | |
| | Set Ks=0.75 for 1.5:1 slope, 0.76 for 2:1 slope, and 0.85 for 3:1 slope | | |
| | Ks: | 0.76 | |
| | Ns = F*Tmax/(G(SG-1)D) | | |
| | A = Atan(1/m) | | |
| | B = Atan(Cos(Ar)/(2Sin(A)/NsTan)Ar))+Sin(Ar)) | | |
| | Nsp = Ns(1+Sin(Ar+B)/2) | | |
| | SFs = Cos(A)Tan(Ar)/(nTan(Ar)+Sin(A)Cos(B)) | | |

**RIPRAP DESIGN:**

| | Smin | Smax | |
|---|---|---|---|
| D50 | 0.50 | 0.50 | feet |
| T | 0.69 | 0.69 | lb/ft2 |
| Nb | 0.22 | 0.22 | |
| Tmax | 0.53 | 0.53 | lb/ft2 |
| Ns | 0.16 | 0.16 | |
| m Critical | 2.00 | 2.00 | |
| A (m crit) | 26.57 | 26.57 | degrees |
| B | 9.32 | 9.32 | degrees |
| Nsp | 0.10 | 0.10 | |
| SFb | 3.72 | 3.72 | |
| SFs | 1.52 | 1.52 | |

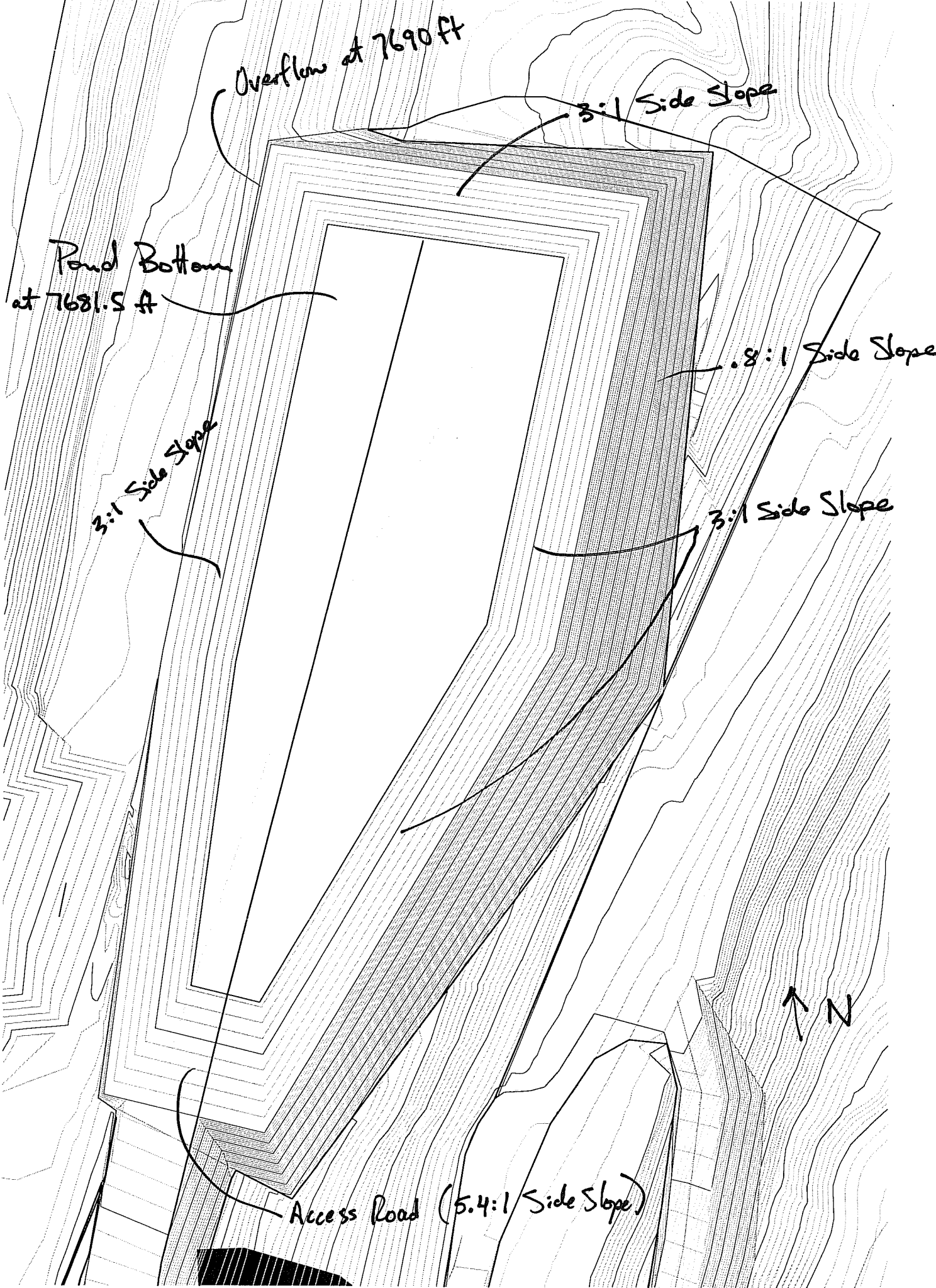
# Sedimentation Pond 1

| Storage Element | Volume (ac-ft) | Cumulative Volume (ac-ft) | Depth (ft) | Elevation (ft) |
|---|---|---|---|---|
| 1. Pond Bottom | 0.00 | 0.00 | 0.0 | 7681.5 |
| 2. 5.3yr Sediment | 1.12 | 1.12 | 2.3 | 7683.8 |
| (calculated a required 0.64 ac-ft but increased to 1.12 ac-ft) | | | | |
| 3. 10yr 24hr | 2.06 | 3.18 | 5.4 | 7686.9 |
| 4. 100yr 6hr | 1.67 | 4.85 | 7.5 | 7689.0 |
| (A depth of 2.1 ft was calculated to pass the 100yr 6hr flow of 22.5 ft³/s through a 24-in diameter overflow pipe. Cumulative volume was taken from stage - volume spreadsheet) | | | | |
| 5. Freeboard | 0.89 | 5.74 | 8.5 | 7690.0 |

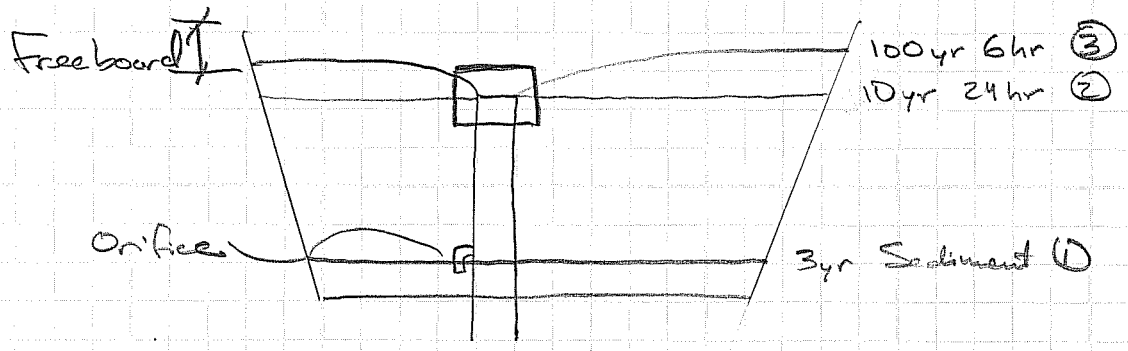
HANSEN ALLEN & LUCE inc ENGINEERS

CLIENT Carbon Resources
PROJECT Kinney Mine Hydrology
FEATURE Detail Volume
PROJECT NO 308.01.400

SHEET ____ OF 7DS
COMPUTED
CHECKED
DATE 12/26/07


Overflow at 7690 ft
3:1 Side Slope
Pond Bottom
at 7681.5 ft
.8:1 Side Slope
3:1 Side Slope
3:1 Side Slope
3:1 Side Slope
N
Access Road (5.4:1 Side Slope)

# Sediment / Detention Volumes




## (1) 3yr Sediment Volume

$A = (R)(K)(LS)(C)(P)$ → Universal Soil Loss Equation (USLE)

where:

A = Soil loss (tons/acre/yr)
R = Rainfall factor (ft-tons/acre/hr)
K = Soil Erodibility Factor
LS = Topographic factor
C = Cover or cropping management factor
P = Erosion control Practice factor

Values of R and K were determined from Clyde et al. (1978)

R = 22.0 tons/acre/yr ←

K = 0.28 tons/acre/yr/unit of R ←

$$LS = \frac{(650 + 450S + 65S^2)(L/72.6)^m}{10{,}000 + S^2}$$

where:

L = average overland flow length (ft)
S = Slope (%)
m = exponent dependant upon steepness of slope

m = 0.3 for S < .5%, m = 0.5 for 0.5% < S < 10%

m = 0.6 for S > 10%

HANSEN ALLEN & LUCE inc
ENGINEERS

CLIENT Carbon Resources
PROJECT Kinney Mine Hydrology
FEATURE Detention Volume
PROJECT NO 305.01.400

SHEET ___ OF ___
COMPUTED GLT
CHECKED ___
DATE 12/21/07

# L & S Calculations

| Subbasin | L (ft) | S (%) |
|---|---|---|
| SB L 1.5 | 640 | 2.0 |
| SB L 2 | 1840 | 9.5 |
| SB L 3 | 830 | 20.7 |
| SB Access A | 560 | 9.3 |
| SB L 1 | 840 | 0.9 |
| SB Access B | 520 | 2.8 |
| SB L 5 | 1540 | 7.2 |
| SB L 2.5 | 800 | 14.2 |
| SB L .75 | 1250 | 4.2 |
| SB Ditch B | 1310 | 2.4 |
| SB Ditch A | 590 | 4.4 |
| SB Pond | 610 | 9.1 |
| Average | 944 | 7.2 |

$$LS = \frac{(650 + 450(7.2) + 65(7.2)^2)\left(944\ ft / 72.6\right)^{0.5}}{10{,}000 + (7.2)^2}$$

$$= 2.6 \leftarrow$$

Values of C and P were determined from the U.S. Soil Conservation Service (1977)

C = 1.0 (for disturbed)

P = 1.0

$$A = (R)(K)(LS)(C)(P)$$

$$= (22.0\ tons/acre/yr)(0.28\ tons/acre/yr/Unit\ of\ R)(2.6)(1.0)(1.0)$$

$$= 16.0\ tons/acre/yr$$

Sediment density of 75 lb/ft$^3$ was used in conjunction with the USLE to determine volume of reservoir sediment storage required.

Pond is designed so that sediment will be removed when the sediment volume reaches 60% of accumulated sediment storage volume.

$$A(0.6) = 16.0 \text{ tons/acre/yr } (0.6)$$

$$= 9.6 \text{ tons/acre/yr}$$

$$\forall \text{ (ac-ft/ac/yr)} = \frac{A}{\gamma_{sediment}}$$

$$= \frac{(9.6 \text{ tons/acre/yr})\left(\frac{2000 \text{ lb}}{1 \text{ ton}}\right)}{75 \text{ lb/ft}^3 \left(\frac{43{,}560 \text{ ft}^3}{1 \text{ acre-ft}}\right)}$$

$$= 0.00588 \text{ acre-ft/acre/yr}$$

$$\forall \text{ (3 yrs)} = (0.00588 \text{ acre-ft/acre/yr})(3 \text{ yr})(36.3 \text{ ac})$$

$$= \underline{0.64 \text{ acre-ft}}$$

(2) 10 yr 24 hr Volume was determined from spreadsheet calculations.

$$V_{10yr\text{-}24hr} = \underline{2.06\ ac\text{-}ft}$$

- The orifice was sized to drain the 10yr 24hr runoff volume over a 24 hr period. See Spreadsheet

$$D_{orifice} = \underline{6.2\ in}$$

(3) Volume in the detent basin required to pass the 100 yr 6hr flow is based on the heigth required to pass the flow (22.5 $ft^3/s$). Volume of 1.67 ac-ft is required above 10yr 24hr volume. (Cumulative volume selected from stage-volume Spreadsheet)

- h required above 10yr 24hr depth to pass the 100yr 6hr flow

$$Q_{100yr6hr} = 22.5\ ft^3/s \text{ (from HMS model)}$$

$$Q = C_d A \sqrt{2gh}$$

$$= C_d \left(\frac{\pi d^2}{4}\right) \sqrt{2gh}$$

$d = 24$ in
$C_d = 0.62$
$g = 32.2\ ft/s^2$
$h = ?$

$$h = \frac{\left[\dfrac{Q}{C_d\left(\frac{\pi d^2}{4}\right)}\right]^2}{2g}$$

$$= \frac{\left[\dfrac{22.5\ ft^3/s}{0.62\left(\frac{\pi(2\ ft)^2}{4}\right)}\right]^2}{2(32.2\ ft/s^2)} = 2.1\ ft$$

Orifice Sizing to Drain 10-yr 24-hr Volume Over a 24 hour Period

V initial = 2.67 ac-ft (10-yr 24-hr + 3yr sediment volume)
116305 ft3

Orifice Design Parameters
D = 6.2 in
Cd = 0.62
Heigth to center of orifice above pond bottom = 1.60 ft (top of 3yr sediment volume + orifice diameter/2)

| Time (min) | Time (hr) | Volume (ft3) | Depth (ft) | Q (ft3/s) | ΔVolume (ft3) |
|---|---|---|---|---|---|
| 0 | 0.00 | 116305 | 4.7 | 1.84 | 1653 |
| 15 | 0.25 | 114652 | 4.6 | 1.81 | 1627 |
| 30 | 0.50 | 113025 | 4.6 | 1.81 | 1627 |
| 45 | 0.75 | 111399 | 4.5 | 1.78 | 1599 |
| 60 | 1.00 | 109799 | 4.5 | 1.78 | 1599 |
| 75 | 1.25 | 108200 | 4.4 | 1.75 | 1571 |
| 90 | 1.50 | 106629 | 4.4 | 1.75 | 1571 |
| 105 | 1.75 | 105057 | 4.3 | 1.71 | 1543 |
| 120 | 2.00 | 103514 | 4.2 | 1.68 | 1514 |
| 135 | 2.25 | 102000 | 4.2 | 1.68 | 1514 |
| 150 | 2.50 | 100486 | 4.1 | 1.65 | 1485 |
| 165 | 2.75 | 99001 | 4.1 | 1.65 | 1485 |
| 180 | 3.00 | 97516 | 4.0 | 1.62 | 1455 |
| 195 | 3.25 | 96061 | 4.0 | 1.62 | 1455 |
| 210 | 3.50 | 94606 | 3.9 | 1.58 | 1424 |
| 225 | 3.75 | 93182 | 3.9 | 1.58 | 1424 |
| 240 | 4.00 | 91757 | 3.8 | 1.55 | 1393 |
| 255 | 4.25 | 90364 | 3.8 | 1.55 | 1393 |
| 270 | 4.50 | 88971 | 3.7 | 1.51 | 1361 |
| 285 | 4.75 | 87610 | 3.7 | 1.51 | 1361 |
| 300 | 5.00 | 86249 | 3.6 | 1.48 | 1328 |
| 315 | 5.25 | 84921 | 3.6 | 1.48 | 1328 |
| 330 | 5.50 | 83593 | 3.5 | 1.44 | 1295 |
| 345 | 5.75 | 82298 | 3.5 | 1.44 | 1295 |
| 360 | 6.00 | 81003 | 3.4 | 1.40 | 1260 |
| 375 | 6.25 | 79743 | 3.4 | 1.40 | 1260 |
| 390 | 6.50 | 78483 | 3.4 | 1.40 | 1260 |
| 405 | 6.75 | 77223 | 3.3 | 1.36 | 1225 |
| 420 | 7.00 | 75998 | 3.3 | 1.36 | 1225 |
| 435 | 7.25 | 74773 | 3.2 | 1.32 | 1188 |
| 450 | 7.50 | 73585 | 3.2 | 1.32 | 1188 |
| 465 | 7.75 | 72397 | 3.1 | 1.28 | 1150 |
| 480 | 8.00 | 71247 | 3.1 | 1.28 | 1150 |
| 495 | 8.25 | 70096 | 3.0 | 1.24 | 1112 |
| 510 | 8.50 | 68985 | 3.0 | 1.24 | 1112 |
| 525 | 8.75 | 67873 | 3.0 | 1.24 | 1112 |
| 540 | 9.00 | 66762 | 2.9 | 1.19 | 1071 |
| 555 | 9.25 | 65690 | 2.9 | 1.19 | 1071 |
| 570 | 9.50 | 64619 | 2.8 | 1.14 | 1029 |
| 585 | 9.75 | 63590 | 2.8 | 1.14 | 1029 |
| 600 | 10.00 | 62561 | 2.7 | 1.09 | 985 |
| 615 | 10.25 | 61576 | 2.7 | 1.09 | 985 |
| 630 | 10.50 | 60590 | 2.7 | 1.09 | 985 |
| 645 | 10.75 | 59605 | 2.6 | 1.04 | 940 |
| 660 | 11.00 | 58665 | 2.6 | 1.04 | 940 |

| Time (min) | Time (hr) | Volume (ft3) | Depth (ft) | Q (ft3/s) | ΔVolume (ft3) |
|---|---|---|---|---|---|
| 675 | 11.25 | 57726 | 2.6 | 1.04 | 940 |
| 690 | 11.50 | 56786 | 2.5 | 0.99 | 891 |
| 705 | 11.75 | 55895 | 2.5 | 0.99 | 891 |
| 720 | 12.00 | 55003 | 2.4 | 0.93 | 841 |
| 735 | 12.25 | 54162 | 2.4 | 0.93 | 841 |
| 750 | 12.50 | 53322 | 2.4 | 0.93 | 841 |
| 765 | 12.75 | 52481 | 2.3 | 0.87 | 786 |
| 780 | 13.00 | 51695 | 2.3 | 0.87 | 786 |
| 795 | 13.25 | 50908 | 2.3 | 0.87 | 786 |
| 810 | 13.50 | 50122 | 2.2 | 0.81 | 728 |
| 825 | 13.75 | 49394 | 2.2 | 0.81 | 728 |
| 840 | 14.00 | 48666 | 2.2 | 0.81 | 728 |
| 855 | 14.25 | 47937 | 2.2 | 0.81 | 728 |
| 870 | 14.50 | 47209 | 2.1 | 0.74 | 665 |
| 885 | 14.75 | 46544 | 2.1 | 0.74 | 665 |
| 900 | 15.00 | 45879 | 2.1 | 0.74 | 665 |
| 915 | 15.25 | 45214 | 2.0 | 0.66 | 595 |
| 930 | 15.50 | 44619 | 2.0 | 0.66 | 595 |
| 945 | 15.75 | 44024 | 2.0 | 0.66 | 595 |
| 960 | 16.00 | 43429 | 2.0 | 0.66 | 595 |
| 975 | 16.25 | 42834 | 1.9 | 0.57 | 516 |
| 990 | 16.50 | 42319 | 1.9 | 0.57 | 516 |
| 1005 | 16.75 | 41803 | 1.9 | 0.57 | 516 |
| 1020 | 17.00 | 41287 | 1.9 | 0.57 | 516 |
| 1035 | 17.25 | 40772 | 1.9 | 0.57 | 516 |
| 1050 | 17.50 | 40256 | 1.8 | 0.47 | 422 |
| 1065 | 17.75 | 39834 | 1.8 | 0.47 | 422 |
| 1080 | 18.00 | 39413 | 1.8 | 0.47 | 422 |
| 1095 | 18.25 | 38991 | 1.8 | 0.47 | 422 |
| 1110 | 18.50 | 38570 | 1.8 | 0.47 | 422 |
| 1125 | 18.75 | 38148 | 1.7 | 0.33 | 299 |
| 1140 | 19.00 | 37849 | 1.7 | 0.33 | 299 |
| 1155 | 19.25 | 37549 | 1.7 | 0.33 | 299 |
| 1170 | 19.50 | 37250 | 1.7 | 0.33 | 299 |
| 1185 | 19.75 | 36951 | 1.7 | 0.33 | 299 |
| 1200 | 20.00 | 36651 | 1.7 | 0.33 | 299 |
| 1215 | 20.25 | 36352 | 1.7 | 0.33 | 299 |
| 1230 | 20.50 | 36053 | 1.7 | 0.33 | 299 |
| 1245 | 20.75 | 35753 | 1.6 | 0.04 | 38 |
| 1260 | 21.00 | 35715 | 1.6 | 0.04 | 38 |
| 1275 | 21.25 | 35677 | 1.6 | 0.04 | 38 |
| 1290 | 21.50 | 35638 | 1.6 | 0.04 | 38 |
| 1305 | 21.75 | 35600 | 1.6 | 0.04 | 38 |
| 1320 | 22.00 | 35562 | 1.6 | 0.04 | 38 |
| 1335 | 22.25 | 35523 | 1.6 | 0.04 | 38 |
| 1350 | 22.50 | 35485 | 1.6 | 0.04 | 38 |
| 1365 | 22.75 | 35447 | 1.6 | 0.04 | 38 |
| 1380 | 23.00 | 35408 | 1.6 | 0.04 | 38 |
| 1395 | 23.25 | 35370 | 1.6 | 0.04 | 38 |
| 1410 | 23.50 | 35332 | 1.6 | 0.04 | 38 |
| 1425 | 23.75 | 35293 | 1.6 | 0.04 | 38 |
| 1440 | 24.00 | 35255 | 1.6 | 0.04 | 38 |

Detention Basin Stage-Volume

| Elevation (ft) | Area (ft2) | Volume (ft3) | Cum Volume (ft3) | Cum Volume (ac-ft) |
|---|---|---|---|---|
| 7681.5 | 19356.6 | 0 | 0 | 0.00 |
| 7681.6 | 19561 | 1946 | 1946 | 0.04 |
| 7681.7 | 19765 | 1966 | 3912 | 0.09 |
| 7681.8 | 19970 | 1987 | 5899 | 0.14 |
| 7681.9 | 20174 | 2007 | 7906 | 0.18 |
| 7682.0 | 20379 | 2028 | 9934 | 0.23 |
| 7682.1 | 20596 | 2049 | 11982 | 0.28 |
| 7682.2 | 20813 | 2070 | 14053 | 0.32 |
| 7682.3 | 21030 | 2092 | 16145 | 0.37 |
| 7682.4 | 21248 | 2114 | 18259 | 0.42 |
| 7682.5 | 21465 | 2136 | 20395 | 0.47 |
| 7682.6 | 21682 | 2157 | 22552 | 0.52 |
| 7682.7 | 21900 | 2179 | 24731 | 0.57 |
| 7682.8 | 22117 | 2201 | 26932 | 0.62 |
| 7682.9 | 22334 | 2223 | 29154 | 0.67 |
| 7683.0 | 22551 | 2244 | 31399 | 0.72 |
| 7683.1 | 22778 | 2266 | 33665 | 0.77 |
| 7683.2 | 23004 | 2289 | 35954 | 0.83 |
| 7683.3 | 23230 | 2312 | 38266 | 0.88 |
| 7683.4 | 23457 | 2334 | 40600 | 0.93 |
| 7683.5 | 23683 | 2357 | 42957 | 0.99 |
| 7683.6 | 23909 | 2380 | 45337 | 1.04 |
| 7683.7 | 24135 | 2402 | 47739 | 1.10 |
| 7683.8 | 24362 | 2425 | 50164 | 1.15 |
| 7683.9 | 24588 | 2447 | 52612 | 1.21 |
| 7684.0 | 24814 | 2470 | 55082 | 1.26 |
| 7684.1 | 25050 | 2493 | 57575 | 1.32 |
| 7684.2 | 25285 | 2517 | 60092 | 1.38 |
| 7684.3 | 25520 | 2540 | 62632 | 1.44 |
| 7684.4 | 25756 | 2564 | 65196 | 1.50 |
| 7684.5 | 25991 | 2587 | 67783 | 1.56 |
| 7684.6 | 26227 | 2611 | 70394 | 1.62 |
| 7684.7 | 26462 | 2634 | 73028 | 1.68 |
| 7684.8 | 26697 | 2658 | 75686 | 1.74 |
| 7684.9 | 26933 | 2682 | 78368 | 1.80 |
| 7685.0 | 27168 | 2705 | 81073 | 1.86 |
| 7685.1 | 27412 | 2729 | 83802 | 1.92 |
| 7685.2 | 27657 | 2753 | 86555 | 1.99 |
| 7685.3 | 27901 | 2778 | 89333 | 2.05 |
| 7685.4 | 28146 | 2802 | 92136 | 2.12 |
| 7685.5 | 28390 | 2827 | 94962 | 2.18 |
| 7685.6 | 28634 | 2851 | 97814 | 2.25 |
| 7685.7 | 28879 | 2876 | 100689 | 2.31 |

| Elevation (ft) | Area (ft2) | Volume (ft3) | Cum Volume (ft3) | Cum Volume (ac-ft) |
|---|---|---|---|---|
| 7685.8 | 29123 | 2900 | 103589 | 2.38 |
| 7685.9 | 29367 | 2925 | 106514 | 2.45 |
| 7686.0 | 29612 | 2949 | 109463 | 2.51 |
| 7686.1 | 29865 | 2974 | 112437 | 2.58 |
| 7686.2 | 30119 | 2999 | 115436 | 2.65 |
| 7686.3 | 30372 | 3025 | 118460 | 2.72 |
| 7686.4 | 30626 | 3050 | 121510 | 2.79 |
| 7686.5 | 30879 | 3075 | 124586 | 2.86 |
| 7686.6 | 31133 | 3101 | 127686 | 2.93 |
| 7686.7 | 31386 | 3126 | 130812 | 3.00 |
| 7686.8 | 31639 | 3151 | 133963 | 3.08 |
| 7686.9 | 31893 | 3177 | 137140 | 3.15 |
| 7687.0 | 32146 | 3202 | 140342 | 3.22 |
| 7687.1 | 32409 | 3228 | 143570 | 3.30 |
| 7687.2 | 32671 | 3254 | 146824 | 3.37 |
| 7687.3 | 32934 | 3280 | 150104 | 3.45 |
| 7687.4 | 33196 | 3306 | 153410 | 3.52 |
| 7687.5 | 33459 | 3333 | 156743 | 3.60 |
| 7687.6 | 33721 | 3359 | 160102 | 3.68 |
| 7687.7 | 33983 | 3385 | 163487 | 3.75 |
| 7687.8 | 34246 | 3411 | 166899 | 3.83 |
| 7687.9 | 34508 | 3438 | 170337 | 3.91 |
| 7688.0 | 34771 | 3464 | 173800 | 3.99 |
| 7688.1 | 35042 | 3491 | 177291 | 4.07 |
| 7688.2 | 35314 | 3518 | 180809 | 4.15 |
| 7688.3 | 35585 | 3545 | 184354 | 4.23 |
| 7688.4 | 35857 | 3572 | 187926 | 4.31 |
| 7688.5 | 36129 | 3599 | 191525 | 4.40 |
| 7688.6 | 36400 | 3626 | 195152 | 4.48 |
| 7688.7 | 36672 | 3654 | 198805 | 4.56 |
| 7688.8 | 36943 | 3681 | 202486 | 4.65 |
| 7688.9 | 37215 | 3708 | 206194 | 4.73 |
| 7689.0 | 37486 | 3735 | 209929 | 4.82 |
| 7689.1 | 37767 | 3763 | 213692 | 4.91 |
| 7689.2 | 38047 | 3791 | 217482 | 4.99 |
| 7689.3 | 38328 | 3819 | 221301 | 5.08 |
| 7689.4 | 38609 | 3847 | 225148 | 5.17 |
| 7689.5 | 38889 | 3875 | 229023 | 5.26 |
| 7689.6 | 39170 | 3903 | 232926 | 5.35 |
| 7689.7 | 39450 | 3931 | 236857 | 5.44 |
| 7689.8 | 39731 | 3959 | 240816 | 5.53 |
| 7689.9 | 40011 | 3987 | 244803 | 5.62 |
| 7690.0 | 40292 | 4015 | 248818 | 5.71 |

SCS CURVE NUMBER
Kinney Mine Hydrology

SB_F1

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 2288.29 | 0.05 | 0.00008 | 1.4 | 98 | 0.20 | 1.1 | 202.9 | 1.7 | 323.2 | 1.9 | 353.5 |
| Pad | 122526.6 | 2.81 | 0.00440 | 75.7 | 90 | 1.11 | 0.5 | 5267.5 | 1.0 | 10478.0 | 1.2 | 11869.8 |
| Natural | 21443.42 | 0.49 | 0.00077 | 13.2 | 75 | 3.33 | 0.1 | 170.3 | 0.3 | 612.0 | 0.4 | 752.0 |
| Revegetated | 15641.47 | 0.36 | 0.00056 | 9.7 | 82 | 2.20 | 0.2 | 303.6 | 0.6 | 777.7 | 0.7 | 915.0 |
| TOTALS | 161899.8 | 3.72 | 0.00581 | 100 | 87 | | | 5944.3 | | 12190.9 | | 13890.2 |
| | | | | | | | | | | 0.28 ac-ft | | 0.32 ac-ft |

SB_D1

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 2165.29 | 0.05 | 0.00008 | 2.5 | 98 | 0.20 | 1.1 | 192.0 | 1.7 | 305.9 | 1.9 | 334.5 |
| Pad | 40914.9 | 0.94 | 0.00147 | 33.7 | 90 | 1.11 | 0.5 | 1758.9 | 1.0 | 3498.9 | 1.2 | 3963.6 |
| Natural | 67374.28 | 1.55 | 0.00242 | 55.5 | 75 | 3.33 | 0.1 | 535.2 | 0.3 | 1922.9 | 0.4 | 2362.7 |
| Revegetated | 10895.72 | 0.25 | 0.00039 | 9.0 | 82 | 2.20 | 0.2 | 211.5 | 0.6 | 541.7 | 0.7 | 637.4 |
| TOTALS | 121350.2 | 2.79 | 0.00435 | 101 | 81 | | | 2697.6 | | 6269.3 | | 7298.2 |
| | | | | | | | | | | 0.14 ac-ft | | 0.17 ac-ft |

SB_D2

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 2442.07 | 0.06 | 0.00009 | 2.8 | 98 | 0.20 | 1.1 | 216.5 | 1.7 | 345.0 | 1.9 | 377.2 |
| Pad | 12679.13 | 0.29 | 0.00045 | 14.8 | 90 | 1.11 | 0.5 | 545.1 | 1.0 | 1084.3 | 1.2 | 1228.3 |
| Natural | 59411.24 | 1.36 | 0.00213 | 69.1 | 75 | 3.33 | 0.1 | 471.9 | 0.3 | 1695.6 | 0.4 | 2083.5 |
| Revegetated | 11426.79 | 0.26 | 0.00041 | 13.3 | 82 | 2.20 | 0.2 | 221.8 | 0.6 | 568.1 | 0.7 | 668.4 |
| TOTALS | 85959.23 | 1.97 | 0.00308 | 100 | 79 | | | 1455.3 | | 3693.0 | | 4357.4 |
| | | | | | | | | | | 0.08 ac-ft | | 0.10 ac-ft |

SB_F2

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 10732.04 | 0.25 | 0.00038 | 19.4 | 98 | 0.20 | 1.1 | 951.5 | 1.7 | 1516.0 | 1.9 | 1657.8 |
| Natural | 0 | 0.00 | 0.00000 | 0.0 | 75 | 3.33 | 0.1 | 0.0 | 0.3 | 0.0 | 0.4 | 0.0 |
| Revegetated | 44561.29 | 1.02 | 0.00160 | 80.6 | 82 | 2.20 | 0.2 | 865.0 | 0.6 | 2215.6 | 0.7 | 2606.7 |
| TOTALS | 55293.33 | 1.27 | 0.00198 | 100 | 85 | | | 1816.6 | | 3731.6 | | 4264.5 |
| | | | | | | | | | | 0.09 ac-ft | | 0.10 ac-ft |

SB_E1

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Pad | 143106.9 | 3.29 | 0.00513 | 74.1 | 90 | 1.11 | 0.5 | 6152.2 | 1.0 | 12237.9 | 1.2 | 13863.5 |
| Natural | 9446.91 | 0.22 | 0.00034 | 4.9 | 75 | 3.33 | 0.1 | 75.0 | 0.3 | 269.6 | 0.4 | 331.3 |
| Revegetated | 40693.85 | 0.93 | 0.00146 | 21.1 | 82 | 2.20 | 0.2 | 789.9 | 0.6 | 2023.3 | 0.7 | 2380.5 |
| TOTALS | 193247.7 | 4.44 | 0.00693 | 100 | 88 | | | 7017.2 | | 14530.8 | | 16575.3 |
| | | | | | | | | | | 0.33 ac-ft | | 0.38 ac-ft |

SB_D3

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 11513.94 | 0.26 | 0.00041 | 19.7 | 98 | 0.20 | 1.1 | 1020.9 | 1.7 | 1626.4 | 1.9 | 1778.6 |
| Natural | 39630.22 | 0.91 | 0.00142 | 20.5 | 75 | 3.33 | 0.1 | 314.8 | 0.3 | 1131.0 | 0.4 | 1389.8 |
| Revegetated | 7211.62 | 0.17 | 0.00026 | 12.4 | 82 | 2.20 | 0.2 | 140.0 | 0.6 | 358.6 | 0.7 | 421.9 |
| TOTALS | 58355.78 | 1.34 | 0.00209 | 53 | 80 | | | 1475.6 | | 3116.0 | | 3590.2 |
| | | | | | | | | | | 0.07 ac-ft | | 0.08 ac-ft |

SB_A1

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 19147.5 | 0.44 | 0.00069 | 32.8 | 98 | 0.20 | 1.1 | 1697.7 | 1.7 | 2704.7 | 1.9 | 2957.8 |
| Natural | 63174.77 | 1.45 | 0.00227 | 32.7 | 75 | 3.33 | 0.1 | 501.8 | 0.3 | 1803.0 | 0.4 | 2215.5 |
| Pad | 42016.47 | 0.96 | 0.00151 | 21.7 | 90 | 1.11 | 0.5 | 1806.3 | 1.0 | 3593.1 | 1.2 | 4070.4 |
| Revegetated | 54006.16 | 1.24 | 0.00194 | 30.3 | 82 | 2.20 | 0.2 | 1048.4 | 0.6 | 2685.2 | 0.7 | 3159.2 |
| TOTALS | 178344.9 | 4.09 | 0.00640 | 118 | 83 | | | 5054.1 | | 10786.0 | | 12402.8 |
| | | | | | | | | | | 0.25 ac-ft | | 0.28 ac-ft |

SB_B1

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Pad | 91371.01 | 2.10 | 0.00328 | 47.3 | 90 | 1.11 | 0.5 | 3928.1 | 1.0 | 7813.7 | 1.2 | 8851.6 |
| Natural | 26384.94 | 0.61 | 0.00095 | 13.7 | 75 | 3.33 | 0.1 | 209.6 | 0.3 | 753.0 | 0.4 | 925.3 |
| Revegetated | 34907.15 | 0.80 | 0.00125 | 22.9 | 82 | 2.20 | 0.2 | 677.6 | 0.6 | 1735.6 | 0.7 | 2042.0 |
| TOTALS | 152663.1 | 3.50 | 0.00548 | 84 | 86 | | | 677.6 | | 1735.6 | | 2042.0 |
| | | | | | | | | | | 0.04 ac-ft | | 0.05 ac-ft |

SB_C1

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 0 | 0.00 | 0.00000 | 0.0 | 98 | 0.20 | 1.1 | 0.0 | 1.7 | 0.0 | 1.9 | 0.0 |
| Pad | 91265.3 | 2.10 | 0.00327 | 136.8 | 90 | 1.11 | 0.5 | 3923.5 | 1.0 | 7804.6 | 1.2 | 8841.3 |
| Natural | 52325.33 | 1.20 | 0.00188 | 27.1 | 75 | 3.33 | 0.1 | 415.6 | 0.3 | 1493.4 | 0.4 | 1835.0 |
| Revegetated | 38502.3 | 0.88 | 0.00138 | 21.1 | 82 | 2.20 | 0.2 | 747.4 | 0.6 | 1914.3 | 0.7 | 2252.3 |
| TOTALS | 182092.9 | 4.18 | 0.00653 | 185 | 84 | | | 5086.5 | | 11212.3 | | 12928.6 |
| | | | | | | | | | | 0.26 ac-ft | | 0.30 ac-ft |

SB_E2

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 13703.95 | 0.31 | 0.00049 | 7.5 | 98 | 0.20 | 1.1 | 1215.0 | 1.7 | 1935.8 | 1.9 | 2116.9 |
| Pad | 0 | 0.00 | 0.00000 | 0.0 | 90 | 1.11 | 0.5 | 0.0 | 1.0 | 0.0 | 1.2 | 0.0 |
| Natural | 26904.93 | 0.62 | 0.00097 | 13.9 | 75 | 3.33 | 0.1 | 213.7 | 0.3 | 767.9 | 0.4 | 943.5 |
| Revegetated | 32464.12 | 0.75 | 0.00116 | 17.8 | 82 | 2.20 | 0.2 | 630.2 | 0.6 | 1614.1 | 0.7 | 1899.1 |
| TOTALS | 73073 | 1.68 | 0.00262 | 39 | 82 | | | 2058.9 | | 4317.8 | | 4959.5 |
| | | | | | | | | | | 0.10 ac-ft | | 0.11 ac-ft |

SB_E4

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Natural | 50993.98 | 1.17 | 0.00183 | 76.5 | 75 | 3.33 | 0.1 | 405.0 | 0.3 | 1455.4 | 0.4 | 1788.3 |
| Revegetated | 15708.03 | 0.36 | 0.00056 | 23.5 | 82 | 2.20 | 0.2 | 304.9 | 0.6 | 781.0 | 0.7 | 918.9 |
| TOTALS | 66702.01 | 1.53 | 0.00239 | 100 | 77 | | | 710.0 | | 2236.4 | | 2707.2 |
| | | | | | | | | | | 0.05 ac-ft | | 0.06 ac-ft |

SB_E3

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Revegetated | 23139.08 | 0.53 | 0.00083 | 34.7 | 82 | 2.20 | 0.2 | 449.2 | 0.6 | 1150.5 | 0.7 | 1353.6 |
| TOTALS | 23139.08 | 0.53 | 0.00083 | 35 | 82 | | | 449.2 | | 1150.5 | | 1353.6 |
| | | | | | | | | | | 0.03 ac-ft | | 0.03 ac-ft |

SB_Pond1

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Detention Pond | 19356.6 | 0.44 | 0.00069 | 20.6 | 100 | 0.00 | 1.3 | 2064.7 | 1.9 | 3097.1 | 2.1 | 3355.1 |
| Revegetated | 46571.36 | 1.07 | 0.00167 | 69.8 | 82 | 2.20 | 0.2 | 904.0 | 0.6 | 2315.5 | 0.7 | 2724.3 |
| Natural | 28145.53 | 0.65 | 0.00101 | 29.9 | 75 | 3.33 | 0.1 | 223.6 | 0.3 | 803.3 | 0.4 | 987.0 |
| TOTALS | 94073.49 | 2.16 | 0.00337 | 120 | 84 | | | 3192.3 | | 6215.8 | | 7066.5 |
| | | | | | | | | | | 0.14 ac-ft | | 0.16 ac-ft |

SB_AltA

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Revegetated | 111806.6 | 2.57 | 0.00401 | 167.6 | 82 | 2.20 | 0.2 | 2170.4 | 0.6 | 5559.0 | 0.7 | 6540.3 |
| TOTALS | 111806.6 | 2.57 | 0.00401 | 168 | 82 | | | 2170.4 | | 5559.0 | | 6540.3 |
| | | | | | | | | | | 0.13 ac-ft | | 0.15 ac-ft |

SB_AltB

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 4030.63 | 0.09 | 0.00014 | 2.2 | 98 | 0.20 | 1.1 | 357.4 | 1.7 | 569.4 | 1.9 | 622.6 |
| Revegetated | 21513.94 | 0.49 | 0.00077 | 32.3 | 82 | 2.20 | 0.2 | 417.6 | 0.6 | 1069.7 | 0.7 | 1258.5 |
| TOTALS | 25544.57 | 0.59 | 0.00092 | 34 | 85 | | | 775.0 | | 1639.0 | | 1881.1 |
| | | | | | | | | | | 0.04 ac-ft | | 0.04 ac-ft |

SB_AltC

| | | | | | | | 10-YR 6-HR | | 10-yr 24-HR | | 100-YR 6-HR | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Rainfall (in) | 1.28 | Rainfall (in) | 1.92 | Rainfall (in) | 2.08 |
| Subbasin Area | AREA (ft2) | AREA (acres) | AREA (mi2) | % AREA (%) | CN | S | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) | Runoff (cfs) | Vol (cf) |
| Roads | 3773.2 | 0.09 | 0.00014 | 2.1 | 98 | 0.20 | 1.1 | 334.5 | 1.7 | 533.0 | 1.9 | 582.9 |
| Revegetated | 15615.05 | 0.36 | 0.00056 | 23.4 | 82 | 2.20 | 0.2 | 303.1 | 0.6 | 776.4 | 0.7 | 913.4 |
| TOTALS | 19388.25 | 0.45 | 0.00070 | 25 | 85 | | | 637.7 | | 1309.4 | | 1496.3 |
| | | | | | | | | | | 0.03 ac-ft | | 0.03 ac-ft |

| | | | | | |
|---|---|---|---|---|---|
| Overall Totals | 1602934 | 36.80 | 0.0575 | | 84 |

Total Approximate Storage Volumes = 2.06 ac-ft 2.37 ac-ft

| Pond No. | Available Sediment Storage Volume (acre-feet) | Required 3-year Accumulated Sediment Storage Volume (acre-feet) | Available Runoff Storage Volume (acre-feet) | Required 10-yr, 24-hr Runoff Storage Volume (acre-feet) | Comments and Recommendations |
|---|---|---|---|---|---|
| 7 | 0.04 | 0.04 | 0.63 | 0.58 | Pond Adequate |
| 8 | 1.1 | 1.1 | 2.77 | 2.20 | Pond Adequate |
| 9 | 2.02 | 1.98 | 4.50 | 4.45 | Pond Adequate |

Note: Pond No. 1 is classified as a treatment facility and not a sedimentation pond.

The sediment ponds and treatment facility were designed (where possible) to contain the accumulated sediment volume from a three-year period and to prevent short circuiting. The amount of sediment to be yielded to the sedimentation ponds was determined from the Universal Soil Loss Equation (USLE) (Clyde et al., 1978, and U. S. Soil Conservation Service, 1977). In accordance with this equation, soil erosion caused by water is determined from

$$A = R*K*LS*C*P \qquad (742\text{-}2)$$

where:

A = computed amount of soil loss, in tons/acre/year;
R = rainfall factor, in foot-tons/acre/hour;
K = soil erodibility factor, in tons/acre/year/unit of R;
LS = topographic factor (length and steepness of slope), dimensionless;
C = cover or cropping management factor, dimensionless; and
P = erosion control practice factor, dimensionless.

Values for R and K were determined from Clyde et al. (1978). The topographic factor (LS) was determined from

$$LS = \frac{(650 + 450\,S + 65\,S^2)\,(L/72.6)^m}{10,000 + S^2} \qquad (742\text{-}3)$$

where:

L = average overland flow length, in feet;
S = average steepness of slope, in percent; and
m = an exponent dependent upon the steepness of slope (0.3 for slopes less than 0.5%, 0.5 for slopes 0.51% to 10%, and 0.6 for slopes greater than 10%).

The average overland flow length (L) was determined from Williams and Berndt (1972) as defined by the equation

$$L = \frac{0.5\ DA}{LCH} \qquad (742\text{-}4)$$

where:

DA = drainage area, in square feet; and
LCH = total length of channels in the watershed, in feet.

Values for C and P were determined from the U. S. Soil Conservation Service (1977).

A sediment density of 75 lb/ft$^3$ was used in conjunction with the USLE to determine the volume of reservoir sediment storage required. This value was obtained based upon on-site soil surveys (see Section 200 for more soils related information) which show that local soils consist mostly of a mixture of silty clayey sands. Sands commonly have unit weights in the order of 85-100 pcf based upon ASCE findings (see Sedimentation Engineering - ASCE M & R No. 54) with values more commonly used in the order of 95 pcf. Other references confirm this and indicate that silts and clays usually have lower unit weights, but at times do range from 27 to 100 pcf. Because local soil complexes do contain substantial quantities of silts and clays, a more conservative sediment density of 75 pcf was chosen as the appropriate value to use for calculation of sediment volume.

The ponds have been designed so that sediment will be removed when the sediment volume reaches 60 percent of the accumulated sediment storage volume. All sediments will be disposed of in the washed coal refuse pile. Sediment yield parameters and the accumulated sediment volume for each pond (including Treatment Facility No. 1) are contained in Table 742.221b, Sediment Design Parameters for Sediment Ponds 1 through 9.

**TABLE 742.221b**
**Sediment Design Parameters for Sediment Ponds 1 through 9.**

| Sedimentation Pond No. | Contributing Area D-Disturbed U-Undisturbed | Rainfall Factor (R) ft-tons/ac/hr | Soil Erodibility Factor (K) tons/ac/yr per unit of R | Slope Length Factor L ft. | Slope Gradient Factor S percent | LS | Cover Factor | Erosion Control Practice Factor (P) | Estimated Soil Loss (A) ton/ac/yr | Sediment Delivery Ratio | Estimated Sediment Contribution in Sedimentation Ponds | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | ac-ft/ac/yr | ac-ft/yr | Accumulated Sediment Volume ac-ft | |
| | | | | | | | | | | | | | 3-year | 2-year |
| 1 | D-5.1<br>U-9.5 | 22.0<br>22.0 | 0.28<br>0.28 | 82<br>105 | 3.0<br>70.0 | 0.28<br>29.4 | 1.0<br>0.2 | 1.0<br>1.0 | 1.7<br>36.2 | 0.65<br>0.60 | 0.0007<br>0.0133 | 0.004<br>0.126 | 0.39 | 0.26 |
| 2 | D-9.1<br>U-6.0 | 22.0<br>22.0 | 0.28<br>0.28 | 200<br>220 | 34.0<br>39.0 | 11.9<br>19.8 | 1.0<br>0.2 | 1.0<br>1.0 | 73.3<br>24.4 | 0.60<br>0.56 | 0.0269<br>0.0084 | 0.245<br>0.050 | 0.89 | 0.59 |
| 3 | D-5.0<br>U-52.1 | 22.0<br>22.0 | 0.28<br>0.28 | 63<br>140 | 2.0<br>65.0 | 0.17<br>31.7 | 1.0<br>0.2 | 1.0<br>1.0 | 1.0<br>39.0 | 0.60<br>0.45 | 0.0004<br>0.0107 | 0.002<br>0.557 | 1.68 | 1.11 |
| 4 | D-23.0<br>U-17.6 | 22.0<br>22.0 | 0.28<br>0.28 | 160<br>84 | 12.8<br>45.0 | 2.7<br>13.8 | 1.0<br>0.2 | 1.0<br>1.0 | 16.6<br>17.0 | 0.52<br>0.60 | 0.0053<br>0.0062 | 0.122<br>0.109 | 0.69 | 0.46 |
| 5 | D-65.6<br>U-29.4 | 22.0<br>22.0 | 0.28<br>0.28 | 205<br>118 | 16.0<br>54.0 | 4.5<br>22.2 | 1.0<br>0.2 | 1.0<br>1.0 | 27.7<br>27.4 | 0.45<br>0.50 | 0.0076<br>0.0084 | 0.499<br>0.247 | 2.24 | 1.49 |
| 6 | D-27.5<br>U-6.5 | 22.0<br>22.0 | 0.28<br>0.28 | 99<br>99 | 10.0<br>43.5 | 1.4<br>14.5 | 1.0<br>0.2 | 1.0<br>1.0 | 8.6<br>17.9 | 0.50<br>0.65 | 0.0026<br>0.0071 | 0.072<br>0.046 | 0.35 | 0.24 |

# Energy Dissipation Structures

Design of rip-rap apron for outlets of ICP-2 and UDC-1 using Drainage Criteria Manual (V.2)

| | Pipe Size (in) | Design Flow (cfs) | |
|---|---|---|---|
| CP-2 | 42 | 33.8 | |
| UDC-1 | 30 | 14.3 + 1 cfs = 15.3 cfs | (Assumed minimal irrigation pipe) |

Design of rip-rap apron completed for both throughout:

$$Q_{full} = \frac{1.49}{n} A_{full} (R_{full})^{2/3} (S_o)^{1/2}$$

$n = 0.024$ (Ref: Civil Engineering Reference Manual, 2006)

$$A_{full} = \frac{\pi D^2}{4}$$

$$= \frac{\pi \left(\frac{42\ in}{12\ in}\right)^2}{4} = 9.6211\ ft^2 \quad (4.9087\ ft^2)$$

$$R_{full} = \frac{D}{4} = \frac{\left(\frac{42\ in}{12\ in}\right)}{4} = 0.875\ ft \quad (0.625\ ft)$$

$$S_o = \frac{(7667.61\ ft - 7655.45\ ft)}{74.1\ ft} = 0.1641\ ft/ft \quad (0.0761\ ft/ft)$$

$$Q_{full} = \frac{1.49}{0.024} (9.6211\ ft^2)(0.875\ ft)^{2/3} (0.1641\ ft/ft)^{1/2}$$

$$= 221.357\ ft^3/s \quad (61.455\ ft^3/s)$$

$$V_{full} = \frac{Q_{full}}{A_{full}} = \frac{221.357\ ft^3/s}{9.6211\ ft^2} = 23.01\ ft/s \quad (12.52\ ft/s)$$

$Q_{design}$ (see culvert design calcs) = 33.8 $ft^3/s$ (15.3 $ft^3/s$)

$$\frac{Q_{design}}{Q_{full}} = \frac{33.8\ ft^3/s}{221.357\ ft^3/s} = 0.153\ (0.249)$$

Using Figure HS-18b $\frac{d}{D} = 0.30$ (0.38)

using Figure HS-19 $\frac{d}{D} = 0.42$ (0.435)

$$\frac{Q_{design}}{D^{2.5}} = \frac{33.8\ ft^3/s}{(3.5\ ft)^{2.5}} = 1.47\ (1.55)$$

Using Figure HS-18b: $\frac{A}{A_{full}} = 0.25\ (0.35)$

$$A = \left(\frac{A}{A_{full}}\right) A_{full}$$

$$= (0.25)(9.6211\ ft^2) = 2.4053\ ft^2\ (1.7180\ ft^2)$$

$$V_{design} = \frac{Q_{design}}{A}$$

$$= \frac{33.8\ ft^3/s}{2.4053\ ft^2} = 14.05\ ft/s\ (8.91\ ft/s)$$

$$P_d = (V^2 + gd)^{1/2} \quad (HS-16)$$

$V = 14.05\ ft/s\ (8.91\ ft/s)$
$g = 32.2\ ft/s^2$
$d = 1.05\ ft\ (0.95)$

$$\frac{d}{D} = 0.3\ (0.38)$$

$d = 0.3\ (3.5\ ft) = 1.05\ ft\ (0.95)$

$$P_d = \left[ (14.05 \text{ ft/s})^2 + (32.2 \text{ ft/s}^2)(1.05 \text{ ft}) \right]^{1/2}$$

$$= 15.21 \text{ ft/s}$$

$$(10.49 \text{ ft/s})$$

* Based on the 42-inch pipe and a $P_d$ of 15.21 ft/s, rip-rap type L should be used.

$\rightarrow D_{50} =$ 9 inches (0.75 ft)

* Based on the 30-inch pipe and a $P_d$ of 10.49 ft/s, rip-rap type L should be used.

$\rightarrow D_{50} =$ 9 inches (0.75 ft)

$$T = 1.75 (D_{50})$$

$$= 1.75 (0.75 \text{ ft}) = 1.31 \text{ ft} \ (1.31 \text{ ft})$$

$$L = 4 D$$

$$= 4 (3.5 \text{ ft}) = 14 \text{ ft} \ (10 \text{ ft})$$

$$L = (D)^{1/2} \left( \frac{V}{2} \right)$$

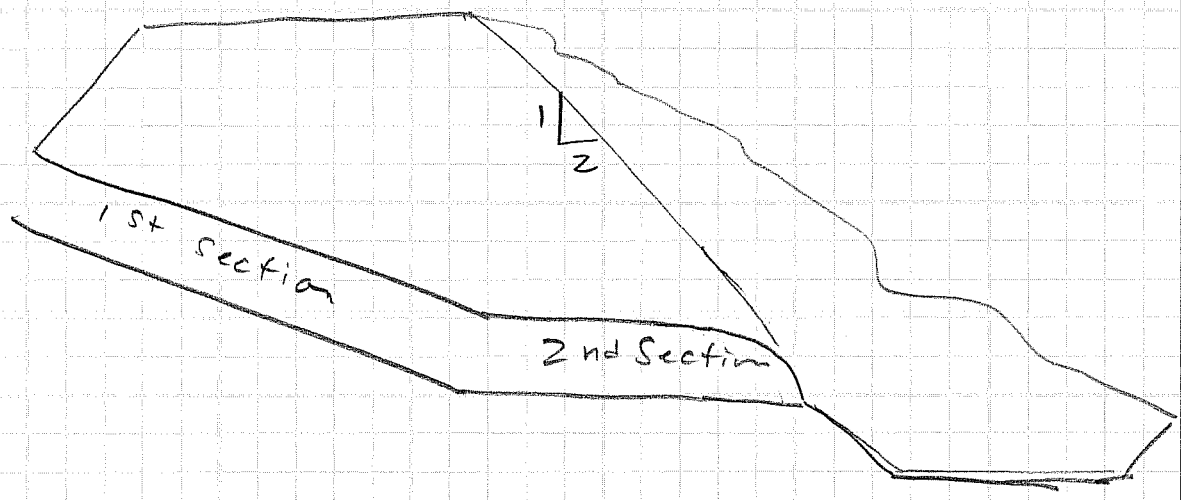
$$= (3.5 \text{ ft})^{1/2} \left( \frac{14.05 \text{ ft/s}}{2} \right) = 8.90 \text{ ft} \ (7.04 \text{ ft})$$

$$L = 14 \text{ ft} \ (10 \text{ ft})$$

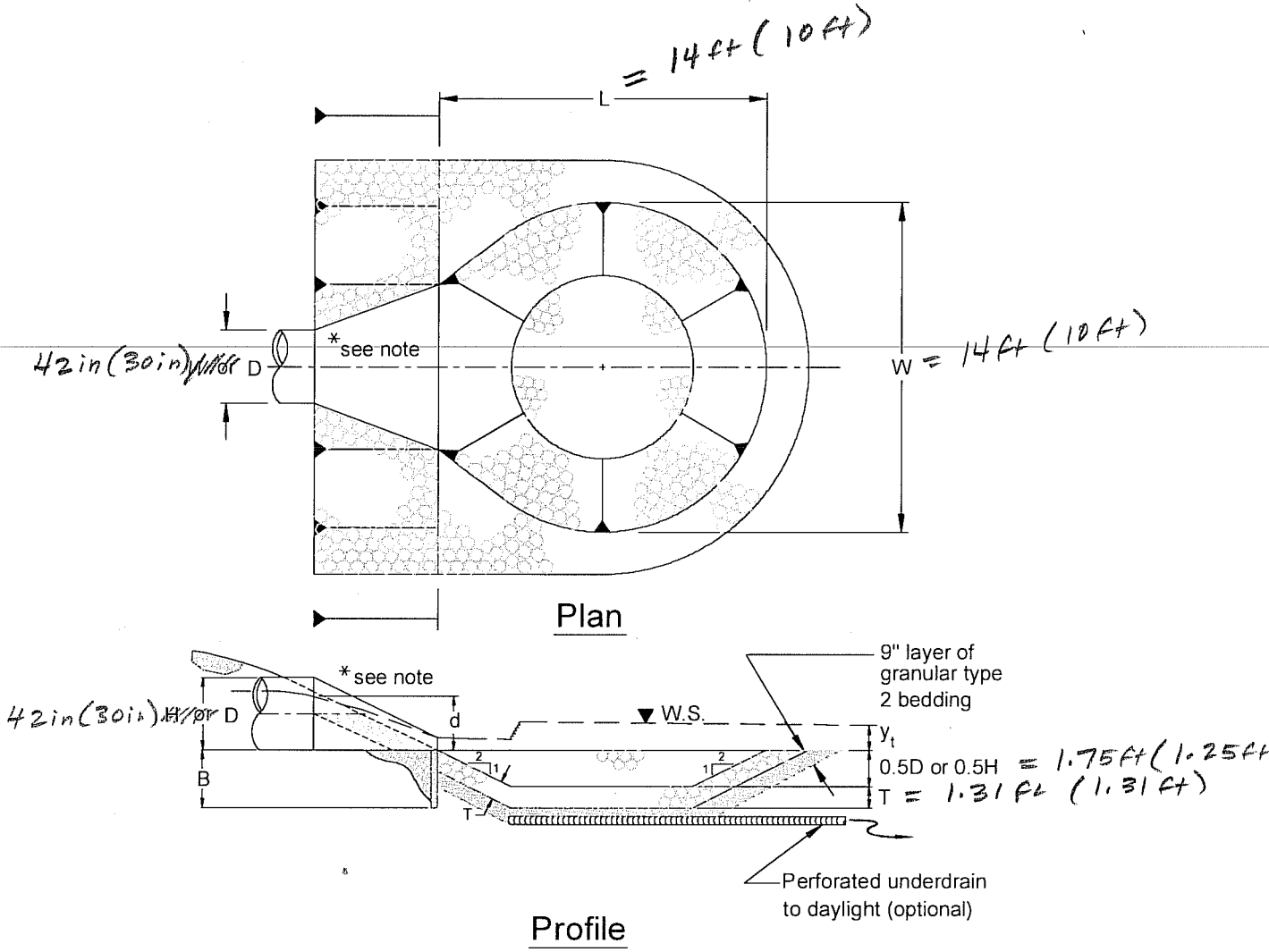
$$W = 4 D$$

$$= 4 (3.5 \text{ ft}) = 14 \text{ ft} \ (10 \text{ ft})$$

- Refer to page HS-76 for typical rip-rap apron outlet.
- In order to maintain the flat bottom for the rip-rap apron, a change in grade of the outlet pipes may require a deflection when going under the highway (see drawing). The second section of pipe should be installed with a slope of 0.16 ft/ft (CP-2) and 0.08 ft/ft (UDC-1) or less.



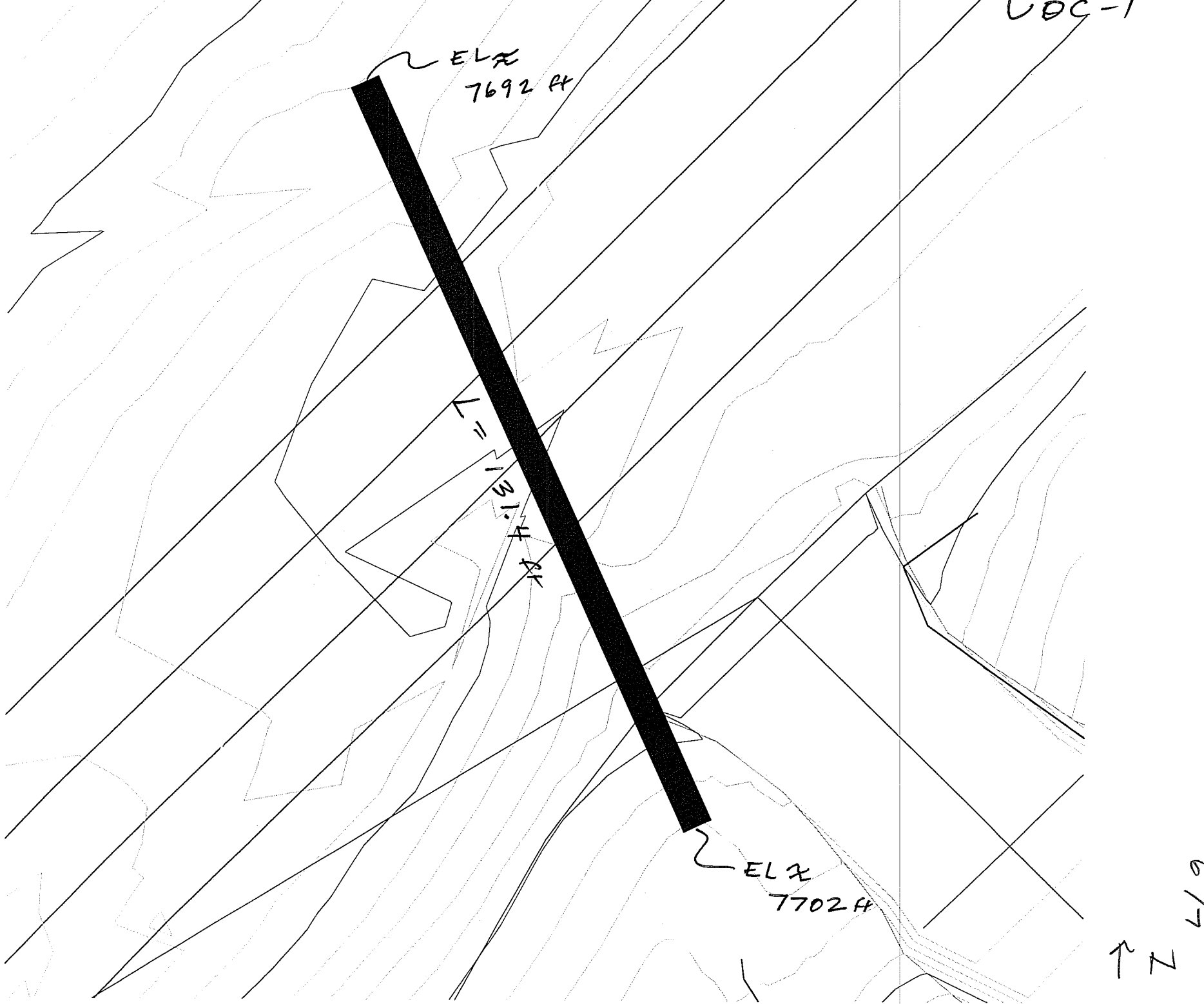

SPECIAL NOTE:
ENERGY DISSIPATION POOL WILL BE COORDINATED WITH UDOT. IF INSUFFICIENT ROW CAN BE UTILIZED FOR CONSTRUCTION, AN ALTERNATIVE WILL BE WORKED OUT WHEREIN A CONCRETE ENERGY DISSIPATION DEVICE CAN BE USED TO MINIMIZE REQUIRED AREA.




* Note: For rectangular conduits use a standard design for a headwall with wingwalls, paved bottom between the wingwalls, with an end cutoff wall extending to a minimum depth equal to B

**Figure HS-18A—Low Tailwater Riprap Basins for Storm Sewer Pipe Outlets—Low Tailwater Basin at Pipe Outlets**

(Stevens and Urbonas 1996)


LOC-1
EL≈
7692 ft
L = 1,400 ft
EL≈
7702 ft
N

CP-2

386
7658.38
TOP 36IN CMP
FL ≈ 7655.45 ft
L = 74.1 ft
390
7667.61
FL
389
7670.54
TOP 36IN CMP
N

## APPENDIX 17.F
Corrugated Metal Pipe

*Corrugated metal pipe* (CMP, also known as *corrugated steel pipe*) is frequently used for culverts. Pipe is made from corrugated sheets of galvanized steel that are rolled and riveted together along a longitudinal seam. Aluminized steel may also be used in certain ranges of soil pH. Standard round pipe diameters range from 8 to 96 in (200 to 2450 mm). Metric dimensions of standard diameters are usually rounded to the nearest 25 or 50 mm (e.g., a 42 in culvert would be specified as a 1050 mm culvert, not 1067 mm).

Larger and noncircular culverts can be created out of curved steel plate. Standard section lengths are 10 to 20 ft (3 to 6 m). Though most corrugations are transverse (i.e., annular), helical corrugations are also used. Metal gages of 8, 10, 12, 14, and 16 are commonly used, depending on the depth of burial.

The most common corrugated steel pipe has transverse corrugations that are 1/2 in (13 mm) deep and 2 2/3 in (68 mm) from crest to crest. These are referred to as "2 1/2 inch" or "68 × 13" corrugations. For larger culverts, corrugations with a 2 in (25 mm) depth and 3, 5, and 6 in (76, 125, or 152 mm) pitches are used. Plate-based products using 6 in by 2 in (152 mm by 51 mm) corrugations are known as *structural plate corrugated steel pipe* (SPCSP) and *multiplate* after the trade-named product "Multi-Plate™."

The flow area for circular culverts is based on the nominal culvert diameter, regardless of the gage of the plate metal used to construct the pipe. Flow area is calculated to (at most) three significant digits.

A Hazen-Williams coefficient, $C$, of 60 is typically used with all sizes of corrugated pipe. Values of $C$ and Manning's constant, $n$, for corrugated pipe are generally not affected by age. *Design Charts for Open Channel Flow* (U.S. Department of Transportation, 1979) recommends a Manning constant of $n = 0.024$ for all cases. The U.S. Department of the Interior recommends the following values. For standard (2 2/3 in by 1/2 in or 68 mm by 13 mm) corrugated pipe with the diameters given: 12 in (457 mm), 0.027; 24 in (610 mm), 0.025; 36 to 48 in (914 to 1219 mm), 0.024; 60 to 84 in (1524 to 2134 mm), 0.023; 96 in (2438 mm), 0.022. For (6 in by 2 in or 152 mm by 51 mm) multiplate construction with the diameters given: 5 to 6 ft (1.5 to 1.8 m), 0.034; 7 to 8 ft (2.1 to 2.4 m), 0.33; 9 to 11 ft (2.7 to 3.3 m), 0.32; 12 to 13 ft (3.6 to 3.9 m), 0.31; 14 to 15 (4.2 to 4.5 m), 0.030; 16 to 18 ft (4.8 to 5.4 m), 0.029; 19 to 20 ft (5.8 to 6.0 m), 0.028; 21 to 22 ft (6.3 to 6.6 m), 0.027.

If the inside of the corrugated pipe has been asphalted completely smooth 360° circumferentially, Manning's $n$ ranges from 0.009 to 0.011. For culverts with 40% asphalted inverts, $n = 0.019$. For other percentages of paved invert, the resulting value is proportional to the percentage and the values normally corresponding to that diameter pipe. For field-bolted corrugated metal pipe arches, $n = 0.025$.

It is also possible to calculate the Darcy friction loss if the corrugation depth, 0.5 in (13 mm) for standard corrugations and 2.0 in (51 mm) for multiplate, is taken as the specific roughness.

Ref: Civil Engineering Reference Manual, 2006

Support Material

accumulation at the upstream row of baffles.

Flow entering the chute should be well distributed laterally across the width of the chute. The velocity should be below critical velocity at the crest of the chute. To insure low velocities at the upstream end of the chute, it may be necessary to provide a short energy dissipating pool. The sequent or conjugate depth in the approach basin should be maintained to prevent jump sweep-out, but the basin length may be considerably less than a conventional hydraulic jump basin since the primary purpose of this pool is only to reduce the average entrance velocity. A basin length of twice the sequent depth will usually provide ample basin length. The end check of the pool may be used as the crest of the chute as shown in Figure HS-17.

## 3.4 Low Tailwater Basins

### 3.4.1 General

The design of low tailwater riprap basins for storm sewer pipe outlets and some culverts is necessary when the receiving channel may have little or no flow and uncontrolled pipe velocities would create erosional problems in the channel. Design criteria are provided in Figures HS-18a through HS-20.

### 3.4.2 Objective

By providing a low tailwater basin at the end of a storm sewer conduit or culvert, the kinetic energy of the discharge is dissipated under controlled conditions without causing scour at the channel bottom. Photograph HS-12 shows a representative low tailwater basin.

### 3.4.3 Low Tailwater Basin Design

For storm sewers, low tailwater is defined as being equal to or less than ⅓ of the storm sewer height, that is:

$$y_t \leq \frac{D}{3} \quad \text{or} \quad y_t \leq \frac{H}{3}$$

in which:

$y_t$ = tailwater depth at design

$D$ = diameter of circular pipe (ft)

$H$ = height of rectangular pipe (ft)

#### 3.4.3.1 Finding Flow Depth and Velocity of Storm Sewer Pipe Outlets

The first step in the design of a scour protection basin at the outlet of a storm sewer is to find the depth and velocity of flow at the outlet. Pipe-full flow can be found using Manning's equation and the pipe-full velocity can be found using the well-known and standard continuity equation. Namely,

$$Q_{full} = \frac{1.49}{n} A_{full} \left(R_{full}\right)^{2/3} S_o^{1/2}$$

in which:

$Q_{full}$ = pipe full discharge at its slope (cfs)

$n$ = Manning's $n$ for the pipe full depth

$A_{full}$ = cross-sectional area of the pipe ($ft^2$)

$S_o$ = longitudinal slope of the pipe (ft/ft)

$R$ = hydraulic radius of the pipe flowing full, ft [$R_{full} = D/4$ for circular pipes, $R_{full} = A_{full}/(2H + 2w)$ for rectangular pipes, where $D$ = diameter of a circular conduit, $H$ = height of a rectangular conduit, and $w$ = width of a rectangular conduit (ft)]

Then,

$$V_{full} = Q_{full} / A_{full}$$

In which:

$V_{full}$ = flow velocity of the pipe flowing full (ft/sec)

The normal depth of flow, $d$, and the velocity at that depth in a conduit can be found with the aid of Figure HS-18b. Using the known design discharge, $Q$, and the calculated pipe-full discharge, $Q_{full}$, enter Figure HS-18b with the value of $Q/Q_{full}$ and find $d/D$ for a circular pipe of $d/H$ for a rectangular pipe.

Compare the value of this $d/D$ (or $d/H$) with that obtained from Figure HS-19 using the Froude parameter, namely,

$$Q/D^{2.5} \quad \text{or} \quad Q/\left(wH^{1/5}\right)$$

Choose the smaller of the two ($d/D$ or $d/H$) ratios to calculate the flow depth at the end of the pipe, namely,

$$d = D(d/D) \quad \text{or} \quad d = H(d/H)$$

Again, enter Figure HS-18b using the smaller $d/D$ (or $d/H$) ratio to find the $A/A_{full}$ ratio. Use this to calculate the area of flow at the end of the pipe, namely,

$$A = \left(A/A_{full}\right)A_{full}$$

in which:

$A$ = area of the design flow in the end of the pipe ($ft^2$)

Finally,

$$V = Q/A$$

in which:

$V$ = design flow velocity at the pipe outlet (ft/sec)

### 3.4.3.2 Riprap Size

For the design velocity, use Figure HS-20 to find the size and type of the riprap to use in the scour protection basin downstream of the pipe outlet (i.e., B18, H, M or L). First, calculate the riprap sizing design parameter, $P_d$, namely,

$$P_d = \left(V^2 + gd\right)^{1/2} \qquad \text{(HS-16)}$$

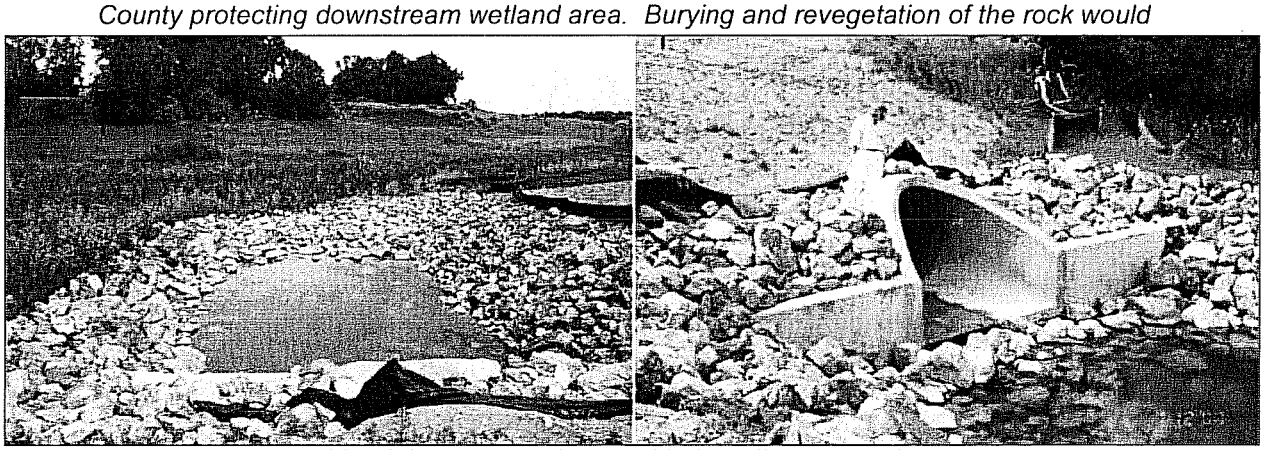
in which:

$V$ = design flow velocity at pipe outlet (ft/sec)

$g$ = acceleration due to gravity = 32.2 ft/$sec^2$

$d$ = design depth of flow at pipe outlet (ft)

*Photograph HS-12—Upstream and downstream views of a low tailwater basin in Douglas County protecting downstream wetland area. Burying and revegetation of the rock would blend the structure better with the adjacent terrain.*



When the riprap sizing design parameter indicates conditions that place the design above the Type H riprap line in Figure HS-20, use B18, or larger, grouted boulders. An alternative to a grouted boulder or loose riprap basin is to use the standard USBR Basin VI, as described in Section 3.2.

After the riprap size has been selected, the minimum thickness of the riprap layer, $T$, in feet, in the basin is set at:

$$T = 1.75 D_{50} \qquad \text{(HS-17)}$$

in which:

$D_{50}$ = the median size of the riprap (see Table HS-9.)

**Table HS-9—Median (i.e., $D_{50}$) Size of District's Riprap**

| Riprap Type | $D_{50}$—Median Rock Size (inches) |
|---|---|
| L | 9 |
| M | 12 |
| H | 18 |
| B18 | 18 (grouted) |

### 3.4.3.3 Basin Length

The minimum length of the basin, $L$, in Figure HS-18a, is defined as being the greater of the following lengths:

for circular pipe,

$$L = 4D \quad \text{or} \quad L = (D)^{1/2}\left(\frac{V}{2}\right) \qquad \text{(HS-18)}$$

for rectangular pipe,

$$L = 4H \quad \text{or} \quad L = (H)^{1/2}\left(\frac{V}{2}\right) \qquad \text{(HS-19)}$$

in which:

$L$ = basin length (Figure HS-18a)

$H$ = height of rectangular conduit

$V$ = design flow velocity at outlet

$D$ = diameter of circular conduit

#### 3.4.3.4 Basin Width

The minimum width, $W$, of the basin downstream of the pipe's flared end section is set as follows:

for circular pipes,

$$W = 4D \qquad \text{(HS-20)}$$

for rectangular pipe,

$$W = w + 4H \qquad \text{(HS-21)}$$

in which:

$W$ = basin width (Figure HS-18a)

$D$ = diameter of circular conduit

$w$ = width of rectangular conduit

#### 3.4.3.5 Other Design Requirements

All slopes in the pre-shaped riprapped basin are 2H to 1V.

Provide pipe joint fasteners and a structural concrete cutoff wall at the end of the flared end section for a circular pipe or a headwall with wingwalls and a paved bottom between the walls, both with a cutoff wall that extends down to a depth of

$$B = \frac{D}{2} + T \quad \text{or} \quad B = \frac{H}{2} + T \qquad \text{(HS-22)}$$

in which:

$B$ = cutoff wall depth

$D$ = diameter of circular conduit

$T$ = Equation HS-17

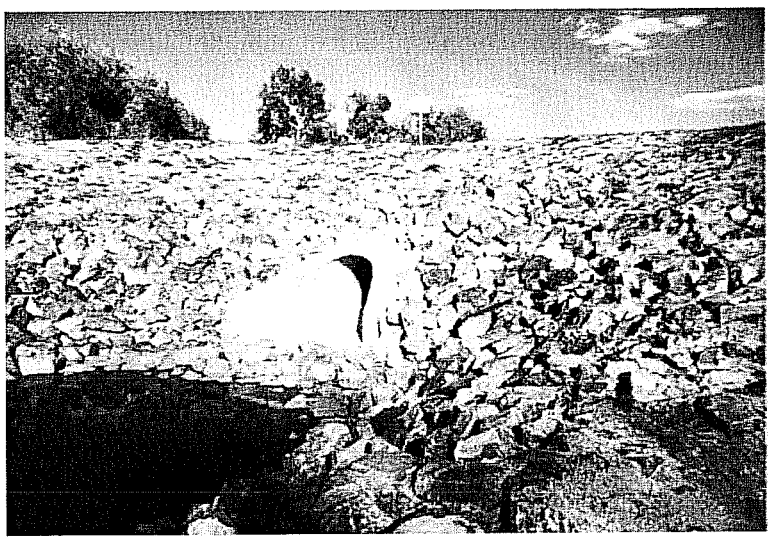
The riprap must be extended up the outlet embankment's slope to the mid-pipe level.

## 3.5 Culvert Outlets

Culvert outlets in the Denver area represent a persistent problem because of concentrated discharges and turbulence that are not fully controlled prior to the flow reaching the standard downstream channel configuration. Too often the designer's efforts are focused on the culvert inlet and the culvert sizing with the outlet hydraulics receiving only passing attention. A culvert design is not complete until adequate attention is paid to the outlet hydraulics and proper stilling of the design flow.

Culvert outlet energy dissipator and flow spreading may require special structures downstream of the culvert outlet to limit local scour, general stream degradation, and troublesome head cutting.

Local scour is typified by a scour hole produced at the culvert outlet. This is the result of high exit velocities, and the effects extend only a limited distance downstream. Coarse material scoured from the circular or elongated hole is deposited immediately downstream, often forming a low bar. Finer material is transported further downstream. The dimensions of the scour hole change due to sedimentation during low flows and the varying erosive effects of storm events. The scour hole is generally deepest during passage of the peak flow. Methods for predicting scour hole dimensions are found in HEC No. 14 (Corry, et al. 1975).



*Photograph HS-13—Culvert outlets are often left unprotected causing downstream degradation. The designer's job is not complete until the outlet hydraulic provisions are made. Burying of riprap and revegetation of the surface would have blended this structure better into the adjacent landscape.*

General storm degradation, or head cutting, can be a phenomenon independent of culvert performance. Natural causes produce a lowering of the streambed over time. The identification of a degrading stream is an essential part of the original site investigation. However, high-energy discharges from a culvert often cause stream degradation that is similar to the former, though limited in distance. Both types of scour can occur simultaneously at a culvert outlet.

As described in HEC No. 14, various measures exist to control culvert outlet flow, as listed below. It is beyond the scope of this *Manual* to provide information about these controls, but the District encourages their proper application and design.

1. Colorado State University rigid boundary basin

2. Tumbling flow rectangular section
3. Increased resistance—box culverts
4. Roughness elements—circular culverts
5. USBR Type II
6. USBR Type III
7. USBR Type IV
8. Contra Costa
9. Hook-type energy dissipator
10. Straight drop structure
11. Riprap basins

In addition, one might consider an extended culvert apron with one or more rows of baffles, or using large rows of offset racks set downstream of the culvert outlet on a bed of suitable riprap without a basin, but with an adequate tailwater depth, all designed in accordance with the criteria given in Section 2.0 of this chapter.

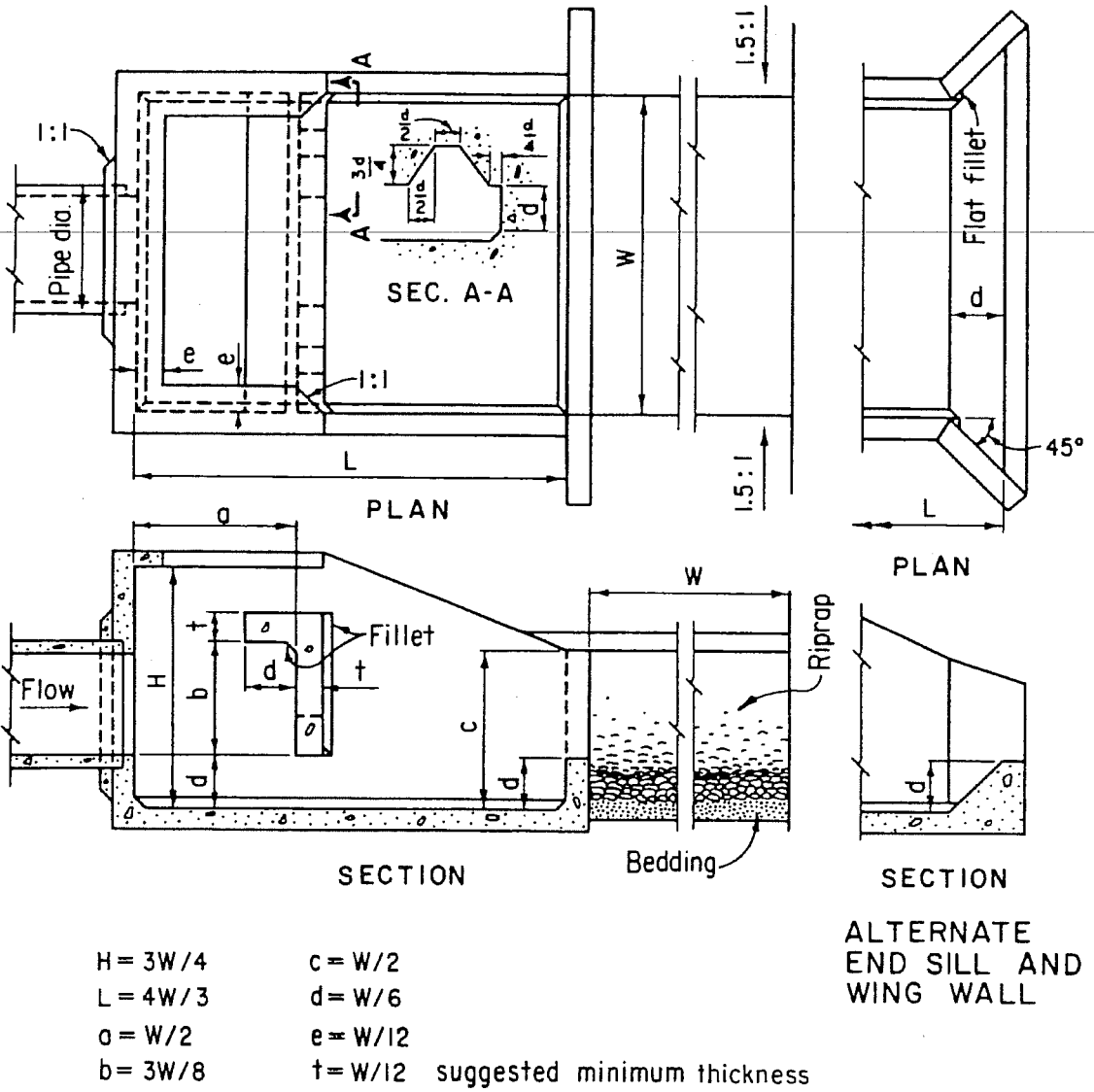
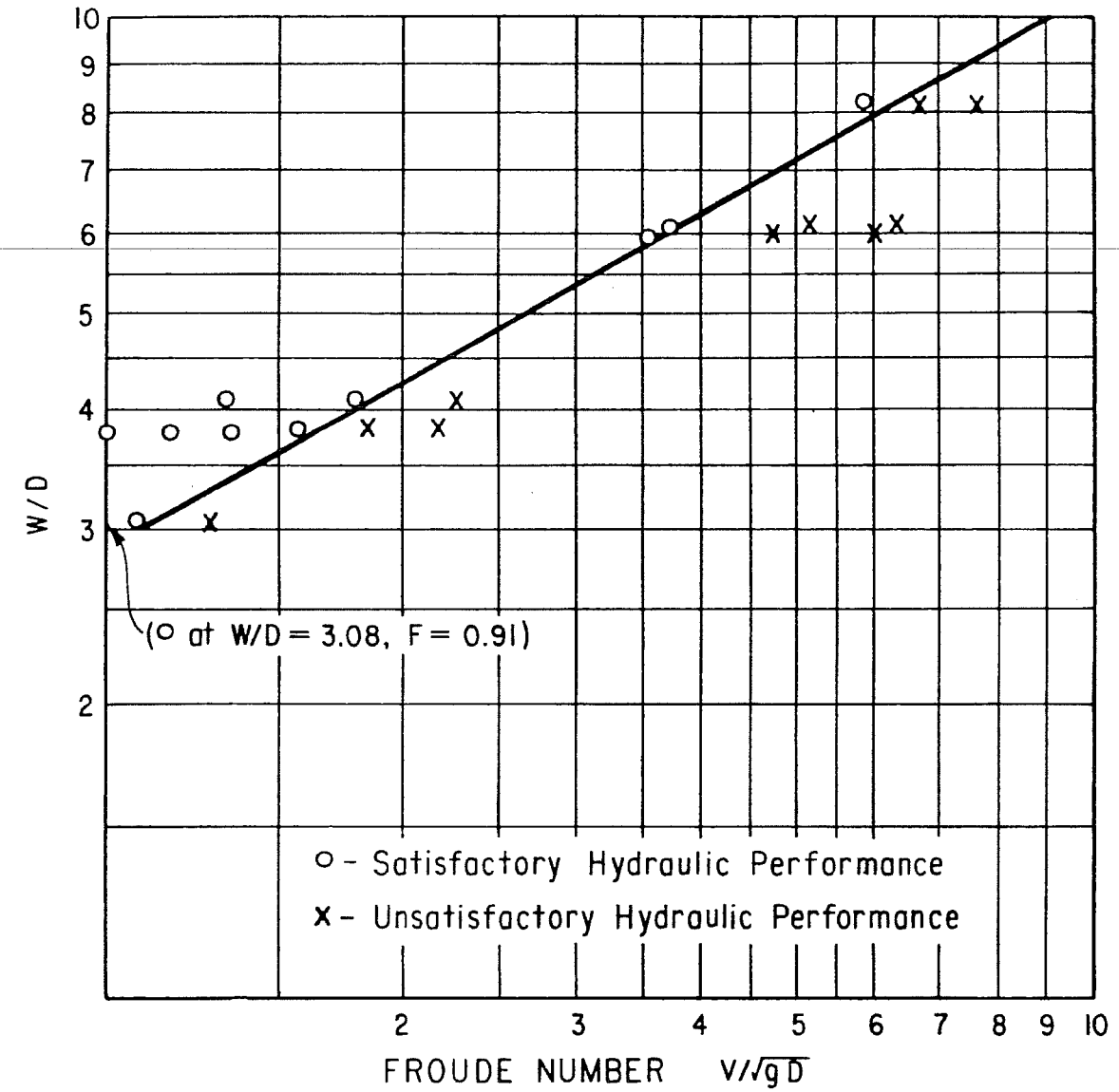
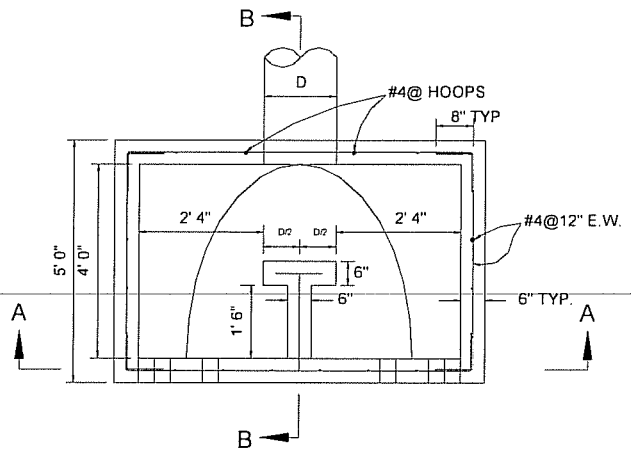



**Figure HS-14—General Design Dimensions Impact Stilling Basin (USBR VI)**

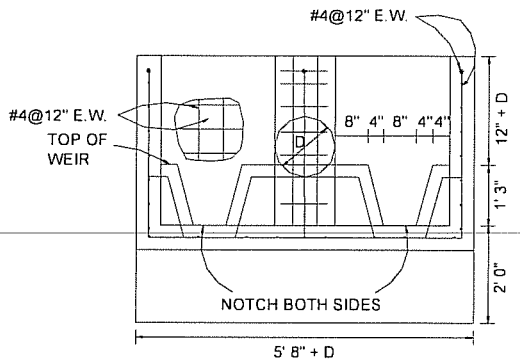



"W" is the inside width of the basin.
"D" represents the depth of flow entering the basin and is the square root of the flow area at the conduit outlet.
"V" is the velocity of the incoming flow.
The tailwater depth is uncontrolled.

**Figure HS-15—Basin Width Diagram for an Impact Stilling Basin (USBR VI)**



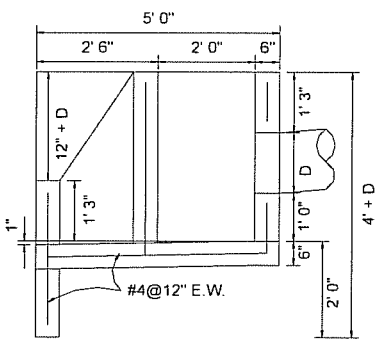

PLAN VIEW




SECTION A-A

CONCRETE DISSIPATOR NOTES

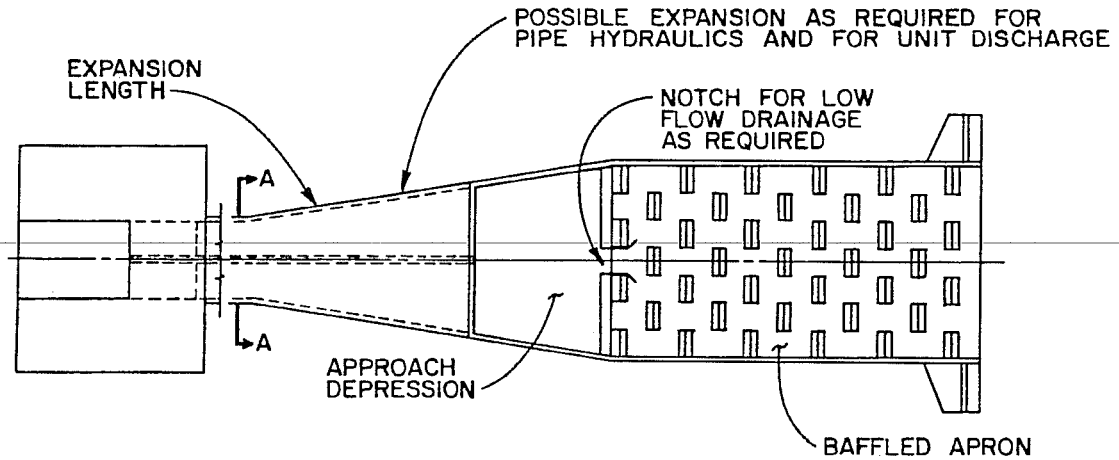
1. ALL CONCRETE SHALL BE CLASS A UNLESS OTHERWISE APPROVED BY ENGINEER.
2. ALL REINFORCING STEEL SHALL CONFORM TO ATSM A 615, GRADE 60
3. 8 INCHES OF TYPE II BEDDING SHALL BE PLACED UNDER ALL STRUCTURAL SLAB AREAS & COMPACTED PRIOR TO CONCRETE POUR
4. ALL REINFORCING SHALL HAVE 3" CLEAR COVER



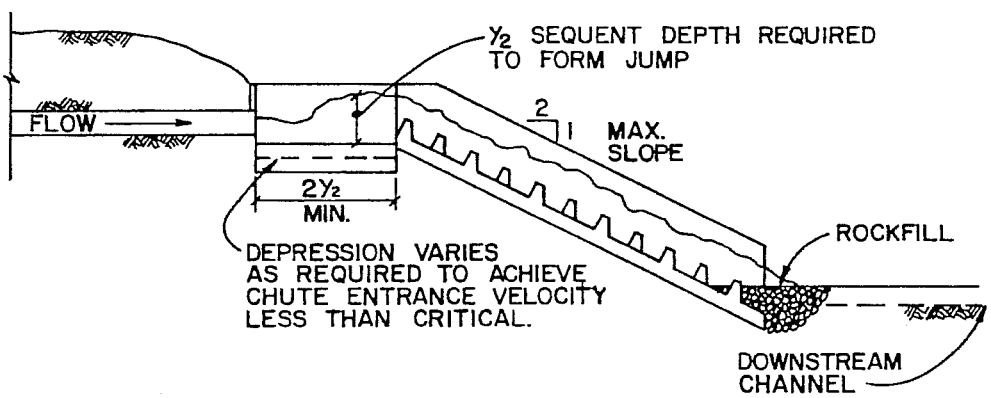

SECTION B-B

ENERGY DISSIPATOR FOR PIPE OULET DIAMETERS ≤ 36"

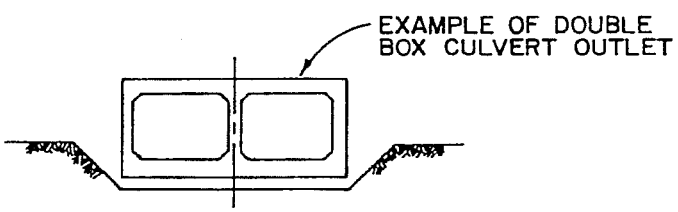
**Figure HS-16—Modifications of Impact Stilling Basin to Allow Basin Drainage for Urban Applications**




PLAN




PROFILE




SECTION A-A

**Figure HS-17—Baffle Chute Pipe Outlet**

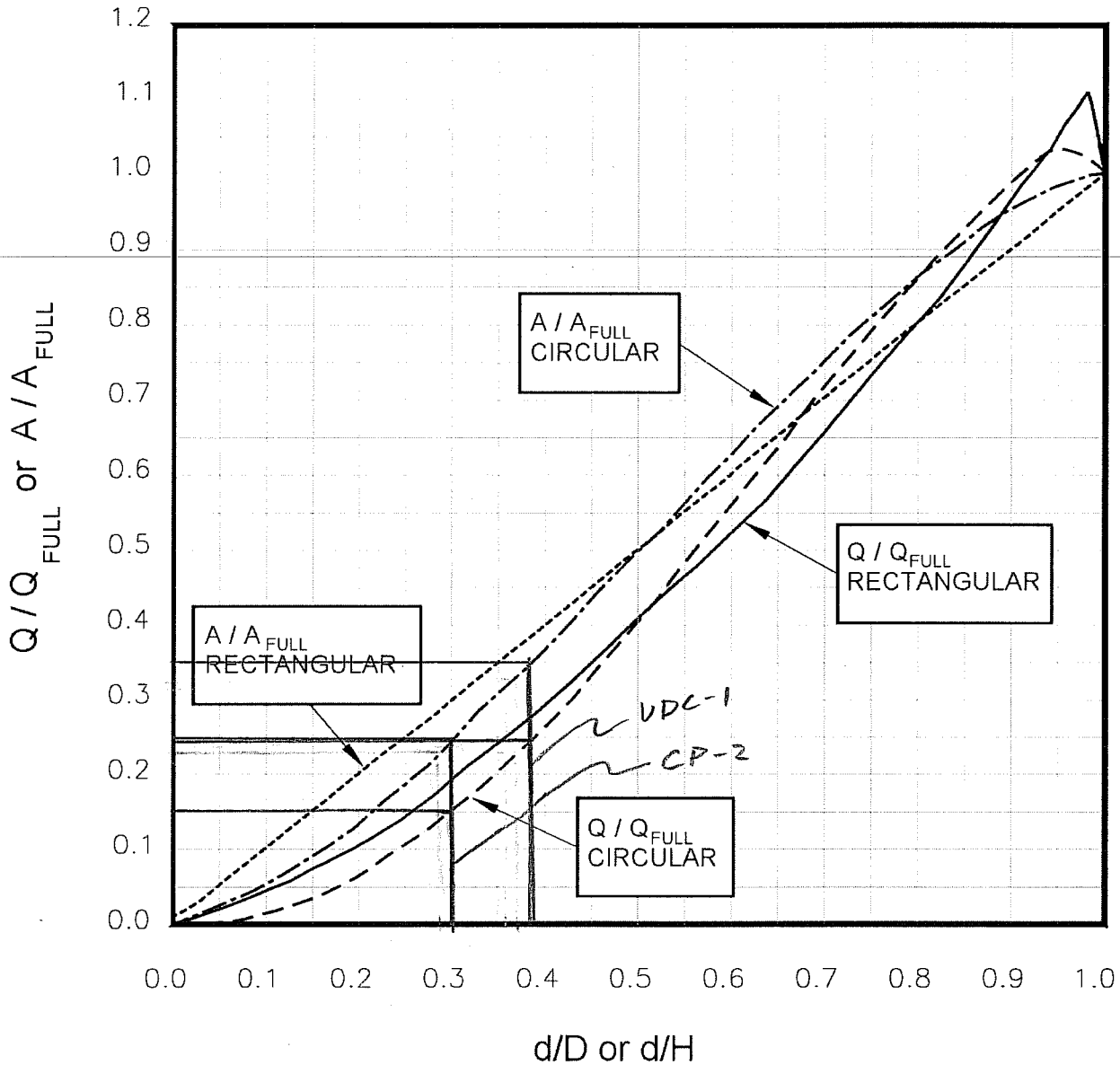



**Figure HS-18b—Low Tailwater Riprap Basins for Storm Sewer Pipe Outlets—Discharge and Flow Area Relationships for Circular and Rectangular Pipes**

(Ratios for Flow Based on Manning's $n$ Varying With Depth)
(Stevens and Urbonas 1996)

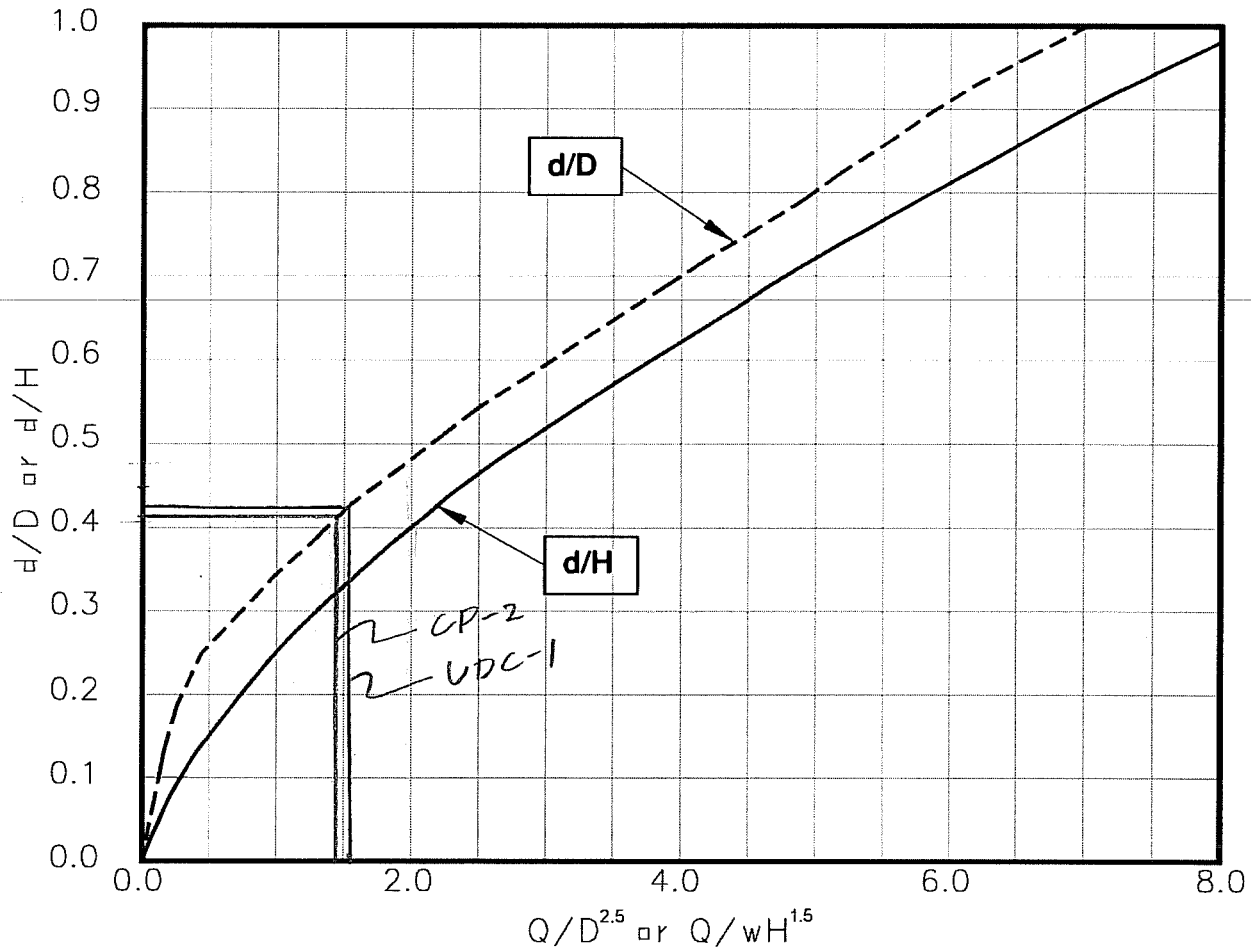



**Figure HS-19—Low Tailwater Riprap Basins for Storm Sewer Pipe Outlets—Brink Depth for Horizontal Pipe Outlets**

(Stevens and Urbonas 1996)

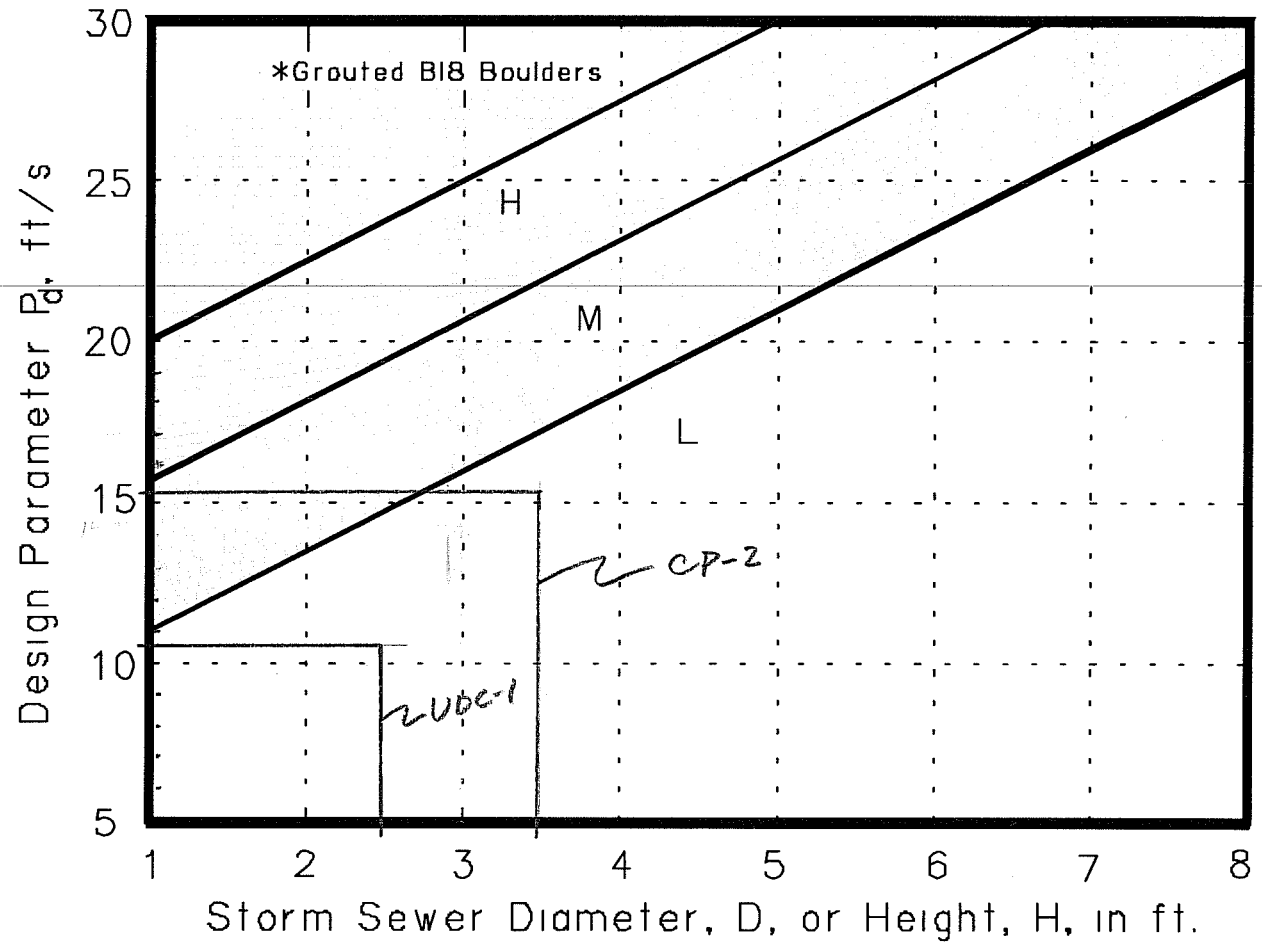
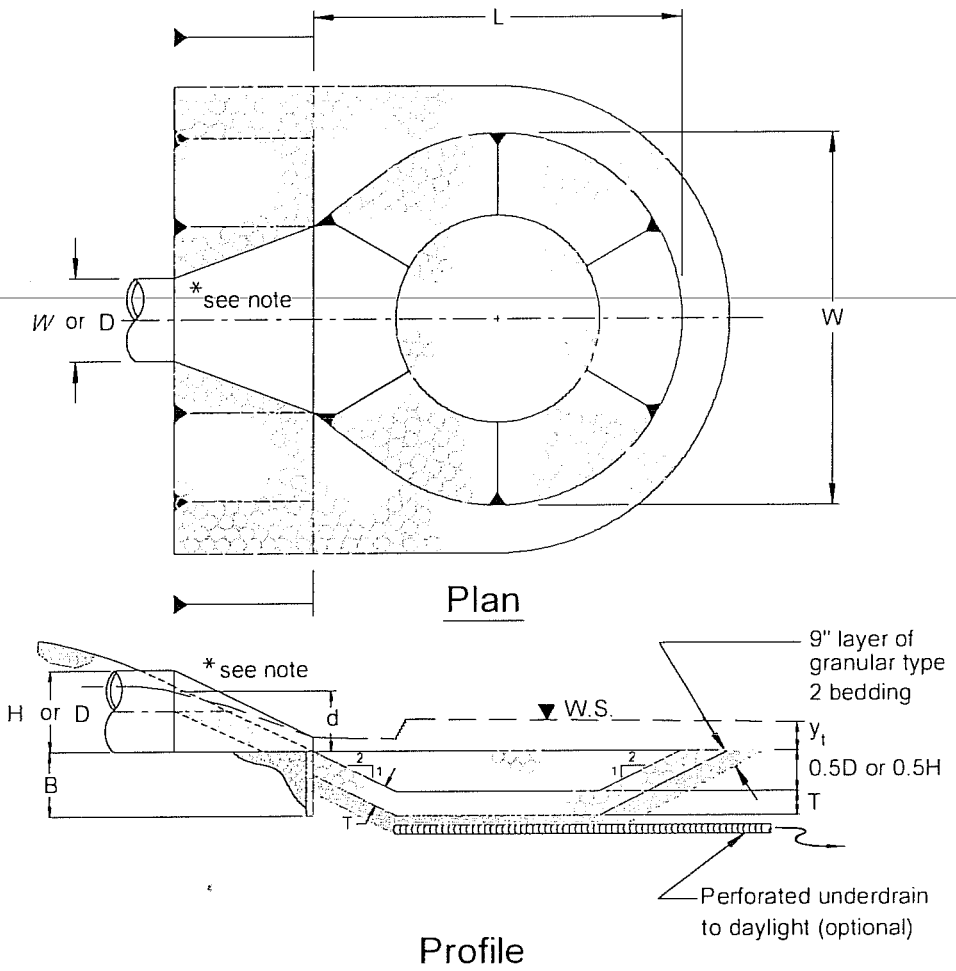



**Figure HS-20—Low Tailwater Riprap Basins for Storm Sewer Pipe Outlets—Riprap Selection Chart for Low Tailwater Basin at Pipe Outlet**

(Stevens and Urbonas 1996)




* Note: For rectangular conduits use a standard design for a headwall with wingwalls, paved bottom between the wingwalls, with an end cutoff wall extending to a minimum depth equal to B

**Figure HS-18A—Low Tailwater Riprap Basins for Storm Sewer Pipe Outlets—Low Tailwater Basin at Pipe Outlets**

(Stevens and Urbonas 1996)

Exhibit 17

# The Cumulative Hydrologic Impact Assessment (CHIA) for the Kinney No. 2 Mine can be viewed on the UDOGM web site http://linux1.ogm.utah.gov/WebStuff/wwwroot/coal/chias.php.

# Exhibit 18
# Bonding and Insurance Information

## Reclamation Bond Calculations

## Reclamation Bond Documents

## Insurance Information

Bond Amount

**Bonding Calculations**

| | | |
|---|---|---|
| **Direct Costs** | | |
| Subtotal Demolition & Removal | $862,829 | |
| Subtotal Earthwork - Backfill and Grading | $616,846 | |
| Subtotal Revegetation | $143,239 | |
| **Subtotal Direct Costs** | **$1,622,914** | |
| | | |
| **Indirect Costs** | | |
| Mobilization /Demobilization | $162,291 | 10% |
| Contingencies | $81,146 | 5.00% |
| Engineering Redesign | $40,573 | 2.50% |
| Main Office Expense | $110,358 | 6.80% |
| Project Management Fee | $40,573 | 2.50% |
| **Subtotal Indirect Costs** | **$434,941** | 26.80% |
| **Total Costs** | **$2,057,855** | |
| | | |
| Escalation | | 0.0178 |
| No. of Years | | 5 |
| Escalation | $189,786 | |
| Reclamation Cost Escalated (2023) | $2,247,641 | |
| Reclamation Cost Rounded to Nearest $1000 | $2,248,000 | |
| Bond Amount In 2011 Dollars + 15% | $2,585,200 | |
| Difference Between Cost Estimate and Bond | $337,200 | |

11/19/2018

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Shop Warehouse Steel Bldg. | | | | | | | | | | | | | | | | | | | $187,445 | 1 |
| 2 | Ventilation Fan | | | | | | | | | | | | | | | | | | | $7,320 | 2 |
| 3 | Electrical Substation | | | | | | | | | | | | | | | | | | | $14,723 | 3 |
| 4 | Power Poles | | | | | | | | | | | | | | | | | | | $16,472 | 4 |
| 5 | Portals | | | | | | | | | | | | | | | | | | | $30,320 | 5 |
| 6 | Mine Belt 11 (MB1) | | | | | | | | | | | | | | | | | | | $12,711 | 6 |
| 7 | Stacking Tubes 2 Ea | | | | | | | | | | | | | | | | | | | $1,226 | 7 |
| 8 | Conveyors SB-1, SB-2,SB-3 & SB-4 | | | | | | | | | | | | | | | | | | | $123,615 | 8 |
| 9 | Fueling Facility | | | | | | | | | | | | | | | | | | | $11,279 | 9 |
| 10 | Truck Loadout | | | | | | | | | | | | | | | | | | | $16,903 | 10 |
| 11 | Storage Sheds - 5 EA | | | | | | | | | | | | | | | | | | | $113,680 | 11 |
| 12 | Transfer Tower Belt MB-1 to SB-1 | | | | | | | | | | | | | | | | | | | $14,551 | 12 |
| 13 | Crushing & Screening Building | | | | | | | | | | | | | | | | | | | $90,949 | 13 |
| 14 | Office Bathhouse Building | | | | | | | | | | | | | | | | | | | $91,281 | 14 |
| 15 | Explosives Magazines | | | | | | | | | | | | | | | | | | | $194 | 15 |
| 16 | Inlets-Storm Drain & Cleanout Boxes | | | | | | | | | | | | | | | | | | | $40 | 16 |
| 17 | Culverts | | | | | | | | | | | | | | | | | | | $6,760 | 17 |
| 18 | Water Monitoring Wells | | | | | | | | | | | | | | | | | | | $39,503 | 18 |
| 19 | Reclaim Tunnel | | | | | | | | | | | | | | | | | | | $22,419 | 19 |
| 20 | Conveyor Supports | | | | | | | | | | | | | | | | | | | $179 | 20 |
| 21 | WaterTank Steel & PVC Water Line | | | | | | | | | | | | | | | | | | | $6,453 | 21 |
| 22 | Parking Lot and Access Road Pavement | | | | | | | | | | | | | | | | | | | $54,806 | 22 |
| | Total | | | | | | | | | | | | | | | | | | | $862,829 | |

| Ref. | Description | Materials | Means Line Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 01 | Shop Warehouse Steel Bldg. | | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | Steel Bld. Large | 024116130020 | 0.36 | /CF | 175 | 75 | 32 | | | | | | | | | | 420000 | CF | $151,200 |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | 0.35 | 5444 | CY | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel - ECDC | Building materials-sht rock & etc. | ECDC | 11.40 | ton | 175 | 75 | 32 | | | | | 1 | | | Ton | 0.03 | 163 | | $1,862 |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | | 2 Trips/Day, 79 mi. rnd. trip = 289 Trips | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | 5444 CY (7240 tons) 4 axle, 25 ton, 18 CY | 015433205310 | 6.10 | CY | | | | | | | | | | | | | 5444 | CY | $33,235 |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal at Salvage Yard | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $186,297 |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | Concrete demolition - 2.5 CY Excavator | 015433200320 | 4.38 | /CY | 175 | 25 | 0.5 | | | | | | | | | 1.3 | 105 | CY | $459 |
| | Concrete's Vol. Demolished | w/ hydraulic hammer (@400 CY/shift) | 015433200347 | | | | | | | | | | | | | | | | | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | 175 | 25 | 0.5 | | | | | | | | | 1.3 | 105 | CY | $328 |
| | Concrete foundation on site at toe of cuts | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip | 312323201014 | 3.43 | LCY | | | | | | | | | | | | | 105 | LCY | $360 |
| | | On site disposal at toe of cut | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $1,148 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $187,445 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 02 | Ventilation Fan | | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | Steel Bld. Large | 024116130020 | 0.36 | /CF | 60 | 20 | 12 | | | | | | | | | | 14400 | CF | $5,184 |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | 0.35 | 187 | CY | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel ECDC | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | | 2 Trips/Day, 79 mi. rnd. trip = 11 Trips | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | 187 CY (291 tons) 4 axle, 25 ton, 18 CY | 015433205310 | 6.76 | CY | | | | | | | | | | | | | 187 | CY | $1,265 |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal at Salvage Yard | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $6,449 |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | Concrete demolition - 2.5 CY Excavator | 015433200320 | 4.38 | /CY | 60 | 20 | 2 | | | | | | | | | | 89 | CY | $389 |
| | Concrete's Vol. Demolished | w/ hydraulic hammer (@400 CY/shift) | 015433200347 | | | | | | | | | | | | | | 1.3 | 116 | CY | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | | | | | | | | | | | | | 116 | CY | $363 |
| | Conc foundation on site at toe of cuts | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip | 312323201014 | 3.43 | LCY | | | | | | | | | | | | | 116 | LCY | $119 |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $871 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $7,320 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 05 | Electrical Substation | | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Steel | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Steel Structure | Steel Removal | 024116130020 | 0.36 | /CF | 25 | 25 | 12 | | | | | | | | | | 7500 | CF | $2,700 |
| | | | | | | | | | | | | | | | | | 0.35 | 97 | CY | |
| | Transformer | Electrical equipment heavy | 260505101570 | 1704 | Ea | | | | | | | | | | 2 | EA | | | | $3,408 |
| | Wire and ducting | Wire and ducting removal | 260505100700 | 35 | /LF | 200 | | | | | | | | | | LF | | 200 | LF | $7,000 |
| | Aerial Wire | Wire Removal | 260505101990 | 86 | /C.L.F. | 150 | | | | | | | | | | LF | | 1.5 | C.L.F. | $129 |
| | Chain Link Fence | Chain link remove 8'-10' | 024113601700 | 4.34 | /LF | 120 | | | | | | | | | | LF | | 120 | LF | $521 |
| | | 2 Trips/Day, 79 mi. rnd. trip = 7 trip | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | 97 CY (173 tons) 4 axle, 25 ton, 18 CY | 015433205310 | 8.30 | CY | | | | | | | | | | | | | 97 | CY | $805 |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal at Salvage Yard | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $14,563 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | Concrete demolition - 2.5 CY Excavator | 015433200320 | 4.38 | /CY | 25 | 25 | 0.67 | | | | | | | | | | 16 | CY | $70 |
| | Concrete's Vol. Demolished | w/ hydraulic hammer (@400 CY/shift) | 015433200347 | | | | | | | | | | | | | | 1.3 | 21 | CY | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | | | | | | | | | | | | | 21 | CY | $66 |
| | Concrete foundation on site at toe of cuts | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip | 312323201014 | 3.43 | LCY | | | | | | | | | | | | | 21 | LCY | $24 |
| | | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $160 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $14,723 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 06 | Power Poles | | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Steel | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Remove wire | Wire Removal | Soldier Creek | 5.43 | /LF | 1800 | | | | | | | | | | | | 1800 | LF | $9,772 |
| | Remove conduit (use wire) | Wire Removal | Soldier Creek | 5.43 | /LF | 90 | | | | | | | | | | | | 90 | LF | $489 |
| | Remove Fixtures (use poles) | Powerpole 3600'/300'= 12 poles | | 169.30 | EA | | | | | | | | | | 12 | EA | | 12 | EA | $2,032 |
| | Remove Poles | Powerpole | | 169.30 | EA | | | | | | | | | | 12 | EA | | 12 | EA | $2,032 |
| | | 2 Trips/Day, 79 mi. rnd. trip = 1 Trip | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck & Poles | 12 EA (20 tons) 4 axle, 25 ton, 18 CY | 015433205310 | 6.39 | CY | | | | | | | | | | | | | 18 | CY | $115 |
| | Disposal Costs Poles | ECDC | ECDC | 169.30 | EA | | | | | | | | | | 12 | EA | | 12 | EA | $2,032 |
| | Disposal at Salvage Yard Wire & Hardware | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $16,472 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $16,472 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 08 | Portals | 042210280650 & 042210281050 | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | Seal Portals - backfill incl. in earthwork | 042210280650 & 042210281050 | 18.95 | S.F. | 2 | 20 | 8 | | 320 | | | | | 5 | Portals | | 1600 | S.F. | $30,320 |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Steel | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $30,320 |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $30,320 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | Mine Belt 11 (MB1) | 120' long | | | | | | | | | | 300LB/Ft | | | | | | | | |
| | Structure's Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Steel | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | 300LB/LF X 120'/2000LF/TON=18 tons | | 699.77 | /ton | 120 | | | | | | 300 | LB/LF | | | Ton | | 18 | Ton | $12,596 |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | | 2 Trips/Day, 79 mi. rnd. Trip = 1 Trips | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | 13.5 CY (18 tons) 4 axle, 25 ton, 18 CY | 015433205310 | 8.52 | CY | | | | | | | | | | | | | 13.5 | CY | $115 |
| | Disposal at Salvage Yard | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $12,711 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $12,711 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | Stacking Tubes 2 Ea | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | Steel Struc. 8' Dia X 55' high = 2765 CF x 2 | 024116130020 | 0.36 | /CF | | | 55 | 8 | 50.27 | 2,764.6 | | | | | | 5,529.20 | CF | $1,991 |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | 0.35 | 72 | CY | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | |
| | | 2 Trips/Day, 79 mi. rnd. trip = 4 Trips | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | 72 CY (96 tons) 4 axle, 25 ton, 18 CY | 015433205310 | 6.39 | CY | | | | | | | | | | | | 72 | CY | 460 |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | |
| | Disposal at Salvage Yard | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | $1,226 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | Conveyors SB-1, SB-2,SB-3 & SB-4 | 1170' Long | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal at Salvage Yard | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | 300lb/LF X 1170'/2000LF/TON=176 tons | | 699.77 | Ton | 1170 | | | | | | 300 | LB/LF | | | | | 175.5 | Ton | $122,810 |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | | 2 Trips/Day, 79 mi. rnd. Trip = 7 Trips | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | 132 CY (175 tons) 4 axle, 25 ton, 18 CY | 015433205310 | 6.12 | CY | | | | | | | | | | | | | 131.63 | CY | $805 |
| | Disposal at Salvage Yard | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $123,615 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $123,615 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | Fueling Facility | | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | Concrete Containment Structure | 024116130050 | 0.5 | /CF | 50 | 20 | 6 | | | | | | | | | | 6000 | CF | $3,000 |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | 0.35 | 78 | CY | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | | |
| | Haulage | 12 CY (16 Ton) Dump Truck 79 mi rnd trip | 015433205310 | 1.47 | /CY | | | | | | | | | | | | | 78 | CY | $115 |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | ECDC | ECDC | 11.29 | /TON | | | | | | | | 1 | | | Ton/CY | | 78 | Ton | $880 |
| | Subtotal | | | | | | | | | | | | | | | | | | | $3,995 |
| | Tank | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost Including piping | 5000 gal to 10000 gal tank | 130505750530 | 1575 | Ea. | | | | | | | | | | 3 | Ea | | 3 | EA | $4,725 |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs Including piping | 5000 gal to 10000 gal tank | 015433205250 | 245 | Day | | | | | | | | | | 3 | | | 3 | EA | $735 |
| | Disposal Costs | 5000 gal to 10000 gal tank | ECDC | 366.81 | Ea. | | | | | | | | | | 3 | | | 3 | EA | $1,100 |
| | Subtotal | | | | | | | | | | | | | | | | | | | $6,560 |
| | Slab Apron | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | Concrete demolition - 2.5 CY Excavator | 015433200320 | 4.38 | /CY | 50 | 20 | 0.5 | | | | | | | | FT | | 19 | CY | $83 |
| | Concrete's Vol. Demolished | w/ hydraulic hammer (@400 CY/shift) | 015433200347 | | | | | | | | | | | | | | 1.3 | 25 | CY | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | | | | | | | | | | | | | 25 | CY | $78 |
| | | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip | 312323201014 | 3.43 | LCY | | | | | | | | | | | | | 25 | LCY | $86 |
| | On site Disposal | On site disposal at toe of cut | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $247 |
| | Footings | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | Concrete demolition - 2.5 CY Excavator | 015433200320 | 4.38 | /CY | 50 | 20 | 1 | | | | | | | | FT | | 37 | CY | $162 |
| | Concrete's Vol. Demolished | w/ hydraulic hammer (@400 CY/shift) | 015433200347 | | | | | | | | | | | | | | 1.3 | 48 | CY | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | | | | | | | | | | | | | 48 | CY | $150 |
| | | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip | 312323201014 | 3.43 | LCY | | | | | | | | | | | | | 48 | LCY | $165 |
| | On site Disposal | On site disposal at toe of cut | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $477 |
| | Slab | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | Walls | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $11,279 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | Truck Loadout | 25' x 25' x 60' | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | Steel Bld. Large | 024116130020 | 0.36 | /CF | 25 | 25 | 60 | | | | | | | | | | 37500 | CF | $13,500 |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | 0.35 | 486 | CY | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | | 2 Trips/Day, 79 mi rnd trip = 27 Trips | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | 486 CY (648 tons) 4 axle 25 Ton, 18 CY | 015433205310 | 6.39 | CY | | | | | | | | | | | | | 486 | CY | $3,105 |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal at Salvage Yard | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $16,605 |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | Concrete demolition - 2.5 CY Excavator | 015433200320 | 4.38 | /CY | 25 | 25 | 1 | | | | | | | | CF | | 23 | CY | $101 |
| | Concrete's Vol. Demolished | w/ hydraulic hammer (@400 CY/shift) | 015433200347 | | | | | | | | | | | | | | 1.3 | 30 | CY | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | | | | | | | | | | | | | 30 | CY | $94 |
| | Transportation Cost - Conc. Foundation placed on site at toe of cuts | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip | 312323201014 | 3.43 | LCY | | | | | | | | | | | | | 30 | LCY | $103 |
| | Subtotal | | | | | | | | | | | | | | | | | | | $298 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $16,903 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | Storage Sheds - 5 EA | | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | Steel Bldg. Large - 3 sides/ open front | 024116130020 | 0.36 | /CF | 120 | 30 | 14 | | | | | | | | FT | | 50400 | CF | $18,144 |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | 0.35 | 653 | CY | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | | 2 Trips/Day, 79 mi rnd trip = 35 Trips | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck Drive | 653 CY (871 Tons), 4 axle, 25 Ton, 18 CY | 015433205310 | 6.16 | CY | | | | | | | | | | | | | 653 | CY | $4,025 |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal at Salvage Yard | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $22,169 |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | Concrete demolition - 2.5 CY Excavator | 015433200320 | 4.38 | /CY | 120 | 30 | 0.33 | | | | | | | | FT | | 44 | CY | $193 |
| | Concrete's Vol. Demolished | w/ hydraulic hammer (@400 CY/shift) | 015433200347 | | | | | | | | | | | | | | 1.3 | 57 | CY | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | | | | | | | | | | | | | 57 | CY | $178 |
| | Transportation Cost - Conc Foundation placed on site at toe of cuts | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip | 312323201014 | 3.43 | LCY | | | | | | | | | | | | | 57 | LCY | $196 |
| | Subtotal | | | | | | | | | | | | | | | | | | | $567 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $22,736 |
| | 5 Storage Sheds at same size & costs | | | | | | | | | | | | | | | | | 5 | EA | |
| | | | | | | | | | | | | | | | | | | | | $113,680 |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $113,680 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | Transfer Tower Belt MB-1 to SB-1 | | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | Steel Bld. Lage | 024116130020 | 0.36 | /CF | 25 | 25 | 50 | | | | | | | | FT | | 31250 | CF | $11,250 |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | 0.35 | 405 | CY | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | | 2 Trips/Day, 79 mi rnd trip = 23 trips | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck Drive | 405 CY (540 Tons), 4 axle, 25 Ton, 18 CY | 015433205310 | 6.53 | CY | | | | | | | | | | | | | 405 | CY | $2,645 |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal at Salvage Yard | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $13,895 |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | 25 | 25 | 2 | | | | | | | | FT | | 1250 | CF | |
| | Demolition Cost | Concrete demolition - 2.5 CY Excavator | 015433200320 | 4.38 | /CY | | | | | | | | | | | | 1.3 | 60 | CY | $263 |
| | Concrete's Vol. Demolished | w/ hydraulic hammer (@400 CY/shift) | 015433200347 | | | | | | | | | | | | | | | | | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | 25 | 25 | 2 | | | | | | | | | | 60 | CY | $188 |
| | Transportation Cost | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip | 312323201014 | 3.43 | LCY | | | | | | | | | | | | | 60 | LCY | $206 |
| | Disposal Costs | Disposal on site at toe of cuts | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $656 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $14,551 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | Crushing & Screening Building | 50' x 50' x 80' | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | Steel Bld. Large | 024116130020 | 0.36 | /CF | 50 | 50 | 80 | | | | | | | | FT | | 200000 | CF | $72,000 |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | 0.35 | 2593 | CY | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | | 2 Trips/Day, 79 mi rnd trip = 144 trips | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | 2593 CY (3457 Tons) 4 axle, 25 Ton, 18 CY | 015433205310 | 6.39 | CY | | | | | | | | | | | | | 2593 | CY | $16,560 |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal at Salvage Yard | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $88,560 |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | Concrete demolition - 2.5 CY Excavator | 015433200320 | 4.38 | /CY | 50 | 50 | 2 | | | | | | | | FT | | 185 | CY | $809 |
| | Concrete's Vol. Demolished | w/ hydraulic hammer (@400 CY/shift) | 015433200347 | | | | | | | | | | | | | | 1.3 | 241 | CY | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | | | | | | | | | | | | | 241 | CY | $753 |
| | Transportation Cost - Conc Foundation placed on site at toe of cuts | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip | 312323201014 | 3.43 | LCY | | | | | | | | | | | | | 241 | LCY | $827 |
| | Subtotal | | | | | | | | | | | | | | | | | | | $2,389 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $90,949 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | Office Bathhouse Building | 142' x 60' x 23 | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | Steel Bld. Large | 024116130020 | 0.36 | /CF | 142 | 60 | 23 | | | | | | | | FT | | 195960 | CF | $70,546 |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | 0.35 | 2540 | CY | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | Building materials sht rock & etc | ECDC | 11.40 | Ton | 142 | 60 | 23 | | | | | | | | CY | 0.03 | 218 | CY | $2,485 |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | | 2 Trips/Day, 79 mi rnd trip = 141 Trips | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | 2540 CY (3379 Tons) 4 axle, 25 Ton, 18 CY | 015433205310 | 6.38 | CY | | | | | | | | | | | | | 2540 | CY | $16,215 |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal at Salvage Yard | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $89,246 |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | Concrete demolition - 2.5 CY Excavator | 015433200320 | 4.38 | /CY | 142 | 60 | 0.5 | | | | | | | | CY | | 158 | CY | $691 |
| | Concrete's Vol. Demolished | w/ hydraulic hammer (@400 CY/shift) | 015433200347 | | | | | | | | | | | | | | 1.3 | 205 | CY | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | | | | | | | | | | | | | 205 | CY | $641 |
| | Transportation Cost - Conc Foundation placed on site at toe of cuts | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip | 312323201014 | 3.43 | LCY | | | | | | | | | | | | | 205 | CY | $703 |
| | Subtotal | | | | | | | | | | | | | | | | | | | $2,035 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $91,281 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | Explosives Magazines | | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Steel | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | Powder Magazine Small | | | | 6 | 6 | 6 | | | | | | | | | | 8 | CY | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | | | | | | | | | | | | | 8 | CY | $25 |
| | Transportation Cost - Conc Foundation | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip | 312323201014 | 3.43 | LCY | | | | | | | | | | | | | 8 | CY | $27 |
| | placed on site at toe of cuts | Disposal at Salvage Yard | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $52 |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | Cap Magazine Small | | | | 6 | 6 | 6 | | | | | | | | | | 8 | CY | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | | | | | | | | | | | | | 8 | CY | $25 |
| | Transportation Cost - Conc Foundation | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip | 312323201014 | 3.43 | LCY | | | | | | | | | | | | | 8 | CY | $27 |
| | placed on site at toe of cuts | Salvage yard Price | | 11.29 | CY | | | | | | | | | | | | | 8 | CY | $90 |
| | Subtotal | | | | | | | | | | | | | | | | | | | $142 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $194 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | Inlets-Storm Drain & Cleanout Boxes | | | | | | | | | | | | | | 6 | EA | | | | |
| | Structure's Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Steel | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Removal Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $0 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | 4 | 4 | 4 | | | | | | | 6 | EA | | 6 | CY | $19 |
| | Transportation Cost - On site disposal at toe of cuts | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip<br>On site disposal | 312323201014 | 3.43 | LCY | | | | | | | | | | 6 | EA | | 6 | CY | $21 |
| | Subtotal | | | | | | | | | | | | | | | | | | | $40 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $40 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31 | Culverts | | | | | | | | | | | | | | | | | | | |
| | Aluminium CMP 18" & 30" | Excavation included in Site Earthwork | 024113400180 | 1.95 | LF | 400 | 3 | 5 | | | | | | | | FT | | 400 | LF | $ 780 |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | 0.5 | | | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Aluminum's Weight | From Contech Construction Products | Contech | | | | | | | | | 1.2 | | | | Ton | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck Drive | 2 Trips/Day, 79 mi rnd trip = 3 Trips | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | | |
| | | 52 CY (43 Tons), 4 axle, 25 Ton, 18 CY | 015433205310 | 114.21 | CY | | | | | | | | | | | | | 52 | CY | $ 5,980 |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Salvage Yard | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | $ 6,760 |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $ 6,760 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 33 | Water Monitoring Wells | | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | Plug Well | AML3 | $ 5,643.31 | EA. | | | | | | | | | | 7 | EA | | 7 | EA | $39,503 |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Steel | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $39,503 |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
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| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $39,503 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 36 | Reclaim Tunnel | Concrete x 350' Long | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | Concrete demolition - 2.5 CY Excavator | 015433200320 | 4.38 | /CY | 350 | 12 | 12 | | | | | | | | FT | | 1867 | CY | $8,168 |
| | Structure's Vol. Demolished | w/ hydraulic hammer (@400 CY/shift) | 015433200347 | | | | | | | | | | | | | | | | | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | | | | | | | | | | | | | 1867 | CY | $5,834 |
| | | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip | 312323201014 | 3.43 | LCY | | | | | | | | | | | | | 1867 | CY | $6,404 |
| | On site Disposal | On site disposal | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $20,406 |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | Surface Slab | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | Concrete demolition - 2.5 CY Excavator | 015433200320 | 4.38 | /CY | 350 | 12 | 1 | | | | | | | | FT | | 156 | CY | $683 |
| | Concrete's Vol. Demolished | w/ hydraulic hammer (@400 CY/shift) | 015433200347 | | | | | | | | | | | | | | 1.3 | 203 | CY | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | | | | | | | | | | | | | 203 | CY | $634 |
| | | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip | 312323201014 | 3.43 | LCY | | | | | | | | | | | | | 203 | CY | $696 |
| | On site Disposal | On site disposal | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $2,013 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $22,419 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 38 | Conveyor Supports | | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Steel | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | Concrete demolition - 2.5 CY Excavator | 015433200320 | 4.38 | /CY | 4.5 | 4.5 | 1 | | | | | | | 2 | FT | | 14 | CY | $61 |
| | Concrete's Vol. Demolished | w/ hydraulic hammer (@400 CY/shift) | 015433200347 | | | | | | | | | | | | | | 1.3 | 18 | CY | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | | | | | | | | | | | | | 18 | CY | $56 |
| | | 12 CY (16 Ton) Dump Truck 1/2 mi. rnd. trip | 312323201014 | 3.43 | LCY | | | | | | | | | | | | | 18 | CY | $62 |
| | On site Disposal | On site disposal | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $179 |
| | | | | | | | | | | | | | | | | | | | | |
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| | Subtotal | | | | | | | | | | | | | | | | | | | |
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| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $179 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 45 | WaterTank Steel & PVC Water Line | | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | Steel Bld. Large | 024116130020 | 0.36 | /CF | | | 35 | 20 | | 6303 | 4 | | | Ton | FT | | 10996 | CF | $ 3,959 |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | 0.35 | 143 | CY | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | 12 CY (16 Ton) Dump Truck 6 mi. rnd. trip | 312323201020 | 6.4 | /CY | | | | | | | | | | | | | 143 | CY | $ 915 |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | | 2 Trips/Day, 79 mi. rnd. trip = 8 Trips | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | 143 CY (191 tons) 4 axle, 25 ton, 18 CY | 015433205310 | 6.43 | CY | | | | | | | | | | | | | 143 | CY | $ 920 |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Salvage Yard | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $ 5,794 |
| | | | | | | | | | | | | | | | | | | | | |
| | PVC Water Line reclaim | 6" - 8" PVC schedule 40 | | | | | | | | | | | | | | | | | | |
| | | Included in earthwork - no salvage - | 024113381700 | 1.28 | LF | 700 | | | | | | | | | | | | 700 | LF | $ 894 |
| | Demolition Cost | assume .33 X Means for discard | | | | | | | | | | | | | | | | 9 | CY | |
| | Loading Cost | 2 Trips/Day, 79 mi. rnd. trip = 1 Trips | Monthly Rent @ 20 days/month | | | | | | | | | | | | | | | | | |
| | Transportation Cost | 3.3 CY (4.4 tons) 4 axle, 25 ton, 18 CY | 015433205310 | 34.85 | CY | | | | | | | | | | | | | 3.3 | CY | $ 29 |
| | Disposal Costs | | ECDC | 39.50 | CY | | | | | | | | | | | | | 10 | CY | $ 395 |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $ 6,453 |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 46 | Parking Lot and Access Road Pavement | | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Disposal Cost Steel | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment 's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Asphalt Removal Rotomill/Reuse | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | Pavement removal (asphalt) 3 inch | 024113175010 | 5.77 | SY | | | | | 8400 | | | | | | SY | | 8400 | SY | $48,468 |
| | Concrete's Vol. Demolished | | | | | | | 0.25 | | | | | | | | FT | 1.3 | 910 | CY | |
| | Loading Cost | Front end loader 3 1/4 CY | 015433204530 | 3.13 | /CY | | | | | | | | | | | | | 910 | CY | $2,844 |
| | | 12 CY (16 Ton) Dump Truck 1 mi. rnd. trip | 312323201016 | 3.84 | LCY | | | | | | | | | | | | | 910 | CY | $3,494 |
| | Haul to Scofiled Town for Reuse | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | $54,806 |
| | | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
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| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | $54,806 |

| | Equipment Cost | Hourly Operating Costs | Equipment Overhead | Operator's Hourly Wage Rate | Hourly Cost | Number of Men or Eq. | Total Eq. & Lab. Costs | Units | Quantity | Units | Production Rate | Units | Equip. + Labor Time/Dis. | Units | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kinney No. 2 Mine<br>Earthwork Costs & Revegetation Costs Summary | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Backfilling and Grading | | | | | | | | | | | | | | | $292,766 |
| Topsoil Distribution | | | | | | | | | | | | | | | $202,895 |
| Support Equipment and Labor | | | | | | | | | | | | | | | $121,185 |
| Vegetation | | | | | | | | | | | | | | | $143,239 |
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |
| TOTAL | | | | | | | | | | | | | | | $760,085 |

| | Monthly Rent Equipment Cost | Hourly Operating Costs | Equipment Overhead | Operator's Hourly Wage Rate | Hourly Cost | Number of Men or Eq. | Total Eq. & Lab. Costs | Units | Quantity | Units | Production Rate | Units | Equip. + Labor Time/Dis. | Units | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kinney No. 2 Mine<br>Backfilling and Grading | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |
| Ripping Fill Area (D9 Dozer) | | | | | | | | | | | | | | | |
| D9R Semi-U EROPS Means #015433204360 | 21200 | 109.35 | 0.1 | 53.75 | 285.00 | 1 | 285 | $/HR | 24,780 | CY | 184 | CY/HR | 134.7 | HR | $38,390 |
| Multi-Shank Ripper 410 HP Means #015433500580 | 1300 | 5.7 | 0.1 | | 13.17 | 1 | 13.17 | $/HR | | | | | 134.7 | HR | $1,774 |
| Subtotal | | | | | | | | | | | | | | | $40,164 |
| | | | | | | | | | | | | | | | |
| Backfill On Site Load-Haul-Place | | | | | | | | | | | | | | | |
| Loading | | | | | | | | | | | | | | | |
| 988G EROPS Means #015433204810 | 15800 | 90.6 | 0.1 | 53.75 | 235.20 | 1 | 235.2 | $/HR | 30,759 | CY | 498 | CY/HR | 61.8 | HR | $14,535 |
| Hauling | | | | | | | | | | | | | | | |
| 769D End Dump Truck 25 Ton Means #015433205550 | 12700 | 61.8 | 0.1 | 53.75 | 188.57 | 2 | 377.15 | $/HR | 30,759 | CY | 498 | CY/HR | 61.8 | HR | $23,308 |
| Place with Excavator | | | | | | | | | | | | | | | |
| CAT 345BL 3 1/2 CY Means #015433200340 | 28100 | 175.2 | 0.1 | 53.75 | 390.52 | 1 | 470.77 | $/HR | 12,304 | CY | 180 | CY/HR | 68.4 | HR | $32,201 |
| Place with Dozer | | | | | | | | | | | | | | | |
| D9R Semi-U EROPS Means #015433204360 | 21200 | 109.35 | 0.1 | 53.75 | 285.00 | 1 | 285 | $/HR | 15,380 | CY | 184 | CY/HR | 83.6 | HR | $23,826 |
| Subtotal | | | | | | | | | | | | | | | $93,870 |
| Backfill On Site Slope <30% | | | | | | | | | | | | | | | |
| CAT 345BL 3 1/2 CY Means #015433200340 | 28100 | 175.2 | 0.1 | 53.75 | 390.52 | 1 | 390.52 | $/HR | 43,062 | CY | 180 | CY/HR | 239.2 | HR | $93,412 |
| | | | | | | | | | | | | | | | |
| Spread | | | | | | | | | | | | | | | |
| D9R Semi-U EROPS Means #015433204360 | 21200 | 109.35 | 0.1 | 53.75 | 285.00 | 1 | 285 | $/HR | 21,531 | CY | 184 | CY/HR | 117 | HR | $33,345 |
| Pock Marking | | | | | | | | | | | | | | | |
| CAT 345BL 3 1/2 CY Means #015433200340 | 28100 | 175.2 | 0.1 | 53.75 | 390.52 | 1 | 390.52 | $/HR | 21,531 | CY | 180 | CY/HR | 119.6 | HR | $46,706 |
| Subtotal | | | | | | | | | | | | | | | |
| Backfill On Flatter Slpoes W/Scraper | | | | | | | | | | | | | | | |
| CAT 631G 24 CY Means #015433203600 | 31500 | 184.55 | 0.1 | 53.75 | 419.42 | 1 | 419.42 | $/HR | 49,214 | CY | 393 | CY/HR | 125.2 | HR | $52,511 |
| D9R Semi-U EROPS Means #015433204360 | 21200 | 109.35 | 0.1 | 53.75 | 285.00 | 1 | 285 | $/HR | 24,607 | CY | 184 | CY/HR | 133.7 | HR | $38,105 |
| Pock Marking | | | | | | | | | | | | | | | |
| CAT 345BL 3 1/2 CY Means #015433200340 | 28100 | 175.2 | 0.1 | 53.75 | 390.52 | 1 | 390.52 | $/HR | 24,607 | CY | 180 | CY/HR | 136.7 | HR | $53,384 |
| | | | | | | | | | | | | | | | |
| Total Backfilling and Grading | | | | | | | | | | | | | | | $292,766 |
| | | | | | | | | | | | | | | | |

| | Equipment Cost | Hourly Operating Costs | Equipment Overhead | Operator's Hourly Wage Rate | Hourly Cost | Number of Men or Eq. | Total Eq. & Lab. Costs | Units | Quantity | Units | Production Rate | Units | Equip. + Labor Time/Dis. | Units | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kinney No. 2 Mine<br>Topsoil Distribution | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Load From Topsoil Stockpile | | | | | | | | | | | | | | | |
| Load | | | | | | | | | | | | | | | |
| 988G EROPS Means #015433204810 | 15800 | 90.6 | 0.1 | 53.75 | 235.20 | 1 | 235.2 | $/HR | 54966 | CY | 498 | CY/HR | 110.4 | HR | $25,966 |
| Haul | | | | | | | | | | | | | | | |
| 769D End Dump Truck 25 Ton Means #015433205550 | 12700 | 61.8 | 0.1 | 53.75 | 188.57 | 2 | 377.15 | $/HR | 54966 | CY | 498 | CY/HR | 110.4 | HR | $41,637 |
| Subtotal | | | | | | | | | | | | | | | $67,603 |
| | | | | | | | | | | | | | | | |
| Place Topsoil | | | | | | | | | | | | | | | |
| Place with Wheel Loader | | | | | | | | | | | | | | | |
| 988G EROPS Means #015433204810 | 15800 | 90.6 | 0.1 | 53.75 | 235.20 | 1 | 235.2 | $/HR | 18138.78 | CY | 498 | CY/HR | 36.4 | HR | $8,561 |
| Grading | | | | | | | | | | | | | | | |
| D7R Series II 240 HP Means #015433204260 | 11700 | 61.65 | 0.1 | 53.75 | 182.67 | 1 | 182.67 | $/HR | 54966 | CY | 145 | CY/HR | 379.1 | HR | $69,250 |
| Excavator | | | | | | | | | | | | | | | |
| CAT 345BL 3 1/2 CY Means #015433200340 | 28100 | 175.2 | 0.1 | 53.75 | 390.52 | 1 | 470.77 | $/HR | 21986.4 | CY | 180 | CY/HR | 122.1 | HR | $57,481 |
| Subtotal | | | | | | | | | | | | | | | $135,292 |
| | | | | | | | | | | | | | | | |
| Total | | | | | | | | | | | | | | | $202,895 |

| | Equipment Cost | Hourly Operating Costs | Equipment Overhead | Operator's Hourly Wage Rate | Hourly Cost | Number of Men or Eq. | Total Eq. & Lab. Costs | Units | Quantity | Units | Production Rate | Units | Equip. + Labor Time/Dis. | Units | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Kinney No. 2 Mine<br>Support Equipment and Labor | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| Backfilling & Topsoil Placement | | | | | | | | | | | | | | | |
| 6000 gal H2O Truck Means #015433406950 | 7250 | 70.16 | 0.1 | 51.3 | 163.15 | 1 | 163.15 | HR | 60 | DAYS | | | 480 | HR | $78,312 |
| Pickup Truck 4x4 3/4 ton Means #015433407200 | 675 | 10.2 | 0.1 | 0 | 14.08 | 1 | 14.08 | $/HR | | | | | 480 | HR | $6,758 |
| Foreman - Means Outside Crew | | | 0.1 | 75.24 | 75.24 | 1 | 75.24 | $/HR | | | | | 480 | HR | $36,115 |
| Subtotal | | | | | | | | | | | | | | | $121,185 |
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |
| Total | | | | | | | | | | | | | | | $121,185 |

| Ref. | Description | Materials | Means Line Number | Unit Cost | Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Kinney No. 2 Mine | | | | | | | | | | | | | | | | | | |
| | Soil Prep Included in Earthwork | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | Seed Mix Permanent | Data from Paul Baker UDOGM | | | | | | | | | | | | | | | | | |
| | Hydroseed Equip & Labor | Hydro Spreader W/Labor - 27.6 AC = 133584 SQYD | 329219131000 | 0.44 | SQYD | | | | | 133584 | | | | | SQYD | | 133584 | SQYD | $58,109 |
| | Seed Mix Permanent | PLS Seed Mix Permanent Reclamation | DOGM | 14353.18 | EA | | | | | | | | | | | | 1 | EA | $14,353 |
| | Hay Mulch | Hay 1" DEEP = 8.3 TONS/ACRE | CURRENT PRICE | 139.95 | TON | | | | | 27.6 | | | | | AC | | 229 | TONS | $32,061 |
| | Hay Mulch Chopper/Spreader | Power Mulcher Large - INCLUDES LABOR | 329113160350 | 7.88 | MSF | | | | | 1203 | | | | | MSF | | 1203 | MSF | $9,480 |
| | Silt Fencing | Silt Fencing with posts Includes labot | 312514161000 | 1.88 | LF | | | | | | | | | | | | 2853 | LF | $5,364 |
| | Subtotal | | | | | | | | | | | | | | | | | | $119,366 |
| | RESEEDING - ASSUME 25% RATE | | | | | | | | | | | | | | | | | | $23,873 |
| | Subtotal | | | | | | | | | | | | | | | | | | $23,873 |
| | Subtotal | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | $143,239 |

# Exhibit 19

# Geological Information
# Roof & Floor Analyses, SGS Lab Sheets
# Rock Strength Data, Agapito Reports

# Roof & Floor Analyses, SGS Lab Sheets

Sample recd 7/28/06 Instructions 8/2/06

# CORE INSTRUCTION FORM

PROJECT Carbon Resources Drilling
HOLE NUMBER **CR-06-01**
SEAM NAME Hiawatha
DATE SAMPLED 2/14/2006

COMPLETED BY Brad Lindsay
PHONE (435)851-9044
E-MAIL rocklogicconsulting@gmail.com

SHIP TO: SGS Minerals Services Division
4665 Paris Street
Suite B-200
Denver, CO 80239

SHIPPED FROM: Rock Logic Consulting LLC
PO Box 544
Cedaredge, Colorado 81413
ATTN: Brad Lindsay
INVOICE: Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
ATTN: Clay Wisdom

Samples Analysed for
ACID FORMING &
Toxic Metals

| BOX # SAMPLE # | FROM | TO | Interval | SHORT PROXIMATE | LONG PROXIMATE | UNTIMATE | 8 POINT ASH FUSION | APPARENT SPECIFIC GRAVITY | HARDGROVE GRIND. | SULFUR FORMS | FREE SWELLING INDEX | MINERAL ASH | WATER SOL. ALKALIES | Na (SINGLE ELEMENT) | FLOURINE (SINGLE ELEMENT) | CHLORINE (SINGLE ELEMENT) | TRACE ELEMENTS (Coal Suite) | TRACE ELEMENTS (Rock Suite) | TOXIC METALS | ACID FORMING POTENTIAL | RESIN | SAVE SAMPLE FOR ARCHIVE | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5B/5 | 75.60 | 76.40 | Hia Roof | | X | | | X | | | | X | | | | | | | X | X | | X | 1 foot upper roof rock |
| 5C/5 | 76.40 | 76.90 | Hia Roof | | X | | | X | | | | X | | | | | | | X | X | | X | 6" immediate roof rock |
| 6/5 | 76.90 | 77.40 | Hia Top | | X | | | X | | | | X | | | | | | | | | | X | 6" top coal |
| 7/5 | 77.40 | 78.20 | Hia Upper | | X | | | X | | | | X | | | | | | | | | | X | upper section of coal seam |
| 1/6 | 78.20 | 78.80 | Hia Part | | X | | | X | | | | X | | | | | | | X | X | | X | rock parting |
| 2&3/6 | 78.80 | 81.70 | Hia Middle | | X | | | X | | | | X | | | | | | | | | | X | middle section of coal seam |
| 4&5/6 | 81.70 | 84.00 | Hia Lower | | X | | | X | | | | X | | | | | | | | | | X | lower section of coal seam |
| 6/6 | 84.00 | 85.00 | Hia Bottom | | X | | | X | | | | X | | | | | | | | | | X | 1 foot of floor coal |
| 7/6 | 85.00 | 85.50 | Hia Floor | | X | | | X | | | | X | | | | | | | | | | X | 6" of floor rock |
| | | | | | | | | | | | | | | | | | | | | | | | |
| COMP-1 | 76.90 | 85.00 | Hia Seam | | X | X | X | X | X | X | X | X | X | X | X | X | X | | X | X | | X | Composite of all six coal samples (6/5, 7/5, 1/6, 2&3/6, 4&5/6, and 6/6) |

1/7 Added 9-2010

NOTE: Sample 5B/5 from 75.6' to 76.4' is currently being tested for rock mechanics properties and will be forwarded to SGS at a future time

072-21001-001
5B/5
Carbon Resources LLC
Due: **08/17/2006**
*085488*
Rec: 07/28/2006

CHANGE IN POSSESSION

| Relinquished by | Signed | | Time |
|---|---|---|---|
| Representing | | Date | |
| Received By | Signed | | Time |
| Representing | | Date | |

August 23, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 5B/5 | **Footage Begin :** | 75.60 |
| **Date Received:** | 07/28/2006 | **Footage End :** | 76.40 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 2210.20 | | |
| **Core Hole ID :** | CR-06-01 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-21001-001**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 2.35 | | |
| % Ash | 86.32 | 88.40 | |
| % Volatile Matter | 3.57 | 3.66 | 31.51 |
| % Fixed Carbon | 7.76 | 7.94 | 68.49 |
| Gross Calorific Value (Btu/lb) | 971 | 995 | 8574 |
| % Sulfur | 0.16 | 0.16 | |

| Analyte | Result |
|---|---|
| Acid Potential | 4.91 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 888.62 lb |
| Pounds of Sulfur/mm Btu | 1.60 lb |
| Pounds of SO2/mm Btu | 3.21 lb |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



SGS North America Inc. | Minerals Services Division
4665 Paris Street, Suite B-200, Denver, CO 80239 t (303) 373-4772 f (303) 373-4791 www.us.sgs.com/minerals

Member of the SGS Group

F-465

GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

August 23, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 5B/5 | **Footage Begin :** | 75.60 |
| **Date Received:** | 07/28/2006 | **Footage End :** | 76.40 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 2210.20 | | |
| **Core Hole ID :** | CR-06-01 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-21001-001**

| Analyte | Result | |
|---|---|---|
| Ash Analysis Basis | Ignited | |
| Silicon Dioxide SiO2 | 85.48 | % |
| Aluminum Oxide Al2O3 | 6.73 | % |
| Titanium Dioxide TiO2 | 0.43 | % |
| Iron Oxide Fe2O3 | 1.12 | % |
| Calcium Oxide CaO | 2.72 | % |
| Magnesium Oxide MgO | 0.97 | % |
| Potassium Oxide K2O | 1.88 | % |
| Sodium Oxide Na2O | 0.06 | % |
| Sulfur Trioxide SO3 | 0.33 | % |
| Phosphorus Pentoxide P2O5 | 0.23 | % |
| Strontium Oxide SrO | 0.01 | % |
| Barium Oxide BaO | 0.03 | % |
| Manganese Oxide, Mn3O4 | 0.01 | % |
| Undetermined | 0.00 | % |
| Sum | 100.00 | % |
| Alkalies | 1.30 | % |
| Silica Value | 94.67 | % |
| Base:Acid Ratio | 0.07 | % |
| T250 Temperature | >2900 | °F |
| Type of Ash | Lignitic | |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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GENERAL CONDITIONS OF SERVICE ON REVERSE

August 23, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 5B/5 | **Footage Begin :** | 75.60 |
| **Date Received:** | 07/28/2006 | **Footage End :** | 76.40 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 2210.20 | | |
| **Core Hole ID :** | CR-06-01 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-21001-001**

| Analyte | Result |
|---|---|
| Arsenic - TCLP | <0.01 mg/L |
| Barium - TCLP | 0.12 mg/L |
| Cadmium - TCLP | <0.005 mg/L |
| Chromium - TCLP | <0.005 mg/L |
| Lead - TCLP | <0.05 mg/L |
| Selenium - TCLP | <0.01 mg/L |
| Silver - TCLP | <0.005 mg/L |
| Mercury - TCLP | <0.0002 mg/L |
| Specific Gravity, Apparent | 2.36 g/cc |

Respectfully submitted,
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GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

May 01, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 5C/5 | **Footage Begin :** | 76.40 |
| **Date Received:** | 04/21/2006 | **Footage End :** | 76.90 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 1810.50 | | |
| **Core Hole ID :** | CR-06-01 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-19142-002**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 3.60 | | |
| % Ash | 90.26 | 93.63 | |
| % Volatile Matter | 5.12 | 5.31 | 83.49 |
| % Fixed Carbon | 1.02 | 1.06 | 16.51 |
| Gross Calorific Value (Btu/lb) | 348 | 361 | 5670 |
| % Sulfur | 0.23 | 0.24 | |

| Analyte | Result |
|---|---|
| Acid Potential | 7.50 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 2594.42 lb |
| Pounds of Sulfur/mm Btu | 6.64 lb |
| Pounds of SO2/mm Btu | 13.26 lb |

Respectfully submitted,
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Denver Laboratory



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May 01, 2006

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PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 5C/5 | **Footage Begin :** | 76.40 |
| **Date Received:** | 04/21/2006 | **Footage End :** | 76.90 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 1810.50 | | |
| **Core Hole ID :** | CR-06-01 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-19142-002**

| Analyte | Result | |
|---|---|---|
| Ash Analysis Basis | Ignited | |
| Silicon Dioxide SiO2 | 83.48 | % |
| Aluminum Oxide Al2O3 | 8.48 | % |
| Titanium Dioxide TiO2 | 0.51 | % |
| Iron Oxide Fe2O3 | 1.29 | % |
| Calcium Oxide CaO | 1.86 | % |
| Magnesium Oxide MgO | 1.41 | % |
| Potassium Oxide K2O | 2.19 | % |
| Sodium Oxide Na2O | 0.07 | % |
| Sulfur Trioxide SO3 | 0.42 | % |
| Phosphorus Pentoxide P2O5 | 0.25 | % |
| Strontium Oxide SrO | 0.00 | % |
| Barium Oxide BaO | 0.03 | % |
| Manganese Oxide, Mn3O4 | 0.01 | % |
| Undetermined | 0.00 | % |
| Sum | 100.00 | % |
| Alkalies | 1.51 | % |
| Silica Value | 94.82 | % |
| Base:Acid Ratio | 0.07 | % |
| T250 Temperature | >2900 | °F |
| Type of Ash | Lignitic | |
| Specific Gravity, Apparent | 2.46 | g/cc |
| Arsenic - TCLP | <0.01 | mg/L |
| Mercury - TCLP | <0.0002 | mg/L |
| Barium - TCLP | <0.01 | mg/L |
| Cadmium - TCLP | <0.005 | mg/L |
| Chromium - TCLP | <0.005 | mg/L |
| Lead - TCLP | <0.05 | mg/L |
| Selenium - TCLP | <0.01 | mg/L |
| Silver - TCLP | <0.005 | mg/L |

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May 01, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 1/6 | **Footage Begin :** | 78.20 |
| **Date Received:** | 04/21/2006 | **Footage End :** | 78.80 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 943.30 | | |
| **Core Hole ID :** | CR-06-01 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-19142-005**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 7.58 | | |
| % Ash | 56.80 | 61.45 | |
| % Volatile Matter | 17.99 | 19.47 | 50.51 |
| % Fixed Carbon | 17.63 | 19.08 | 49.49 |
| Gross Calorific Value (Btu/lb) | 4577 | 4952 | 12847 |
| % Sulfur | 0.28 | 0.30 | |

| Analyte | Result |
|---|---|
| Acid Potential | 9.38 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 124.10 lb |
| Pounds of Sulfur/mm Btu | 0.62 lb |
| Pounds of SO2/mm Btu | 1.23 lb |

Respectfully submitted,
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Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 1/6 | **Footage Begin :** | 78.20 |
| **Date Received:** | 04/21/2006 | **Footage End :** | 78.80 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 943.30 | | |
| **Core Hole ID :** | CR-06-01 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-19142-005**

| Analyte | Result | |
|---|---|---|
| Ash Analysis Basis | Ignited | |
| Silicon Dioxide SiO2 | 72.21 | % |
| Aluminum Oxide Al2O3 | 19.85 | % |
| Titanium Dioxide TiO2 | 0.93 | % |
| Iron Oxide Fe2O3 | 1.97 | % |
| Calcium Oxide CaO | 0.51 | % |
| Magnesium Oxide MgO | 1.38 | % |
| Potassium Oxide K2O | 2.92 | % |
| Sodium Oxide Na2O | 0.10 | % |
| Sulfur Trioxide SO3 | 0.04 | % |
| Phosphorus Pentoxide P2O5 | 0.05 | % |
| Strontium Oxide SrO | 0.01 | % |
| Barium Oxide BaO | 0.03 | % |
| Manganese Oxide, Mn3O4 | <0.01 | % |
| Undetermined | 0.00 | % |
| Sum | 100.00 | % |
| Alkalies | 2.02 | % |
| Silica Value | 94.93 | % |
| Base:Acid Ratio | 0.07 | % |
| T250 Temperature | >2900 | °F |
| Type of Ash | Bituminous | |
| Specific Gravity, Apparent | 1.80 | g/cc |
| Arsenic - TCLP | <0.01 | mg/L |
| Mercury - TCLP | <0.0002 | mg/L |
| Barium - TCLP | <0.01 | mg/L |
| Cadmium - TCLP | <0.005 | mg/L |
| Chromium - TCLP | <0.005 | mg/L |
| Lead - TCLP | <0.05 | mg/L |
| Selenium - TCLP | 0.01 | mg/L |
| Silver - TCLP | <0.005 | mg/L |

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# Analysis Report

August 20, 2010



Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

**Client Sample ID:** CR-06-01 1/7 Floor
**Date Received:** 08/06/2010
**Matrix:** Unknown

**Kind of Sample :** Overburden

Rock

**SGS Minerals Sample ID: 072-47377-001**

| Tests | Result | Unit |
|---|---|---|
| Specific Gravity | 2.67 | |
| pH | 6.10 | s.u. |
| pH Temperature | 19.20 | °C |
| Acid Potential | 19.1 | |
| Neutralization Potential | 4.0 | |
| Conductivity | 2500 | umhos/cm |
| Carbon, Total Organic | 0.54 | % |
| Calcium Carbonate | <0.10 | % |
| Selenium, Hot Water | 0.07 | ppm |
| Calcium, Soluble | 490 | ppm |
| Magnesium, Soluble | 100 | ppm |
| Potassium, Soluble | 130 | ppm |
| Sodium, Soluble | 59 | ppm |
| Sodium Absorption Ratio | 3.4 | |
| Boron Available | 1 | ppm |

Sample Notes:
Neutralization Potential and Acid Potential reported as tons CaCO3 / 1000 tons material.

Method Reference(s):
"Field and Laboratory Methods Applicable to Overburden and Minesoils," EPA-600 / 2-78-054, March 1978
"Agriculture Handbook No. 60," Issued February 1954
"ASTM International Standards," Vol. 05.06, Standard D 6316, Sept. 2009

Somer Rodriguez, Denver Laboratory

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# CORE INSTRUCTION FORM

PROJECT Carbon Resources Drilling
HOLE NUMBER **CR-06-02**
SEAM NAME Hiawatha
DATE SAMPLED 2/25/2006

COMPLETED BY Brad Lindsay
PHONE (435)851-9044
E-MAIL rocklogicconsulting@gmail.com

SHIP TO: SGS Minerals Services Division
4665 Paris Street
Suite B-200
Denver, CO 80239

SHIPPED FROM: Rock Logic Consulting LLC
PO Box 544
Cedaredge, Colorado 81413
ATTN: Brad Lindsay
INVOICE: Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
ATTN: Clay Wisdom

Samples Analyzed for Acid Potential & Toxic Metals

| BOX # SAMPLE # | FROM | TO | Interval | SHORT PROXIMATE | LONG PROXIMATE | UNTIMATE | 8 POINT ASH FUSION | APPARENT SPECIFIC GRAVITY | HARDGROVE GRIND. | SULFUR FORMS | FREE SWELLING INDEX | MINERAL ASH | WATER SOL. ALKALIES | Na (SINGLE ELEMENT) | FLOURINE (SINGLE ELEMENT) | CHLORINE (SINGLE ELEMENT) | TRACE ELEMENTS (Coal Suite) | TRACE ELEMENTS (Rock Suite) | TOXIC METALS | ACID FORMING POTENTIAL | RESIN | SAVE SAMPLE FOR ARCHIVE | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1B/17 | 426.60 | 427.50 | Hia Roof | | X | | | X | | | | X | | | | | | | X | X | | X | 1 foot upper roof rock |
| 2/17 | 427.50 | 428.00 | Hia Roof | | X | | | X | | | | X | | | | | | | X | X | | X | 6" immediate roof rock |
| 3/17 | 428.00 | 428.50 | Hia Top | | X | | | X | | | | X | | | | | | | | | | X | 6" top coal |
| 4/17 | 428.50 | 430.00 | Hia Upper | | X | | | X | | | | X | | | | | | | | | | X | upper section of coal seam |
| 5/17 | 430.00 | 431.20 | Hia Part | | X | | | X | | | | X | | | | | | | X | X | | X | rock parting |
| 6&7/17 | 431.20 | 434.00 | Hia Middle | | X | | | X | | | | X | | | | | | | | | | X | middle section of coal seam |
| 1/18 | 434.00 | 436.00 | Hia Lower | | X | | | X | | | | X | | | | | | | | | | X | lower section of coal seam |
| 2/18 | 436.00 | 437.00 | Hia Bottom | | X | | | X | | | | X | | | | | | | | | | X | 1 foot of floor coal |
| 3/18 | 437.00 | 437.50 | Hia Floor | | X | | | X | | | | X | | | | | | | | | | X | 6" of floor rock |
| | | | | | | | | | | | | | | | | | | | | | | | |
| COMP-2 | 428.00 | 437.00 | Hia Seam | | X | X | X | X | X | X | X | X | X | X | X | X | X | | X | X | | X | Composite of all six coal samples (3/17, 4/17, 5/17, 6&7/17, 1/18, and 2/18) |

**CHANGE IN POSSESSION**

| Relinquished by | Signed | Time |
|---|---|---|
| | | |
| Received By | Signed | Time |
| | | |
| Relinquished by | Signed | Time |
| | | |

SGS

May 01, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 1B-17 | **Footage Begin :** | 426.60 |
| **Date Received:** | 04/21/2006 | **Footage End :** | 427.50 |
| **Matrix:** | ~~Coal~~ Coal | | |
| **Net Sample Weight:** | 3352.40 | | |
| **Core Hole ID :** | CR-06-02 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-19143-001**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 2.45 | | |
| % Ash | 93.23 | 95.57 | |
| % Volatile Matter | 4.01 | 4.11 | 92.83 |
| % Fixed Carbon | 0.31 | 0.32 | 7.17 |
| Gross Calorific Value (Btu/lb) | 230 | 236 | 5335 |
| % Sulfur | 0.07 | 0.07 | |

| Analyte | Result |
|---|---|
| Acid Potential | 2.19 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 4045.71 lb |
| Pounds of Sulfur/mm Btu | 2.89 lb |
| Pounds of SO2/mm Btu | 5.78 lb |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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May 01, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 1B-17 | **Footage Begin :** | 426.60 |
| **Date Received:** | 04/21/2006 | **Footage End :** | 427.50 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 3352.40 | | |
| **Core Hole ID :** | CR-06-02 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-19143-001**

| Analyte | Result | |
|---|---|---|
| Ash Analysis Basis | Ignited | |
| Silicon Dioxide SiO2 | 90.11 | % |
| Aluminum Oxide Al2O3 | 2.76 | % |
| Titanium Dioxide TiO2 | 0.20 | % |
| Iron Oxide Fe2O3 | 1.88 | % |
| Calcium Oxide CaO | 2.80 | % |
| Magnesium Oxide MgO | 0.47 | % |
| Potassium Oxide K2O | 0.98 | % |
| Sodium Oxide Na2O | 0.02 | % |
| Sulfur Trioxide SO3 | 0.62 | % |
| Phosphorus Pentoxide P2O5 | 0.12 | % |
| Strontium Oxide SrO | 0.00 | % |
| Barium Oxide BaO | 0.01 | % |
| Manganese Oxide, Mn3O4 | 0.03 | % |
| Undetermined | 0.00 | % |
| Sum | 100.00 | % |
| Alkalies | 0.67 | % |
| Silica Value | 94.59 | % |
| Base:Acid Ratio | 0.07 | % |
| T250 Temperature | >2900 | °F |
| Type of Ash | Lignitic | |
| Specific Gravity, Apparent | 2.52 | g/cc |
| Arsenic - TCLP | <0.01 | mg/L |
| Mercury - TCLP | <0.0002 | mg/L |
| Barium - TCLP | <0.01 | mg/L |
| Cadmium - TCLP | <0.005 | mg/L |
| Chromium - TCLP | <0.005 | mg/L |
| Lead - TCLP | <0.05 | mg/L |
| Selenium - TCLP | <0.01 | mg/L |
| Silver - TCLP | <0.005 | mg/L |

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Denver Laboratory



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Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 2/17 | **Footage Begin :** | 427.50 |
| **Date Received:** | 04/21/2006 | **Footage End :** | 428.00 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 1891.50 | | |
| **Core Hole ID :** | CR-06-02 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-19143-002**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 3.97 | | |
| % Ash | 91.75 | 95.54 | |
| % Volatile Matter | 3.63 | 3.78 | 84.77 |
| % Fixed Carbon | 0.65 | 0.68 | 15.23 |
| Gross Calorific Value (Btu/lb) | 254 | 265 | 5943 |
| % Sulfur | 0.17 | 0.18 | |

| Analyte | Result |
|---|---|
| Acid Potential | 5.36 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 3607.13 lb |
| Pounds of Sulfur/mm Btu | 6.66 lb |
| Pounds of SO2/mm Btu | 13.30 lb |

Respectfully submitted,
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Denver Laboratory



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Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 2/17 | **Footage Begin :** | 427.50 |
| **Date Received:** | 04/21/2006 | **Footage End :** | 428.00 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 1891.50 | | |
| **Core Hole ID :** | CR-06-02 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-19143-002**

| Analyte | Result | |
|---|---|---|
| Ash Analysis Basis | Ignited | |
| Silicon Dioxide SiO2 | 91.01 | % |
| Aluminum Oxide Al2O3 | 3.98 | % |
| Titanium Dioxide TiO2 | 0.25 | % |
| Iron Oxide Fe2O3 | 0.76 | % |
| Calcium Oxide CaO | 1.36 | % |
| Magnesium Oxide MgO | 0.67 | % |
| Potassium Oxide K2O | 1.34 | % |
| Sodium Oxide Na2O | 0.03 | % |
| Sulfur Trioxide SO3 | 0.42 | % |
| Phosphorus Pentoxide P2O5 | 0.16 | % |
| Strontium Oxide SrO | 0.00 | % |
| Barium Oxide BaO | 0.01 | % |
| Manganese Oxide, Mn3O4 | 0.01 | % |
| Undetermined | 0.00 | % |
| Sum | 100.00 | % |
| Alkalies | 0.91 | % |
| Silica Value | 97.03 | % |
| Base:Acid Ratio | 0.04 | % |
| T250 Temperature | >2900 | °F |
| Type of Ash | Lignitic | |
| Specific Gravity, Apparent | 2.44 | g/cc |
| Arsenic - TCLP | <0.01 | mg/L |
| Mercury - TCLP | <0.0002 | mg/L |
| Barium - TCLP | <0.01 | mg/L |
| Cadmium - TCLP | <0.005 | mg/L |
| Chromium - TCLP | <0.005 | mg/L |
| Lead - TCLP | <0.05 | mg/L |
| Selenium - TCLP | <0.01 | mg/L |
| Silver - TCLP | <0.005 | mg/L |

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May 01, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 5/17 | **Footage Begin :** | 430.00 |
| **Date Received:** | 04/21/2006 | **Footage End :** | 431.20 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 2125.30 | | |
| **Core Hole ID :** | CR-06-02 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha PARTING | | |

**SGS Sample ID: 072-19143-005**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 5.87 | | |
| % Ash | 5.92 | 6.29 | |
| % Volatile Matter | 40.90 | 43.45 | 46.36 |
| % Fixed Carbon | 47.31 | 50.26 | 53.64 |
| Gross Calorific Value (Btu/lb) | 12582 | 13367 | 14264 |
| % Sulfur | 0.58 | 0.62 | |

| Analyte | Result |
|---|---|
| Acid Potential | 19.38 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 4.70 lb |
| Pounds of Sulfur/mm Btu | 0.46 lb |
| Pounds of SO2/mm Btu | 0.93 lb |

Respectfully submitted,
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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 5/17 | **Footage Begin :** | 430.00 |
| **Date Received:** | 04/21/2006 | **Footage End :** | 431.20 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 2125.30 | | |
| **Core Hole ID :** | CR-06-02 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha PARTING | | |

**SGS Sample ID: 072-19143-005**

| Analyte | Result | |
|---|---|---|
| Ash Analysis Basis | Ignited | |
| Silicon Dioxide SiO2 | 56.03 | % |
| Aluminum Oxide Al2O3 | 7.79 | % |
| Titanium Dioxide TiO2 | 0.68 | % |
| Iron Oxide Fe2O3 | 8.90 | % |
| Calcium Oxide CaO | 14.48 | % |
| Magnesium Oxide MgO | 1.43 | % |
| Potassium Oxide K2O | 0.18 | % |
| Sodium Oxide Na2O | 0.47 | % |
| Sulfur Trioxide SO3 | 9.87 | % |
| Phosphorus Pentoxide P2O5 | 0.01 | % |
| Strontium Oxide SrO | 0.09 | % |
| Barium Oxide BaO | 0.01 | % |
| Manganese Oxide, Mn3O4 | 0.06 | % |
| Undetermined | 0.00 | % |
| Sum | 100.00 | % |
| Alkalies | 0.59 | % |
| Silica Value | 69.31 | % |
| Base:Acid Ratio | 0.39 | % |
| T250 Temperature | 2417 | °F |
| Type of Ash | Lignitic | |
| Specific Gravity, Apparent | 1.30 | g/cc |
| Arsenic - TCLP | <0.01 | mg/L |
| Mercury - TCLP | <0.0002 | mg/L |
| Barium - TCLP | <0.01 | mg/L |
| Cadmium - TCLP | <0.005 | mg/L |
| Chromium - TCLP | <0.005 | mg/L |
| Lead - TCLP | <0.05 | mg/L |
| Selenium - TCLP | <0.01 | mg/L |
| Silver - TCLP | <0.005 | mg/L |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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4665 Paris Street, Suite B-200, Denver, CO 80239 t (303) 373-4772 f (303) 373-4791 www.us.sgs.com/minerals

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# CORE INSTRUCTION FORM

PROJECT Carbon Resources Drilling
HOLE NUMBER **CR-06-05**
SEAM NAME Hiawatha
DATE SAMPLED 9/7/2006

COMPLETED BY Brad Lindsay
PHONE (435)851-9044
E-MAIL rocklogicconsulting@gmail.com

SHIP TO: SGS Minerals Services Division
4665 Paris Street
Suite B-200
Denver, CO 80239

SHIPPED FROM: Rock Logic Consulting LLC
PO Box 544
Cedaredge, Colorado 81413
ATTN: Brad Lindsay
INVOICE: Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
ATTN: Clay Wisdom

Samples Analyzed for Acid Potential & Toxic Metals

| SAMPLE # | FROM | TO | Interval | SHORT PROXIMATE | LONG PROXIMATE | UNTIMATE | 8 POINT ASH FUSION | APPARENT SPECIFIC GRAVITY | HARDGROVE GRIND. | SULFUR FORMS | FREE SWELLING INDEX | MINERAL ASH | WATER SOL. ALKALIES | Na (SINGLE ELEMENT) | FLOURINE (SINGLE ELEMENT) | CHLORINE (SINGLE ELEMENT) | TRACE ELEMENTS (Coal Suite) | TRACE ELEMENTS (Rock Suite) | TOXIC METALS | ACID FORMING POTENTIAL | RESIN | SAVE SAMPLE FOR ARCHIVE | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/1 | 1042.00 | 1043.05 | Hia Bottom | | X | | | X | | | | X | | | | | | | | | | X | 1 foot of floor coal |
| 2/1 | 1043.05 | 1043.50 | Hia Floor | | X | | | X | | | | X | | | | | | | X | X | | X | 6" of floor rock |

**072-22212-001**
Sample # 1/1
Carbon Resources LLC
Due: **10/20/2006**
*091723*
Rec: 10/05/2006

**072-22212-002**
Sample # 2/1
Carbon Resources LLC
Due: **10/20/2006**
*091724*
Rec: 10/05/2006

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SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 2/1 | **Footage Begin :** | 1043.05 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1043.50 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 1201.70 | | |
| **Core Hole ID :** | CR-06-05 | | |
| **Date Sampled :** | 9/7/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha FLOOR | | |

**SGS Sample ID: 072-22212-002**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 5.21 | | |
| % Ash | 76.12 | 80.30 | |
| % Volatile Matter | 5.63 | 5.93 | 30.12 |
| % Fixed Carbon | 13.04 | 13.77 | 69.88 |
| Gross Calorific Value (Btu/lb) | 2008 | 2118 | 10754 |
| % Sulfur | 0.41 | 0.43 | |

| Analyte | Result |
|---|---|
| Acid Potential | 13.44 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 379.07 lb |
| Pounds of Sulfur/mm Btu | 2.02 lb |
| Pounds of SO2/mm Btu | 4.03 lb |

Respectfully submitted,
SGS NORTH AMERICA INC.
Denver Laboratory



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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 2/1 | **Footage Begin :** | 1043.05 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1043.50 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 1201.70 | | |
| **Core Hole ID :** | CR-06-05 | | |
| **Date Sampled :** | 9/7/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha FLOOR | | |

**SGS Sample ID: 072-22212-002**

| Analyte | Result | |
|---|---|---|
| Ash Analysis Basis | Ignited | |
| Silicon Dioxide SiO2 | 73.94 | % |
| Aluminum Oxide Al2O3 | 17.57 | % |
| Titanium Dioxide TiO2 | 0.87 | % |
| Iron Oxide Fe2O3 | 2.10 | % |
| Calcium Oxide CaO | 0.81 | % |
| Magnesium Oxide MgO | 1.15 | % |
| Potassium Oxide K2O | 3.00 | % |
| Sodium Oxide Na2O | 0.07 | % |
| Sulfur Trioxide SO3 | 0.13 | % |
| Phosphorus Pentoxide P2O5 | 0.32 | % |
| Strontium Oxide SrO | 0.01 | % |
| Barium Oxide BaO | 0.03 | % |
| Manganese Oxide, Mn3O4 | <0.01 | % |
| Undetermined | 0.00 | % |
| Sum | 100.00 | % |
| Alkalies | 2.05 | % |
| Silica Value | 94.79 | % |
| Base:Acid Ratio | 0.08 | % |
| T250 Temperature | >2900 | °F |
| Type of Ash | Bituminous | |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 2/1 | **Footage Begin :** | 1043.05 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1043.50 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 1201.70 | | |
| **Core Hole ID :** | CR-06-05 | | |
| **Date Sampled :** | 9/7/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha FLOOR | | |

**SGS Sample ID: 072-22212-002**

| Analyte | Result |
|---|---|
| Arsenic - TCLP | <0.01 mg/L |
| Barium - TCLP | 1.77 mg/L |
| Cadmium - TCLP | <0.005 mg/L |
| Chromium - TCLP | <0.005 mg/L |
| Lead - TCLP | <0.02 mg/L |
| Selenium - TCLP | <0.01 mg/L |
| Silver - TCLP | <0.005 mg/L |
| Mercury - TCLP | <0.0002 mg/L |
| Specific Gravity, Apparent | 2.17 g/cc |

Respectfully submitted,
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**072-22213-001**
Sample # 8/1
Carbon Resources LLC
Due: **10/20/2006**
*091733* Rec: 10/05/200€

**072-22213-002**
Sample # 1/2
Carbon Resources LLC
Due: **10/20/2006**
*091734* Rec: 10/05/200€

**072-22213-003**
Sample # 2/2
Carbon Resources LLC
Due: **10/20/2006**
*091735* Rec: 10/05/200€

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**072-22213-004**
Sample # 4/2
Carbon Resources LLC
Due: **10/20/2006**
*091736* Rec: 10/05/200€

# CORE INSTRUCTION FORM

PROJECT Carbon Resources Drilling
HOLE NUMBER CR-06-05-A
SEAM NAME Hiawatha
DATE SAMPLED 9/19/2006

COMPLETED BY Brad Lindsay
PHONE (435)851-9044
E-MAIL rocklogicconsulting@gmail.com

SHIP TO: SGS Minerals Services Division
4665 Paris Street
Suite B-200
Denver, CO 80239

SHIPPED FROM: Rock Logic Consulting LLC
PO Box 544
Cedaredge, Colorado 81413
ATTN: Brad Lindsay
INVOICE: Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
ATTN: Clay Wisdom

**072-22213-005**
Sample # 5/2
Carbon Resources LLC
Due: **10/20/2006**
*091737* Rec: 10/05/200€

Samples Analyzed for Acid Potential and Toxic Metals

*091738* Rec: 10/05/200€

6/1 Added 9-2010

| SAMPLE # | FROM | TO | Interval | SHORT PROXIMATE | LONG PROXIMATE | UNTIMATE | 8 POINT ASH FUSION | APPARENT SPECIFIC GRAVITY | HARDGROVE GRIND. | SULFUR FORMS | FREE SWELLING INDEX | MINERAL ASH | WATER SOL. ALKALIES | Na (SINGLE ELEMENT) | FLOURINE (SINGLE ELEMENT) | CHLORINE (SINGLE ELEMENT) | TRACE ELEMENTS (Coal Suite) | TRACE ELEMENTS (Rock Suite) | TOXIC METALS | ACID FORMING POTENTIAL | RESIN | SAVE SAMPLE FOR ARCHIVE | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8/1 | 1034.30 | 1035.30 | Hia Roof | X | | | X | | | | X | | | | | | | | X | X | | X | 1 foot upper roof rock |
| 1/2 | 1036.00 | 1036.30 | Hia Roof | X | | | X | | | | X | | | | | | | | X | X | | X | 6" immediate roof rock |
| 2/2 | 1036.30 | 1036.80 | Hia Top | X | | | X | | | | X | | | | | | | | | | | X | 6" top coal |
| 3/2 | 1036.80 | 1037.20 | Hia Upper | X | | | X | | | | X | | | | | | | | | | | X | upper section of coal seam |
| 4/2 | 1037.20 | 1037.80 | Hia Part | X | | | X | | | | X | | | | | | | | X | X | | X | rock parting |
| 5/2 | 1037.80 | 1039.50 | Hia Middle | X | | | X | | | | X | | | | | | | | | | | X | middle section of coal seam |
| 6/2 | 1039.50 | 1041.00 | Hia Middle | X | | | X | | | | X | | | | | | | | | | | X | middle section of coal seam |
| 7/2 | 1041.00 | 1042.00 | Hia Middle | X | | | X | | | | X | | | | | | | | | | | X | middle section of coal seam |
| 8/2 | 1042.00 | 1043.00 | Hia Lower | X | | | X | | | | X | | | | | | | | | | | X | lower section of coal seam |
| 9/2 | 1043.00 | 1044.25 | Hia Lower | X | | | X | | | | X | | | | | | | | | | | X | lower section of coal seam |
| 10/2 | 1044.25 | 1045.25 | Hia Bottom | X | | | X | | | | X | | | | | | | | | | | X | 1 foot of floor coal |
| 11/2 | 1045.25 | 1045.75 | Hia Floor | X | | | X | | | | X | | | | | | | | X | X | | X | 6" of floor rock |
| | | | | | | | | | | | | | | | | | | | | | | | |
| COMP-5 | 1036.30 | 1045.25 | Hia Seam | X | X | X | X | X | X | X | X | X | X | X | X | X | | | X | X | | X | Composite of all nine coal samples (2/2, 3/2, 4/2, 5/2, 6/2, 7/2, 8/2, 9/2, and 10/2) |

12/2 Added 9-2010

8,2

NOTE: Samples 3/2, 8/3, [redacted] are currently being tested for rock mechanics properties and will be forwarded to SGS at a future time

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**072-22213-007**
Sample # 7/2
Carbon Resources LLC
Due: **10/20/2006**
*091739* Rec: 10/05/200€

**072-22213-008**
Sample # 9/2
Carbon Resources LLC
Due: **10/20/2006**
*091740* Rec: 10/05/200€

**072-22213-009**
Sample # 10/2
Carbon Resources LLC
Due: **10/20/2006**
*091741* Rec: 10/05/200€

**072-22213-010**
Sample # 11/2
Carbon Resources LLC
Due: **10/20/2006**
*091742* Rec: 10/05/200€

# Analysis Report

August 20, 2010



Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

**Client Sample ID:** CR-06-05A 6/1 Roof
**Date Received:** 08/06/2010
**Matrix:** Unknown
**Kind of Sample :** Overburden

**SGS Minerals Sample ID: 072-47377-003**

| Tests | Result | Unit |
|---|---|---|
| Specific Gravity | 2.55 | |
| pH | 8.11 | s.u. |
| pH Temperature | 19.60 | ℃ |
| Acid Potential | 2.5 | |
| Neutralization Potential | 43.0 | |
| Conductivity | 1500 | umhos/cm |
| Carbon, Total Organic | 1.00 | % |
| Calcium Carbonate | 14.85 | % |
| Selenium, Hot Water | 0.04 | ppm |
| Calcium, Soluble | 200 | ppm |
| Magnesium, Soluble | 120 | ppm |
| Potassium, Soluble | 30 | ppm |
| Sodium, Soluble | 22 | ppm |
| Sodium Absorption Ratio | 1.8 | |
| Boron Available | 3 | ppm |

Sample Notes:
Neutralization Potential and Acid Potential reported as tons CaCO3 / 1000 tons material.

Method Reference(s):
"Field and Laboratory Methods Applicable to Overburden and Minesoils," EPA-600 / 2-78-054, March 1978
"Agriculture Handbook No. 60," Issued February 1954
"ASTM International Standards," Vol. 05.06, Standard D 6316, Sept. 2009

Somer Rodriguez, Denver Laboratory

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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 8/1 | **Footage Begin :** | 1034.30 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1035.30 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 3254.70 | | |
| **Core Hole ID :** | CR-06-05-A | | |
| **Date Sampled :** | 9/19/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-22213-001**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 2.59 | | |
| % Ash | 88.68 | 91.04 | |
| % Volatile Matter | 2.18 | 2.23 | 24.93 |
| % Fixed Carbon | 6.55 | 6.73 | 75.07 |
| Gross Calorific Value (Btu/lb) | 18 | 18 | 202 |
| % Sulfur | 0.46 | 0.47 | |

| Analyte | Result |
|---|---|
| Acid Potential | 14.69 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 50419.62 lb |
| Pounds of Sulfur/mm Btu | 258.72 lb |
| Pounds of SO2/mm Btu | 516.94 lb |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 8/1 | **Footage Begin :** | 1034.30 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1035.30 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 3254.70 | | |
| **Core Hole ID :** | CR-06-05-A | | |
| **Date Sampled :** | 9/19/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-22213-001**

| Analyte | Result | |
|---|---|---|
| Ash Analysis Basis | Ignited | |
| Silicon Dioxide SiO2 | 77.15 | % |
| Aluminum Oxide Al2O3 | 8.36 | % |
| Titanium Dioxide TiO2 | 0.52 | % |
| Iron Oxide Fe2O3 | 1.88 | % |
| Calcium Oxide CaO | 7.19 | % |
| Magnesium Oxide MgO | 1.79 | % |
| Potassium Oxide K2O | 2.15 | % |
| Sodium Oxide Na2O | 0.04 | % |
| Sulfur Trioxide SO3 | 0.58 | % |
| Phosphorus Pentoxide P2O5 | 0.28 | % |
| Strontium Oxide SrO | 0.01 | % |
| Barium Oxide BaO | 0.02 | % |
| Manganese Oxide, Mn3O4 | 0.03 | % |
| Undetermined | 0.00 | % |
| Sum | 100.00 | % |
| Alkalies | 1.46 | % |
| Silica Value | 87.66 | % |
| Base:Acid Ratio | 0.15 | % |
| T250 Temperature | >2900 | °F |
| Type of Ash | Lignitic | |

Respectfully submitted,
SGS NORTH AMERICA INC.

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October 30, 2006

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Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 8/1 | **Footage Begin :** | 1034.30 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1035.30 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 3254.70 | | |
| **Core Hole ID :** | CR-06-05-A | | |
| **Date Sampled :** | 9/19/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-22213-001**

| Analyte | Result | |
|---|---|---|
| Arsenic - TCLP | <0.01 | mg/L |
| Barium - TCLP | 1.11 | mg/L |
| Cadmium - TCLP | <0.005 | mg/L |
| Chromium - TCLP | <0.005 | mg/L |
| Lead - TCLP | <0.02 | mg/L |
| Selenium - TCLP | <0.01 | mg/L |
| Silver - TCLP | <0.005 | mg/L |
| Mercury - TCLP | <0.0002 | mg/L |
| Specific Gravity, Apparent | 2.58 | g/cc |

Respectfully submitted,
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Denver Laboratory



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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 1/2 | **Footage Begin :** | 1036.00 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1036.30 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 609.70 | | |
| **Core Hole ID :** | CR-06-05-A | | |
| **Date Sampled :** | 9/19/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-22213-002**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 4.69 | | |
| % Ash | 56.13 | 58.90 | |
| % Volatile Matter | 20.88 | 21.91 | 53.30 |
| % Fixed Carbon | 18.30 | 19.19 | 46.70 |
| Gross Calorific Value (Btu/lb) | 5106 | 5358 | 13035 |
| % Sulfur | 0.65 | 0.68 | |

| Analyte | Result |
|---|---|
| Acid Potential | 21.25 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 109.93 lb |
| Pounds of Sulfur/mm Btu | 1.27 lb |
| Pounds of SO2/mm Btu | 2.53 lb |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 1/2 | **Footage Begin :** | 1036.00 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1036.30 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 609.70 | | |
| **Core Hole ID :** | CR-06-05-A | | |
| **Date Sampled :** | 9/19/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-22213-002**

| Analyte | Result | |
|---|---|---|
| Ash Analysis Basis | Ignited | |
| Silicon Dioxide SiO2 | 71.49 | % |
| Aluminum Oxide Al2O3 | 19.39 | % |
| Titanium Dioxide TiO2 | 0.84 | % |
| Iron Oxide Fe2O3 | 2.72 | % |
| Calcium Oxide CaO | 0.74 | % |
| Magnesium Oxide MgO | 1.40 | % |
| Potassium Oxide K2O | 3.03 | % |
| Sodium Oxide Na2O | 0.07 | % |
| Sulfur Trioxide SO3 | 0.18 | % |
| Phosphorus Pentoxide P2O5 | 0.10 | % |
| Strontium Oxide SrO | 0.01 | % |
| Barium Oxide BaO | 0.03 | % |
| Manganese Oxide, Mn3O4 | <0.01 | % |
| Undetermined | 0.00 | % |
| Sum | 100.00 | % |
| Alkalies | 2.07 | % |
| Silica Value | 93.63 | % |
| Base:Acid Ratio | 0.09 | % |
| T250 Temperature | >2900 | °F |
| Type of Ash | Bituminous | |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



SGS North America Inc. | Minerals Services Division
4665 Paris Street, Suite B-200, Denver, CO 80239 t (303) 373-4772 f (303) 373-4791 www.us.sgs.com/minerals

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Member of the SGS Group

GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 1/2 | **Footage Begin :** | 1036.00 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1036.30 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 609.70 | | |
| **Core Hole ID :** | CR-06-05-A | | |
| **Date Sampled :** | 9/19/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-22213-002**

| Analyte | Result |
|---|---|
| Arsenic - TCLP | <0.01 mg/L |
| Barium - TCLP | 1.54 mg/L |
| Cadmium - TCLP | <0.005 mg/L |
| Chromium - TCLP | <0.005 mg/L |
| Lead - TCLP | <0.02 mg/L |
| Selenium - TCLP | <0.01 mg/L |
| Silver - TCLP | <0.005 mg/L |
| Mercury - TCLP | <0.0002 mg/L |
| Specific Gravity, Apparent | 1.83 g/cc |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 11/2 | **Footage Begin :** | 1045.25 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1045.75 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 1666.40 | | |
| **Core Hole ID :** | CR-06-05-A | | |
| **Date Sampled :** | 9/19/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha FLOOR | | |

**SGS Sample ID: 072-22213-010**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 5.46 | | |
| % Ash | 87.24 | 92.27 | |
| % Volatile Matter | 5.72 | 6.05 | 78.33 |
| % Fixed Carbon | 1.58 | 1.68 | 21.67 |
| Gross Calorific Value (Btu/lb) | 112 | 118 | 1527 |
| % Sulfur | 0.47 | 0.50 | |

| Analyte | Result |
|---|---|
| Acid Potential | 15.63 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 7819.64 lb |
| Pounds of Sulfur/mm Btu | 42.46 lb |
| Pounds of SO2/mm Btu | 84.84 lb |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 11/2 | **Footage Begin :** | 1045.25 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1045.75 |
| **Matrix:** | Coal | | |
| **Net Sample Weight:** | 1666.40 | | |
| **Core Hole ID :** | CR-06-05-A | | |
| **Date Sampled :** | 9/19/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha | | |

**SGS Sample ID: 072-22213-010**

| Analyte | Result | |
|---|---|---|
| Ash Analysis Basis | Ignited | |
| Silicon Dioxide SiO2 | 73.00 | % |
| Aluminum Oxide Al2O3 | 18.11 | % |
| Titanium Dioxide TiO2 | 0.87 | % |
| Iron Oxide Fe2O3 | 2.31 | % |
| Calcium Oxide CaO | 0.74 | % |
| Magnesium Oxide MgO | 1.22 | % |
| Potassium Oxide K2O | 3.23 | % |
| Sodium Oxide Na2O | 0.07 | % |
| Sulfur Trioxide SO3 | 0.21 | % |
| Phosphorus Pentoxide P2O5 | 0.22 | % |
| Strontium Oxide SrO | 0.00 | % |
| Barium Oxide BaO | 0.02 | % |
| Manganese Oxide, Mn3O4 | <0.01 | % |
| Undetermined | 0.00 | % |
| Sum | 100.00 | % |
| Alkalies | 2.20 | % |
| Silica Value | 94.47 | % |
| Base:Acid Ratio | 0.08 | % |
| T250 Temperature | >2900 | °F |
| Type of Ash | Bituminous | |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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# Analysis Report

August 20, 2010



Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

**Client Sample ID:** CR-06-05A 12/2 Floor
**Date Received:** 08/06/2010
**Matrix:** Unknown
**Kind of Sample :** Overburden

**SGS Minerals Sample ID: 072-47377-002**

| Tests | Result | Unit |
|---|---|---|
| Specific Gravity | 2.55 | |
| pH | 4.08 | s.u. |
| pH Temperature | 19.10 | °C |
| Acid Potential | 11.1 | |
| Neutralization Potential | 0.5 | |
| Conductivity | 4400 | umhos/cm |
| Carbon, Total Organic | 2.61 | % |
| Calcium Carbonate | <0.10 | % |
| Selenium, Hot Water | 0.11 | ppm |
| Calcium, Soluble | 720 | ppm |
| Magnesium, Soluble | 410 | ppm |
| Potassium, Soluble | 230 | ppm |
| Sodium, Soluble | 69 | ppm |
| Sodium Absorption Ratio | 3.4 | |
| Boron Available | 3 | ppm |

Sample Notes:
Neutralization Potential and Acid Potential reported as tons CaCO3 / 1000 tons material.

Method Reference(s):
"Field and Laboratory Methods Applicable to Overburden and Minesoils," EPA-600 / 2-78-054, March 1978
"Agriculture Handbook No. 60," Issued February 1954
"ASTM International Standards," Vol. 05.06, Standard D 6316, Sept. 2009

Somer Rodriguez, Denver Laboratory

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Carbon Resources LLC

# CORE LOG

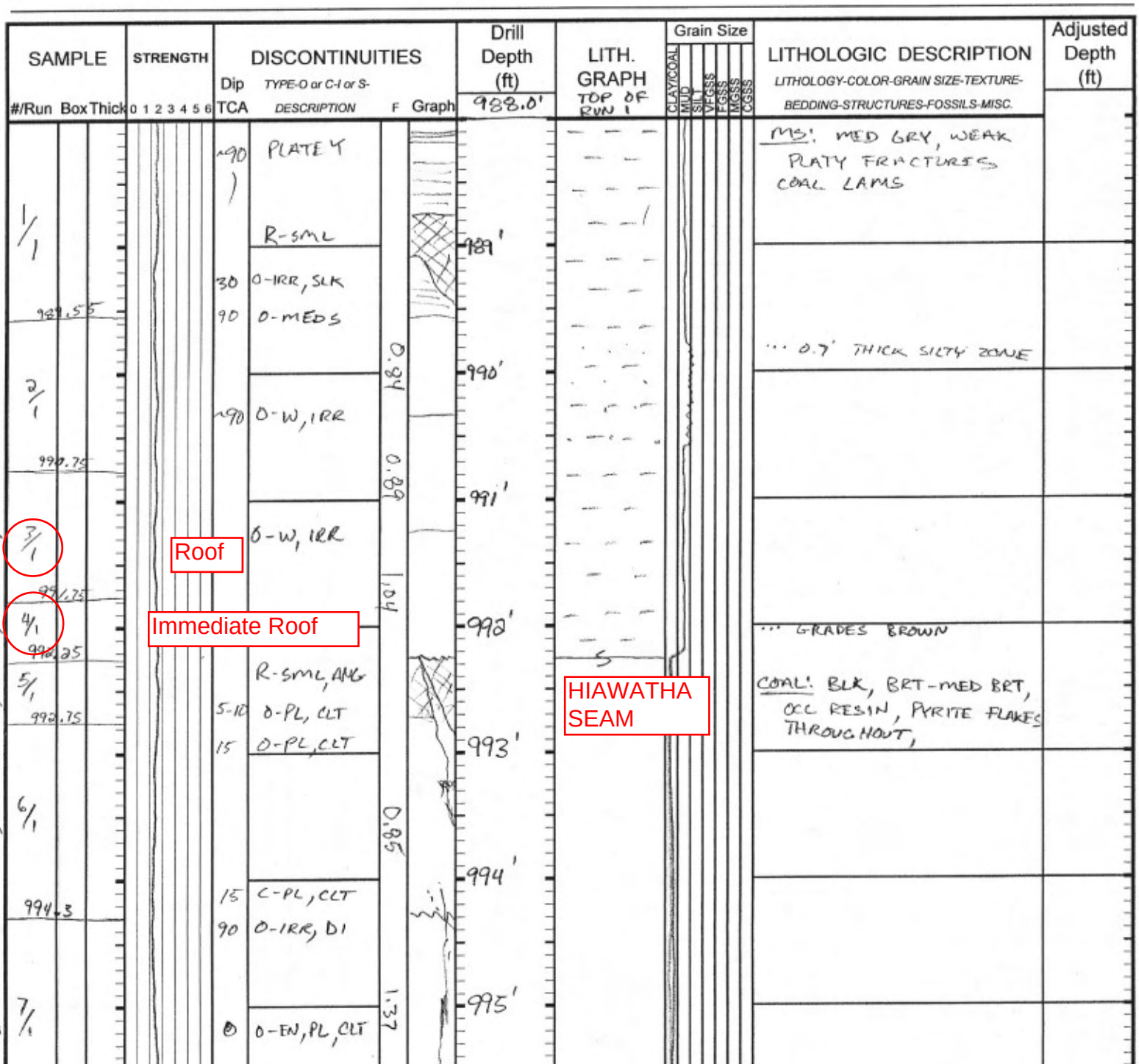
HOLE CR-06-09

PROJECT SCOFIELD SUMMER 06 Page 1 of 2

LOGGED BY BRAD LINDSAY DATE 1 SEPT 06 RUN 1 INTERVAL 988.0' – 999.5'

Length Recovered 10.6' Length Cored 10.5' % Recovery _____ Collar Elevation _____ RQD _____

Observations/comments EXTRA 0.1' IN THE SHOE



# Analysis Report

August 20, 2010



Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

**Client Sample ID:** CR-06-09 3/1 ~~Floor~~ Roof **Kind of Sample :** Overburden
**Date Received:** 08/06/2010
**Matrix:** Unknown

**SGS Minerals Sample ID: 072-47377-004**

| Tests | Result | Unit |
|---|---|---|
| Specific Gravity | 2.62 | |
| pH | 6.34 | s.u. |
| pH Temperature | 19.10 | ℃ |
| Acid Potential | 23.7 | |
| Neutralization Potential | 38.9 | |
| Conductivity | 3600 | umhos/cm |
| Carbon, Total Organic | 1.49 | % |
| Calcium Carbonate | 3.64 | % |
| Selenium, Hot Water | 0.22 | ppm |
| Calcium, Soluble | 630 | ppm |
| Magnesium, Soluble | 460 | ppm |
| Potassium, Soluble | 100 | ppm |
| Sodium, Soluble | 46 | ppm |
| Sodium Absorption Ratio | 2.0 | |
| Boron Available | 2 | ppm |

Sample Notes:
Neutralization Potential and Acid Potential reported as tons CaCO3 / 1000 tons material.

Method Reference(s):
"Field and Laboratory Methods Applicable to Overburden and Minesoils," EPA-600 / 2-78-054, March 1978
"Agriculture Handbook No. 60," Issued February 1954
"ASTM International Standards," Vol. 05.06, Standard D 6316, Sept. 2009

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SGS

# Analysis Report

August 20, 2010



Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

Immediate Roof

**Client Sample ID:** CR-06-09 4/1 ~~Floor~~ **Kind of Sample :** Overburden
**Date Received:** 08/06/2010
**Matrix:** Unknown

**SGS Minerals Sample ID: 072-47377-005**

| Tests | Result | Unit |
|---|---|---|
| Specific Gravity | 2.56 | |
| pH | 4.39 | s.u. |
| pH Temperature | 19.30 | ℃ |
| Acid Potential | 40.1 | |
| Neutralization Potential | 21.1 | |
| Conductivity | 5400 | umhos/cm |
| Carbon, Total Organic | 8.63 | % |
| Calcium Carbonate | 0.27 | % |
| Selenium, Hot Water | 0.09 | ppm |
| Calcium, Soluble | 560 | ppm |
| Magnesium, Soluble | 1100 | ppm |
| Potassium, Soluble | 99 | ppm |
| Sodium, Soluble | 51 | ppm |
| Sodium Absorption Ratio | 1.7 | |
| Boron Available | <1 | ppm |

Sample Notes:
Neutralization Potential and Acid Potential reported as tons CaCO3 / 1000 tons material.

Method Reference(s):
"Field and Laboratory Methods Applicable to Overburden and Minesoils," EPA-600 / 2-78-054, March 1978
"Agriculture Handbook No. 60," Issued February 1954
"ASTM International Standards," Vol. 05.06, Standard D 6316, Sept. 2009

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**072-22214-001**
Sample # 8/2
Carbon Resources LLC
Due: **10/20/2006**
*091743* Rec: 10/05/2006

**072-22214-002**
Sample # 10/2
Carbon Resources LLC
Due: **10/20/2006**
*091744* Rec: 10/05/2006

**072-22214-003**
Sample # 11/2
Carbon Resources LLC
Due: **10/20/2006**
*091745* Rec: 10/05/2006

RECEIVED OCT - 5 2006

**072-22214-004**
Sample # 12/2
Carbon Resources LLC
Due: **10/20/2006**
*091746* Rec: 10/05/2006

**072-22214-005**
Sample # 2/3
Carbon Resources LLC
Due: **10/20/2006**
*091747* Rec: 10/05/2006

**072-22214-006**
Sample # 4/3
Carbon Resources LLC
Due: **10/20/2006**
*091748* Rec: 10/05/2006

**072-22214-007**
Sample # 5/3
Carbon Resources LLC
Due: **10/20/2006**
*091749* Rec: 10/05/2006

**072-22214-008**
Sample # 6/3
Carbon Resources LLC
Due: **10/20/2006**
*091750* Rec: 10/05/2006

# CORE INSTRUCTION FORM

PROJECT Carbon Resources Drilling
HOLE NUMBER **CR-06-09-BLW**
SEAM NAME Hiawatha
DATE SAMPLED 8/6/2006

COMPLETED BY Brad Lindsay
PHONE (435)851-9044
E-MAIL rocklogicconsulting@gmail.com

SHIP TO: SGS Minerals Services Division
4665 Paris Street
Suite B-200
Denver, CO 80239

SHIPPED FROM: Rock Logic Consulting LLC
PO Box 544
Cedaredge, Colorado 81413
ATTN: Brad Lindsay
INVOICE: Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
ATTN: Clay Wisdom

Samples Analyzed for Acid/Base & Toxic Metals

| SAMPLE # | FROM | TO | Interval | SHORT PROXIMATE | LONG PROXIMATE | ULTIMATE | 8 POINT ASH FUSION | APPARENT SPECIFIC GRAVITY | HARDGROVE GRIND. | SULFUR FORMS | FREE SWELLING INDEX | MINERAL ASH | WATER SOL. ALKALIES | Na (SINGLE ELEMENT) | FLOURINE (SINGLE ELEMENT) | CHLORINE (SINGLE ELEMENT) | TRACE ELEMENTS (Coal Suite) | TRACE ELEMENTS (Rock Suite) | TOXIC METALS | ACID FORMING POTENTIAL | RESIN | SAVE SAMPLE FOR ARCHIVE | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8/2 | 987.85 | 988.75 | Hia Roof | X | | | X | | | | X | | | | | | | | X | X | | X | 1 foot upper roof rock |
| 9/2 | 988.75 | 989.40 | Hia Roof | X | | | X | | | | X | | | | | | | | X | X | | X | 6" immediate roof rock |
| 10/2 | 989.40 | 989.90 | Hia Top | X | | | X | | | | X | | | | | | | | | | | X | 6" top coal |
| 11/2 | 989.90 | 990.90 | Hia Upper | X | | | X | | | | X | | | | | | | | | | | X | upper section of coal seam |
| 12/2 | 990.90 | 992.40 | Hia Upper | X | | | X | | | | X | | | | | | | | | | | X | upper section of coal seam |
| 1/3 | 996.60 | 997.50 | Hia Middle | X | | | X | | | | X | | | | | | | | | | | X | middle section of coal seam |
| 2/3 | 997.50 | 998.30 | Hia Middle | X | | | X | | | | X | | | | | | | | | | | X | middle section of coal seam |
| 3/3 | 998.30 | 999.45 | Hia Middle | X | | | X | | | | X | | | | | | | | | | | X | middle section of coal seam |
| 4/3 | 999.45 | 1000.30 | Hia Bottom | X | | | X | | | | X | | | | | | | | | | | X | lower section of coal seam |
| 5/3 | 1000.30 | 1001.30 | Hia Bottom | X | | | X | | | | X | | | | | | | | | | | X | 1 foot of floor coal |
| 6/3 | 1001.30 | 1001.80 | Hia Floor | X | | | X | | | | X | | | | | | | | X | X | | X | 6" of floor rock |
| | | | | | | | | | | | | | | | | | | | | | | | |
| COMP-4 | 989.40 | 1001.30 | Hia Seam | X | X | X | X | X | X | X | X | X | X | X | X | X | | | X | X | | X | Composite of all eight coal samples (10/2, 11/2, 12/2, 1/3, 2/3, 3/3, 4/3, and 5/3) |

NOTE: Samples 9/2, 1/3, & 3/3 are currently being tested for rock mechanics properties and will be forwarded to SGS at a future time

CHANGE IN POSSESSION

Representing

Received By

Relinquished by

SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 8/2 | **Footage Begin :** | 987.85 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 988.75 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 3012.40 | | |
| **Core Hole ID :** | CR-06-09-BLW | | |
| **Date Sampled :** | 8/6/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-22214-001**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 3.31 | | |
| % Ash | 88.32 | 91.35 | |
| % Volatile Matter | 7.41 | 7.67 | 88.60 |
| % Fixed Carbon | 0.96 | 0.98 | 11.40 |
| Gross Calorific Value (Btu/lb) | 356 | 368 | 4253 |
| % Sulfur | 0.78 | 0.81 | |

| Analyte | Result |
|---|---|
| Acid Potential | 25.31 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 2481.80 lb |
| Pounds of Sulfur/mm Btu | 21.93 lb |
| Pounds of SO2/mm Btu | 43.83 lb |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



SGS North America Inc. | Minerals Services Division
4665 Paris Street, Suite B-200, Denver, CO 80239 t (303) 373-4772 f (303) 373-4791 www.us.sgs.com/minerals

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Member of the SGS Group

GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 8/2 | **Footage Begin :** | 987.85 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 988.75 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 3012.40 | | |
| **Core Hole ID :** | CR-06-09-BLW | | |
| **Date Sampled :** | 8/6/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-22214-001**

| Analyte | Result |
|---|---|
| Ash Analysis Basis | Ignited |
| Silicon Dioxide SiO2 | 70.81 % |
| Aluminum Oxide Al2O3 | 16.42 % |
| Titanium Dioxide TiO2 | 0.74 % |
| Iron Oxide Fe2O3 | 3.28 % |
| Calcium Oxide CaO | 2.20 % |
| Magnesium Oxide MgO | 2.15 % |
| Potassium Oxide K2O | 3.18 % |
| Sodium Oxide Na2O | 0.08 % |
| Sulfur Trioxide SO3 | 0.70 % |
| Phosphorus Pentoxide P2O5 | 0.35 % |
| Strontium Oxide SrO | 0.01 % |
| Barium Oxide BaO | 0.06 % |
| Manganese Oxide, Mn3O4 | 0.02 % |
| Undetermined | 0.00 % |
| Sum | 100.00 % |
| Alkalies | 2.18 % |
| Silica Value | 90.27 % |
| Base:Acid Ratio | 0.12 % |
| T250 Temperature | >2900 °F |
| Type of Ash | Lignitic |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 8/2 | **Footage Begin :** | 987.85 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 988.75 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 3012.40 | | |
| **Core Hole ID :** | CR-06-09-BLW | | |
| **Date Sampled :** | 8/6/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-22214-001**

| Analyte | Result | |
|---|---|---|
| Arsenic - TCLP | <0.01 | mg/L |
| Barium - TCLP | 0.16 | mg/L |
| Cadmium - TCLP | <0.005 | mg/L |
| Chromium - TCLP | <0.005 | mg/L |
| Lead - TCLP | <0.02 | mg/L |
| Selenium - TCLP | 0.01 | mg/L |
| Silver - TCLP | <0.005 | mg/L |
| Mercury - TCLP | <0.0002 | mg/L |
| Specific Gravity, Apparent | 2.48 | g/cc |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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GENERAL CONDITIONS OF SERVICE ON REVERSE

January 21, 2007

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 9/2 | **Footage Begin :** | 988.75 |
| **Date Received:** | 12/12/2006 | **Footage End :** | 989.40 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 2088.60 | | |
| **Core Hole ID :** | CR-06-09-BLW | | |
| **Date Sampled :** | 8/6/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-23528-001**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 3.83 | | |
| % Ash | 83.75 | 87.08 | |
| % Volatile Matter | 12.40 | 12.89 | 99.82 |
| % Fixed Carbon | 0.02 | 0.03 | 0.18 |
| Gross Calorific Value (Btu/lb) | 657 | 683 | 5289 |
| % Sulfur | 0.57 | 0.60 | |

| Analyte | Result |
|---|---|
| Acid Potential | 16.56 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 1274.71 lb |
| Pounds of Sulfur/mm Btu | 8.74 lb |
| Pounds of SO2/mm Btu | 17.47 lb |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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January 21, 2007

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 9/2 | **Footage Begin :** | 988.75 |
| **Date Received:** | 12/12/2006 | **Footage End :** | 989.40 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 2088.60 | | |
| **Core Hole ID :** | CR-06-09-BLW | | |
| **Date Sampled :** | 8/6/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-23528-001**

| Analyte | Result |
|---|---|
| Ash Analysis Basis | Ignited |
| Silicon Dioxide SiO2 | 67.94 % |
| Aluminum Oxide Al2O3 | 19.54 % |
| Titanium Dioxide TiO2 | 0.82 % |
| Iron Oxide Fe2O3 | 3.36 % |
| Calcium Oxide CaO | 1.53 % |
| Magnesium Oxide MgO | 2.21 % |
| Potassium Oxide K2O | 3.43 % |
| Sodium Oxide Na2O | 0.12 % |
| Sulfur Trioxide SO3 | 0.76 % |
| Phosphorus Pentoxide P2O5 | 0.22 % |
| Strontium Oxide SrO | 0.01 % |
| Barium Oxide BaO | 0.05 % |
| Manganese Oxide, Mn3O4 | 0.01 % |
| Undetermined | 0.00 % |
| Sum | 100.00 % |
| Alkalies | 2.38 % |
| Silica Value | 90.54 % |
| Base:Acid Ratio | 0.12 % |
| T250 Temperature | >2900 °F |
| Type of Ash | Lignitic |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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January 21, 2007

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 9/2 | **Footage Begin :** | 988.75 |
| **Date Received:** | 12/12/2006 | **Footage End :** | 989.40 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 2088.60 | | |
| **Core Hole ID :** | CR-06-09-BLW | | |
| **Date Sampled :** | 8/6/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-23528-001**

| Analyte | Result |
|---|---|
| Arsenic - TCLP | <0.01 mg/L |
| Barium - TCLP | <0.05 mg/L |
| Cadmium - TCLP | 0.005 mg/L |
| Chromium - TCLP | <0.005 mg/L |
| Lead - TCLP | <0.02 mg/L |
| Selenium - TCLP | 0.03 mg/L |
| Silver - TCLP | <0.005 mg/L |
| Mercury - TCLP | <0.0002 mg/L |
| Specific Gravity, Apparent | 2.34 g/cc |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 6/3 | **Footage Begin :** | 1001.30 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1001.80 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 1563.70 | | |
| **Core Hole ID :** | CR-06-09-BLW | | |
| **Date Sampled :** | 8/6/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha FLOOR | | |

**SGS Sample ID: 072-22214-008**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 3.80 | | |
| % Ash | 85.57 | 88.94 | |
| % Volatile Matter | 7.12 | 7.40 | 66.90 |
| % Fixed Carbon | 3.51 | 3.66 | 33.10 |
| Gross Calorific Value (Btu/lb) | 281 | 292 | 2642 |
| % Sulfur | 0.92 | 0.96 | |

| Analyte | Result |
|---|---|
| Acid Potential | 30.00 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 3044.77 lb |
| Pounds of Sulfur/mm Btu | 32.90 lb |
| Pounds of SO2/mm Btu | 65.74 lb |

Respectfully submitted,
SGS NORTH AMERICA INC.

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GENERAL CONDITIONS OF SERVICE ON REVERSE

SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 6/3 | **Footage Begin :** | 1001.30 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1001.80 |
| **Matrix:** | Coal ROCK | | |
| **Net Sample Weight:** | 1563.70 | | |
| **Core Hole ID :** | CR-06-09-BLW | | |
| **Date Sampled :** | 8/6/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha FLOOR | | |

**SGS Sample ID: 072-22214-008**

| Analyte | Result | |
|---|---|---|
| Ash Analysis Basis | Ignited | |
| Silicon Dioxide SiO2 | 73.18 | % |
| Aluminum Oxide Al2O3 | 17.61 | % |
| Titanium Dioxide TiO2 | 0.86 | % |
| Iron Oxide Fe2O3 | 3.24 | % |
| Calcium Oxide CaO | 0.54 | % |
| Magnesium Oxide MgO | 1.22 | % |
| Potassium Oxide K2O | 2.95 | % |
| Sodium Oxide Na2O | 0.07 | % |
| Sulfur Trioxide SO3 | 0.23 | % |
| Phosphorus Pentoxide P2O5 | 0.08 | % |
| Strontium Oxide SrO | 0.00 | % |
| Barium Oxide BaO | 0.02 | % |
| Manganese Oxide, Mn3O4 | <0.01 | % |
| Undetermined | 0.00 | % |
| Sum | 100.00 | % |
| Alkalies | 2.01 | % |
| Silica Value | 93.60 | % |
| Base:Acid Ratio | 0.09 | % |
| T250 Temperature | >2900 | °F |
| Type of Ash | Bituminous | |

Respectfully submitted,
SGS NORTH AMERICA INC.

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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 6/3 | **Footage Begin :** | 1001.30 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1001.80 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 1563.70 | | |
| **Core Hole ID :** | CR-06-09-BLW | | |
| **Date Sampled :** | 8/6/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha FLOOR | | |

**SGS Sample ID: 072-22214-008**

| Analyte | Result |
|---|---|
| Arsenic - TCLP | <0.01 mg/L |
| Barium - TCLP | <0.05 mg/L |
| Cadmium - TCLP | 0.010 mg/L |
| Chromium - TCLP | <0.005 mg/L |
| Lead - TCLP | 0.04 mg/L |
| Selenium - TCLP | <0.01 mg/L |
| Silver - TCLP | <0.005 mg/L |
| Mercury - TCLP | <0.0002 mg/L |
| Specific Gravity, Apparent | 2.42 g/cc |

Respectfully submitted,
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072-22215-001
Sample # 9A/3
Carbon Resources LLC
Due: 10/20/2006
*091753* Rec: 10/05/2006

072-22215-002
Sample # 10/3
Carbon Resources LLC
Due: 10/20/2006
*091754* Rec: 10/05/2006

072-22215-003
Sample # 11/3
Carbon Resources LLC
Due: 10/20/2006
*091755* Rec: 10/05/2006

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072-22215-004
Sample A# 12A/3
Carbon Resources LLC
Due: 10/20/2006
*091756* Rec: 10/05/2006

# CORE INSTRUCTION FORM

PROJECT Carbon Resources Drilling
HOLE NUMBER CR-06-10
SEAM NAME Hiawatha
DATE SAMPLED 7/23/2006

COMPLETED BY Brad Lindsay
PHONE (435)851-9044
E-MAIL rocklogicconsulting@gmail.com

SHIP TO: SGS Minerals Services Division
4665 Paris Street
Suite B-200
Denver, CO 80239

SHIPPED FROM: Rock Logic Consulting LLC
PO Box 544
Cedaredge, Colorado 81413
ATTN: Brad Lindsay
INVOICE: Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
ATTN: Clay Wisdom

072-22215-005
Sample # 12C/3
Carbon Resources LLC
Due: 10/20/2006
*091757* Rec: 10/05/2006

Samples Analyzed for Acid/Base & Toxic Metals

072-22215-006
Sample # 13B/3
Carbon Resources LLC
Due: 10/20/2006
*091758* Rec: 10/05/2006

| SAMPLE # | FROM | TO | Interval | SHORT PROXIMATE | LONG PROXIMATE | UNTIMATE | 8 POINT ASH FUSION | APPARENT SPECIFIC GRAVITY | HARDGROVE GRIND. | SULFUR FORMS | FREE SWELLING INDEX | MINERAL ASH | WATER SOL. ALKALIES | Na (SINGLE ELEMENT) | FLOURINE (SINGLE ELEMENT) | CHLORINE (SINGLE ELEMENT) | TRACE ELEMENTS (Coal Suite) | TRACE ELEMENTS (Rock Suite) | TOXIC METALS | ACID FORMING POTENTIAL | RESIN | SAVE SAMPLE FOR ARCHIVE | SPECIAL INSTRUCTIONS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9A/3 | 1210.25 | 1210.70 | Hia Roof | X | | | X | | | | X | | | | | | | | X | X | | X | 1 foot upper roof rock |
| 9B/3 | 1210.70 | 1211.25 | Hia Roof | X | | | X | | | | X | | | | | | | | X | X | | X | 1 foot upper roof rock |
| 10/3 | 1211.25 | 1211.75 | Hia Roof | X | | | X | | | | X | | | | | | | | X | X | | X | 6" immediate roof rock |
| 11/3 | 1211.75 | 1212.25 | Hia Top | X | | | X | | | | X | | | | | | | | | | | X | 6" top coal |
| 12A/3 | 1212.25 | 1213.55 | Hia Upper | X | | | X | | | | X | | | | | | | | | | | X | upper section of coal seam |
| 12B/3 | 1213.55 | 1214.25 | Hia Upper | X | | | X | | | | X | | | | | | | | | | | X | upper section of coal seam |
| 12C/3 | 1214.25 | 1216.00 | Hia Upper | X | | | X | | | | X | | | | | | | | | | | X | upper section of coal seam |
| 13A/3 | 1216.00 | 1216.60 | Hia Middle | X | | | X | | | | X | | | | | | | | | | | X | middle section of coal seam |
| 13B/3 | 1216.60 | 1217.65 | Hia Middle | X | | | X | | | | X | | | | | | | | | | | X | middle section of coal seam |
| 13C/3 | 1217.65 | 1219.00 | Hia Middle | X | | | X | | | | X | | | | | | | | | | | X | middle section of coal seam |
| 13D/3 | 1219.00 | 1220.90 | Hia Middle | X | | | X | | | | X | | | | | | | | | | | X | middle section of coal seam |
| 1/4 | 1220.90 | 1222.00 | Hia Lower | X | | | X | | | | X | | | | | | | | | | | X | lower section of coal seam |
| 2/4 | 1222.00 | 1222.50 | Hia Bottom | X | | | X | | | | X | | | | | | | | | | | X | 1 foot of floor coal |
| 3/4 | 1222.50 | 1223.00 | Hia Floor | X | | | X | | | | X | | | | | | | | X | X | | X | 6" of floor rock |
| | | | | | | | | | | | | | | | | | | | | | | | |
| COMP-3 | | | Hia Seam | X | X | X | X | X | X | X | X | X | X | X | X | X | | | X | X | | X | Composite of all coal samples (11/3, 12A/3, 12B/3, 12C/3, 13A/3, 13B/3, 13C/3, 13D/3, 1/4, and 2/4) |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | |

NOTE: Samples 9B/3, 12B/3, & 13A/3 are currently being tested for rock mechanics properties and will be forwarded to SGS at a future time

CHANGE IN POSSESSION
Relinquished by
Representing
Received By
Representing

072-22215-007
Sample # 13C/3
Carbon Resources LLC
Due: 10/20/2006
*091759* Rec: 10/05/2006

072-22215-008
Sample # 13D/3
Carbon Resources LLC
Due: 10/20/2006
*091760* Rec: 10/05/2006

072-22215-009
Sample # 1/4
Carbon Resources LLC
Due: 10/20/2006
*091761* Rec: 10/05/2006

072-22215-010
Sample # 2/4
Carbon Resources LLC
Due: 10/20/2006
*091762* Rec: 10/05/2006

072-22215-011
Sample # 3/4
Carbon Resources LLC
Due: 10/20/2006
*091763* Rec: 10/05/2006

SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 9A/3 | **Footage Begin :** | 1210.25 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1210.70 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 1406.50 | | |
| **Core Hole ID :** | CR-06-10 | | |
| **Date Sampled :** | 7/23/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-22215-001**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 3.77 | | |
| % Ash | 91.47 | 95.06 | |
| % Volatile Matter | 4.70 | 4.88 | 98.75 |
| % Fixed Carbon | 0.06 | 0.06 | 1.25 |
| Gross Calorific Value (Btu/lb) | 58 | 60 | 1217 |
| % Sulfur | 0.35 | 0.37 | |

| Analyte | Result |
|---|---|
| Acid Potential | 11.56 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 15805.53 lb |
| Pounds of Sulfur/mm Btu | 61.27 lb |
| Pounds of SO2/mm Btu | 122.42 lb |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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4665 Paris Street, Suite B-200, Denver, CO 80239 t (303) 373-4772 f (303) 373-4791 www.us.sgs.com/minerals

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GENERAL CONDITIONS OF SERVICE ON REVERSE

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 9A/3 | **Footage Begin :** | 1210.25 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1210.70 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 1406.50 | | |
| **Core Hole ID :** | CR-06-10 | | |
| **Date Sampled :** | 7/23/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-22215-001**

| Analyte | Result | |
|---|---|---|
| Ash Analysis Basis | Ignited | |
| Silicon Dioxide $SiO_2$ | 77.01 | % |
| Aluminum Oxide $Al_2O_3$ | 15.19 | % |
| Titanium Dioxide $TiO_2$ | 0.74 | % |
| Iron Oxide $Fe_2O_3$ | 1.96 | % |
| Calcium Oxide CaO | 0.66 | % |
| Magnesium Oxide MgO | 1.01 | % |
| Potassium Oxide $K_2O$ | 2.91 | % |
| Sodium Oxide $Na_2O$ | 0.07 | % |
| Sulfur Trioxide $SO_3$ | 0.18 | % |
| Phosphorus Pentoxide $P_2O_5$ | 0.24 | % |
| Strontium Oxide SrO | 0.01 | % |
| Barium Oxide BaO | 0.02 | % |
| Manganese Oxide, $Mn_3O_4$ | <0.01 | % |
| Undetermined | 0.00 | % |
| Sum | 100.00 | % |
| Alkalies | 1.99 | % |
| Silica Value | 95.50 | % |
| Base:Acid Ratio | 0.07 | % |
| T250 Temperature | >2900 | °F |
| Type of Ash | Bituminous | |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

**Client Sample ID:** Sample # 9A/3
**Date Received:** 10/05/2006
**Matrix:** ~~Coal~~ ROCK
**Net Sample Weight:** 1406.50
**Core Hole ID :** CR-06-10
**Date Sampled :** 7/23/2006
**Project Name/# :** Carbon Resources Drilling
**Seam :** Hiawatha ROOF

**Footage Begin :** 1210.25
**Footage End :** 1210.70

**SGS Sample ID: 072-22215-001**

| Analyte | Result |
|---|---|
| Arsenic - TCLP | <0.01 mg/L |
| Barium - TCLP | 0.72 mg/L |
| Cadmium - TCLP | <0.005 mg/L |
| Chromium - TCLP | <0.005 mg/L |
| Lead - TCLP | 0.04 mg/L |
| Selenium - TCLP | <0.01 mg/L |
| Silver - TCLP | <0.005 mg/L |
| Mercury - TCLP | <0.0002 mg/L |
| Specific Gravity, Apparent | 2.50 g/cc |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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January 21, 2007

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 9B/3 | **Footage Begin :** | 1210.70 |
| **Date Received:** | 12/12/2006 | **Footage End :** | 1211.25 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 1707.20 | | |
| **Core Hole ID :** | CR-06-10 | | |
| **Date Sampled :** | 7/23/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-23527-001**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 1.13 | | |
| % Ash | 92.80 | 93.86 | |
| % Volatile Matter | 6.05 | 6.12 | 99.68 |
| % Fixed Carbon | 0.02 | 0.02 | 0.32 |
| Gross Calorific Value (Btu/lb) | 1 | 1 | 16 |
| % Sulfur | 0.04 | 0.04 | |

| Analyte | Result |
|---|---|
| Acid Potential | 1.25 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 936501.14 lb |
| Pounds of Sulfur/mm Btu | 438.89 lb |
| Pounds of SO2/mm Btu | 876.95 lb |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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January 21, 2007

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

**Client Sample ID:** 9B/3
**Date Received:** 12/12/2006
**Matrix:** Coal ROCK
**Net Sample Weight:** 1707.20
**Core Hole ID :** CR-06-10
**Date Sampled :** 7/23/2006
**Project Name/# :** Carbon Resources Drilling
**Seam :** Hiawatha ROOF

**Footage Begin :** 1210.70
**Footage End :** 1211.25

**SGS Sample ID: 072-23527-001**

| Analyte | Result | |
|---|---|---|
| Ash Analysis Basis | Ignited | |
| Silicon Dioxide SiO2 | 86.49 | % |
| Aluminum Oxide Al2O3 | 4.11 | % |
| Titanium Dioxide TiO2 | 0.28 | % |
| Iron Oxide Fe2O3 | 2.51 | % |
| Calcium Oxide CaO | 3.77 | % |
| Magnesium Oxide MgO | 1.35 | % |
| Potassium Oxide K2O | 1.10 | % |
| Sodium Oxide Na2O | 0.02 | % |
| Sulfur Trioxide SO3 | 0.21 | % |
| Phosphorus Pentoxide P2O5 | 0.13 | % |
| Strontium Oxide SrO | 0.00 | % |
| Barium Oxide BaO | 0.01 | % |
| Manganese Oxide, Mn3O4 | 0.02 | % |
| Undetermined | 0.00 | % |
| Sum | 100.00 | % |
| Alkalies | 0.74 | % |
| Silica Value | 91.89 | % |
| Base:Acid Ratio | 0.10 | % |
| T250 Temperature | >2900 | °F |
| Type of Ash | Lignitic | |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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January 21, 2007

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PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 9B/3 | **Footage Begin :** | 1210.70 |
| **Date Received:** | 12/12/2006 | **Footage End :** | 1211.25 |
| **Matrix:** | Coal | | |
| **Net Sample Weight:** | 1707.20 | | |
| **Core Hole ID :** | CR-06-10 | | |
| **Date Sampled :** | 7/23/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha | | |

**SGS Sample ID: 072-23527-001**

| Analyte | Result |
|---|---|
| Arsenic - TCLP | <0.01 mg/L |
| Barium - TCLP | <0.05 mg/L |
| Cadmium - TCLP | <0.005 mg/L |
| Chromium - TCLP | <0.005 mg/L |
| Lead - TCLP | <0.02 mg/L |
| Selenium - TCLP | <0.01 mg/L |
| Silver - TCLP | <0.005 mg/L |
| Mercury - TCLP | <0.0002 mg/L |
| Specific Gravity, Apparent | 2.59 g/cc |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

**Client Sample ID:** Sample # 10/3
**Date Received:** 10/05/2006
**Matrix:** ~~Coal~~ Rock
**Net Sample Weight:** 1732.00
**Core Hole ID :** CR-06-10
**Date Sampled :** 7/23/2006
**Project Name/# :** Carbon Resources Drilling
**Seam :** Hiawatha ROOF

**Footage Begin :** 1211.25
**Footage End :** 1211.75

**SGS Sample ID: 072-22215-002**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 4.48 | | |
| % Ash | 83.23 | 87.14 | |
| % Volatile Matter | 0.91 | 0.95 | 7.40 |
| % Fixed Carbon | 11.38 | 11.91 | 92.60 |
| Gross Calorific Value (Btu/lb) | 1029 | 1077 | 8380 |
| % Sulfur | 0.42 | 0.44 | |

| Analyte | Result |
|---|---|
| Acid Potential | 13.75 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 808.76 lb |
| Pounds of Sulfur/mm Btu | 4.07 lb |
| Pounds of SO2/mm Btu | 8.14 lb |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 10/3 | **Footage Begin :** | 1211.25 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1211.75 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 1732.00 | | |
| **Core Hole ID :** | CR-06-10 | | |
| **Date Sampled :** | 7/23/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-22215-002**

| Analyte | Result | |
|---|---|---|
| Ash Analysis Basis | Ignited | |
| Silicon Dioxide SiO2 | 73.07 | % |
| Aluminum Oxide Al2O3 | 17.68 | % |
| Titanium Dioxide TiO2 | 0.88 | % |
| Iron Oxide Fe2O3 | 2.31 | % |
| Calcium Oxide CaO | 0.65 | % |
| Magnesium Oxide MgO | 1.27 | % |
| Potassium Oxide K2O | 3.24 | % |
| Sodium Oxide Na2O | 0.08 | % |
| Sulfur Trioxide SO3 | 0.32 | % |
| Phosphorus Pentoxide P2O5 | 0.21 | % |
| Strontium Oxide SrO | 0.01 | % |
| Barium Oxide BaO | 0.28 | % |
| Manganese Oxide, Mn3O4 | <0.01 | % |
| Undetermined | 0.00 | % |
| Sum | 100.00 | % |
| Alkalies | 2.21 | % |
| Silica Value | 94.53 | % |
| Base:Acid Ratio | 0.08 | % |
| T250 Temperature | >2900 | °F |
| Type of Ash | Bituminous | |

Respectfully submitted,
SGS NORTH AMERICA INC.

Denver Laboratory



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GENERAL CONDITIONS OF SERVICE ON REVERSE

F-465

SGS

October 30, 2006

Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 10/3 | **Footage Begin :** | 1211.25 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1211.75 |
| **Matrix:** | ~~Coal~~ ROCK | | |
| **Net Sample Weight:** | 1732.00 | | |
| **Core Hole ID :** | CR-06-10 | | |
| **Date Sampled :** | 7/23/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha ROOF | | |

**SGS Sample ID: 072-22215-002**

| Analyte | Result |
|---|---|
| Arsenic - TCLP | 0.01 mg/L |
| Barium - TCLP | 0.38 mg/L |
| Cadmium - TCLP | <0.005 mg/L |
| Chromium - TCLP | <0.005 mg/L |
| Lead - TCLP | 0.03 mg/L |
| Selenium - TCLP | <0.01 mg/L |
| Silver - TCLP | <0.005 mg/L |
| Mercury - TCLP | <0.0002 mg/L |
| Specific Gravity, Apparent | 2.30 g/cc |

Respectfully submitted,
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| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 3/4 | **Footage Begin :** | 1222.50 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1223.00 |
| **Matrix:** | ~~Coal~~ Rock | | |
| **Net Sample Weight:** | 1124.10 | | |
| **Core Hole ID :** | CR-06-10 | | |
| **Date Sampled :** | 7/23/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha | | |

**SGS Sample ID: 072-22215-011**

| | As Received | Dry | MAF |
|---|---|---|---|
| % Moisture, Total | 3.54 | | |
| % Ash | 69.75 | 72.31 | |
| % Volatile Matter | 9.72 | 10.07 | 36.38 |
| % Fixed Carbon | 16.99 | 17.62 | 63.62 |
| Gross Calorific Value (Btu/lb) | 3332 | 3454 | 12473 |
| % Sulfur | 1.47 | 1.52 | |

| Analyte | Result |
|---|---|
| Acid Potential | 47.50 TCaCO3/1000T |
| Pounds of Ash/mm Btu | 209.32 lb |
| Pounds of Sulfur/mm Btu | 4.40 lb |
| Pounds of SO2/mm Btu | 8.80 lb |

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**Client Sample ID:** Sample # 3/4
**Date Received:** 10/05/2006
**Matrix:** Coal ROCK
**Net Sample Weight:** 1124.10
**Core Hole ID :** CR-06-10
**Date Sampled :** 7/23/2006
**Project Name/# :** Carbon Resources Drilling
**Seam :** Hiawatha FLOOR

**Footage Begin :** 1222.50
**Footage End :** 1223.00

**SGS Sample ID: 072-22215-011**

| Analyte | Result |
|---|---|
| Ash Analysis Basis | Ignited |
| Silicon Dioxide SiO2 | 92.55 % |
| Aluminum Oxide Al2O3 | 2.76 % |
| Titanium Dioxide TiO2 | 0.96 % |
| Iron Oxide Fe2O3 | 3.06 % |
| Calcium Oxide CaO | 0.27 % |
| Magnesium Oxide MgO | 0.04 % |
| Potassium Oxide K2O | 0.12 % |
| Sodium Oxide Na2O | 0.00 % |
| Sulfur Trioxide SO3 | 0.17 % |
| Phosphorus Pentoxide P2O5 | 0.05 % |
| Strontium Oxide SrO | 0.01 % |
| Barium Oxide BaO | 0.00 % |
| Manganese Oxide, Mn3O4 | 0.01 % |
| Undetermined | 0.00 % |
| Sum | 100.00 % |
| Alkalies | 0.08 % |
| Silica Value | 96.49 % |
| Base:Acid Ratio | 0.04 % |
| T250 Temperature | >2900 °F |
| Type of Ash | Bituminous |

Respectfully submitted,
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| | | | |
|---|---|---|---|
| **Client Sample ID:** | Sample # 3/4 | **Footage Begin :** | 1222.50 |
| **Date Received:** | 10/05/2006 | **Footage End :** | 1223.00 |
| **Matrix:** | Coal ROCK | | |
| **Net Sample Weight:** | 1124.10 | | |
| **Core Hole ID :** | CR-06-10 | | |
| **Date Sampled :** | 7/23/2006 | | |
| **Project Name/# :** | Carbon Resources Drilling | | |
| **Seam :** | Hiawatha FLOOR | | |

**SGS Sample ID: 072-22215-011**

| Analyte | Result |
|---|---|
| Arsenic - TCLP | 0.01 mg/L |
| Barium - TCLP | 0.20 mg/L |
| Cadmium - TCLP | <0.005 mg/L |
| Chromium - TCLP | 0.019 mg/L |
| Lead - TCLP | <0.02 mg/L |
| Selenium - TCLP | <0.01 mg/L |
| Silver - TCLP | <0.005 mg/L |
| Mercury - TCLP | <0.0002 mg/L |
| Specific Gravity, Apparent | 2.00 g/cc |

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# Analysis Report

September 27, 2010



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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 5C/5 | **Core Hole ID :** | CR-06-01 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-19142-002 |

**SGS Minerals Sample ID: 072-30789-001**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 6.91 | s.u. | USDA Handbook 60 |
| Conductivity | 6.62 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 42.3 | % | USDA Handbook 60 |

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# Analysis Report

September 27, 2010



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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 6/5 | **Core Hole ID :** | CR-06-01 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-19142-003 |

**SGS Minerals Sample ID: 072-30789-002**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 3.74 | s.u. | USDA Handbook 60 |
| Conductivity | 9.37 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 56.5 | % | USDA Handbook 60 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | Comp-1 | **Core Hole ID :** | CR-06-01 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-19142-010 |

**SGS Minerals Sample ID: 072-30789-004**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 5.31 | s.u. | USDA Handbook 60 |
| Conductivity | 3.17 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 76.4 | % | USDA Handbook 60 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 2/17 | **Core Hole ID :** | CR-06-02 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-19143-002 |

**SGS Minerals Sample ID: 072-30789-005**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 7.59 | s.u. | USDA Handbook 60 |
| Conductivity | 7.51 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 35.9 | % | USDA Handbook 60 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 3/17 | **Core Hole ID :** | CR-06-02 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-19143-003 |

**SGS Minerals Sample ID: 072-30789-006**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 6.14 | s.u. | USDA Handbook 60 |
| Conductivity | 3.47 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 60.8 | % | USDA Handbook 60 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 4/17 | **Core Hole ID :** | CR-06-02 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-19143-004 |

**SGS Minerals Sample ID: 072-30789-007**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 6.75 | s.u. | USDA Handbook 60 |
| Conductivity | 6.50 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 67.5 | % | USDA Handbook 60 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 3/18 | **Core Hole ID :** | CR-06-02 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-19143-009 |

**SGS Minerals Sample ID: 072-30789-008**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 4.08 | s.u. | USDA Handbook 60 |
| Conductivity | 11.6 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 57.7 | % | USDA Handbook 60 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | Comp-2 | **Core Hole ID :** | CR-06-02 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-19143-010 |

**SGS Minerals Sample ID: 072-30789-009**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 6.56 | s.u. | USDA Handbook 60 |
| Conductivity | 5.39 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 69.4 | % | USDA Handbook 60 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 1/1 | **Core Hole ID :** | CR-06-05 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-22212-001 |

**SGS Minerals Sample ID: 072-30789-010**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 7.09 | s.u. | USDA Handbook 60 |
| Conductivity | 0.42 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 78.5 | % | USDA Handbook 60 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 2/1 | **Core Hole ID :** | CR-06-05 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-22212-002 |

**SGS Minerals Sample ID: 072-30789-011**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 7.24 | s.u. | USDA Handbook 60 |
| Conductivity | 1.00 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 54.1 | % | USDA Handbook 60 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 7/2 | **Core Hole ID :** | CR-06-05 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-22213-007 |

**SGS Minerals Sample ID: 072-30789-012**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 7.08 | s.u. | USDA Handbook 60 |
| Conductivity | 0.51 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 80.9 | % | USDA Handbook 60 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 8/1 | **Core Hole ID :** | CR-06-05 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-22213-001 |

**SGS Minerals Sample ID: 072-30789-013**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 7.17 | s.u. | USDA Handbook 60 |
| Conductivity | 8.23 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 42.4 | % | USDA Handbook 60 |

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 1/2 | **Core Hole ID :** | CR-06-05 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-22213-002 |

**SGS Minerals Sample ID: 072-30789-014**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 7.13 | s.u. | USDA Handbook 60 |
| Conductivity | 0.80 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 55.4 | % | USDA Handbook 60 |

Somer Rodriguez, Denver Laboratory

SGS North America Inc. | Minerals Services Division
4665 Paris St Suite B-200 Denver CO 80239
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# Analysis Report

September 27, 2010



Carbon Resources LLC
PO Box 11789
Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 8/2 | **Core Hole ID :** | CR-06-09-BLW |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-22214-001 |

**SGS Minerals Sample ID: 072-30789-015**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 6.67 | s.u. | USDA Handbook 60 |
| Conductivity | 4.68 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 50.7 | % | USDA Handbook 60 |

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# Analysis Report

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 2/3 | **Core Hole ID :** | CR-06-09-BLW |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-22214-005 |

**SGS Minerals Sample ID: 072-30789-016**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 6.77 | s.u. | USDA Handbook 60 |
| Conductivity | 0.65 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 84.7 | % | USDA Handbook 60 |

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# Analysis Report

September 27, 2010



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Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 5/3 | **Core Hole ID :** | CR-06-09-BLW |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-22214-007 |

**SGS Minerals Sample ID: 072-30789-017**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 6.44 | s.u. | USDA Handbook 60 |
| Conductivity | 7.80 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 74.3 | % | USDA Handbook 60 |

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# Analysis Report

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Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 6/3 | **Core Hole ID :** | CR-06-09-BLW |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-22214-008 |

**SGS Minerals Sample ID: 072-30789-018**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 5.03 | s.u. | USDA Handbook 60 |
| Conductivity | 6.62 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 51.9 | % | USDA Handbook 60 |

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# Analysis Report

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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 9/A3 | **Core Hole ID :** | CR-06-10 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-22215-001 |

**SGS Minerals Sample ID: 072-30789-019**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 7.07 | s.u. | USDA Handbook 60 |
| Conductivity | 2.60 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 51.8 | % | USDA Handbook 60 |

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# Analysis Report

September 27, 2010



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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 10/3 | **Core Hole ID :** | CR-06-10 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-22215-002 |

**SGS Minerals Sample ID: 072-30789-020**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 6.64 | s.u. | USDA Handbook 60 |
| Conductivity | 2.45 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 53.1 | % | USDA Handbook 60 |

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# Analysis Report

September 27, 2010



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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 11/3 | **Core Hole ID :** | CR-06-10 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-22215-003 |

**SGS Minerals Sample ID: 072-30789-021**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 6.72 | s.u. | USDA Handbook 60 |
| Conductivity | 0.60 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 67.0 | % | USDA Handbook 60 |

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# Analysis Report

September 27, 2010



Carbon Resources LLC
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Albuquerque, NM 87192
USA

| | | | |
|---|---|---|---|
| **Client Sample ID:** | 12A/3 | **Core Hole ID :** | CR-06-10 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-22215-004 |

**SGS Minerals Sample ID: 072-30789-022**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 6.87 | s.u. | USDA Handbook 60 |
| Conductivity | 0.60 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 74.5 | % | USDA Handbook 60 |

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# Analysis Report

September 27, 2010



Carbon Resources LLC
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Albuquerque, NM 87192
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| | | | |
|---|---|---|---|
| **Client Sample ID:** | 3/4 | **Core Hole ID :** | CR-06-10 |
| **Date Received:** | 01/11/2008 | **Project Name/# :** | Kinney #2 Mine |
| **Matrix:** | Soil | **Sample ID :** | 072-22215-011 |

**SGS Minerals Sample ID: 072-30789-023**

| Tests | Result | Unit | Method |
|---|---|---|---|
| pH | 5.86 | s.u. | USDA Handbook 60 |
| Conductivity | 5.48 | mmhos/cm | USDA Handbook 60 |
| Saturation % | 42.8 | % | USDA Handbook 60 |

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# Rock Strength Data, Agapito Reports

AGAPITO ASSOCIATES, INC.
CONSULTING ENGINEERS

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303.273.1511

June 19, 2006

597-01

Mr. Brad Lindsay
Rock Logic Consulting, LLC
P. O. Box 544
Cedaredge, CO 81413

RE: **Carbon Resources, LLC—Rock Mechanics Core Testing Results**

Dear Mr. Lindsay:

This letter provides a summary of the recent rock mechanics core testing performed by Agapito Associates, Inc. (AAI), on behalf of Rock Logic Consulting, LLC (Rock Logic). Rock Logic provided 3.2-inch-diameter core samples with lithologic descriptions for laboratory testing. The samples were selected by Rock Logic, and the cores were from holes numbered CR-06-01 and CR-06-02.

Uniaxial compressive strength tests were performed by AAI at ambient temperature according to the American Society for Testing and Materials (ASTM) specifications:

- Uniaxial compressive strength (UCS) test with and without elastic properties: D2938-95[1]/D3148-93[2]

Test results are summarized in Table 1.

The attached CD contains an electronic version of the Microsoft Excel test sheets, as well as UCS-with-elastic properties laboratory data sheets in Adobe Portable Document Format (PDF). Also attached is a chain of custody.

[1]American Society for Testing and Materials (ASTM), "Standard Test Method for Unconfined Compressive Strength of Intact Rock Core Specimens," Designation D2938-95 (Re-approved in 1992).

[2]American Society for Testing and Materials (ASTM), "Standard Test Method for Elastic Moduli of Intact Rock Core Specimens in Uniaxial Compression," Designation D3148-93.

Please contact me if you have any questions.

Sincerely,

Albert Adu-Acheampong
Project Engineer

AAA/smvf

Attachments (3): Table 1
Chain of Custody
CD containing complete testing data

**Table 1. Summary of UCS Test Results for Holes CR-06-01 and CR-06-02**

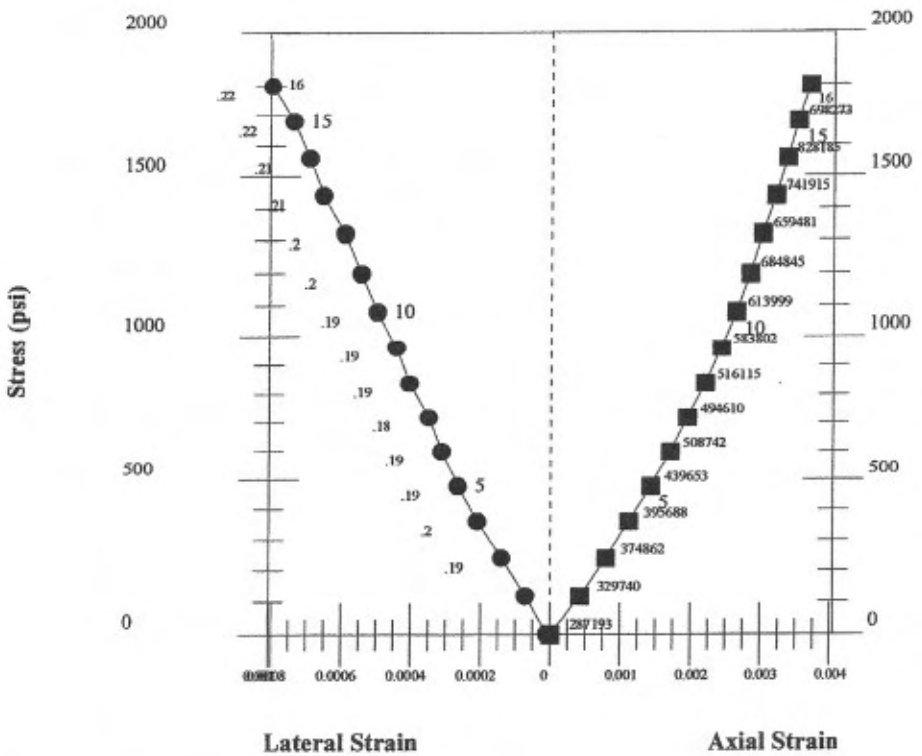
| Specimen No. | Hole ID | Depth (ft) | | Lithology | Weight | Average Diameter | Axial Length | Density | Failure Load | UCS | Young's Modulus | Poisson's Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | From | To | | (oz) | (in) | (in) | (pcf) | (lb) | (psi) | (× $10^6$ psi) | |
| 5B/4-U-01 | CR-06-1 | 66.7 | 67.15 | Sandstone | 52.16 | 3.25 | 4.59 | 147.8 | 27,700 | 3,180 | | |
| 5B/5-U-02 | CR-06-1 | 75.60 | 76.40 | Sandstone | 83.20 | 3.25 | 7.36 | 147.6 | 49,220 | 5,951 | 0.59 | 0.19 |
| 2A/14-U-03 | CR-06-2 | 415.00 | 415.81 | Sandstone | 88.80 | 3.25 | 7.47 | 154.8 | 72,900 | 8,785 | | |
| 1A/15-U-04 | CR-06-2 | 419.00 | 420.20 | Silty Sandstone | 80.80 | 3.25 | 6.95 | 151.4 | 41,660 | 5,023 | | |
| 2/16-U-05 | CR-06-2 | 425.20 | 426.00 | Sandy Siltstone | 84.00 | 3.24 | 6.87 | 159.9 | 142,800 | 17,299 | | |
| 1A/17-U-06 | CR-06-2 | 426.00 | 426.60 | Sandstone | 70.40 | 3.24 | 6.49 | 142.5 | 59,040 | 7,179 | 1.55 | 0.18 |
| 5A/18-U-07 | CR-06-2 | 438.15 | 438.80 | Sandstone | 73.92 | 3.25 | 6.72 | 143.5 | 57,930 | 6,998 | 2.17 | 0.48 |

# UNCONFINED COMPRESSIVE STRENGTH AND DEFORMABILITY TEST

| | | | |
|---|---|---|---|
| **Client:** | Carbon Resources | | |
| **Job #:** | 597-01 | **Sample Date:** | na |
| **Hole #:** | CR-06-01 | **Testing Date:** | 06/15/2006 |
| **Sample #:** | 06-CR0601-5B/5-U-02 | **Sample Depth:** | 76 ft |
| **Length:** | 7.363 in | **Diameter:** | 3.245 in |
| **Area:** | 8.27 sq in | **Volume:** | 60.894 cu in |
| **Weight:** | 83.2 ounces | **Density:** | 147.6 lb/cubic ft |
| **Moisture Condition:** | As Received | | |
| **Material:** | Sandstone | | |
| **Failure Load:** | 49,220 lb | | |
| **Compressive Strength:** | 5,951.44 psi | | |

**Elastic Properties:**
Secant Modulus (Points 5 and 16 at 30.5% of UCS) = 5.94E+05 psi
Tangent Modulus (Mean of the slopes betweeen points 12 - 16) = 7.32E+05 psi
Poisson's Ratio (Secant between points 2 and 10) = 0.19

**Sample #:** 06-CR0601-5B/5-U-02 **Number of Points:** 16

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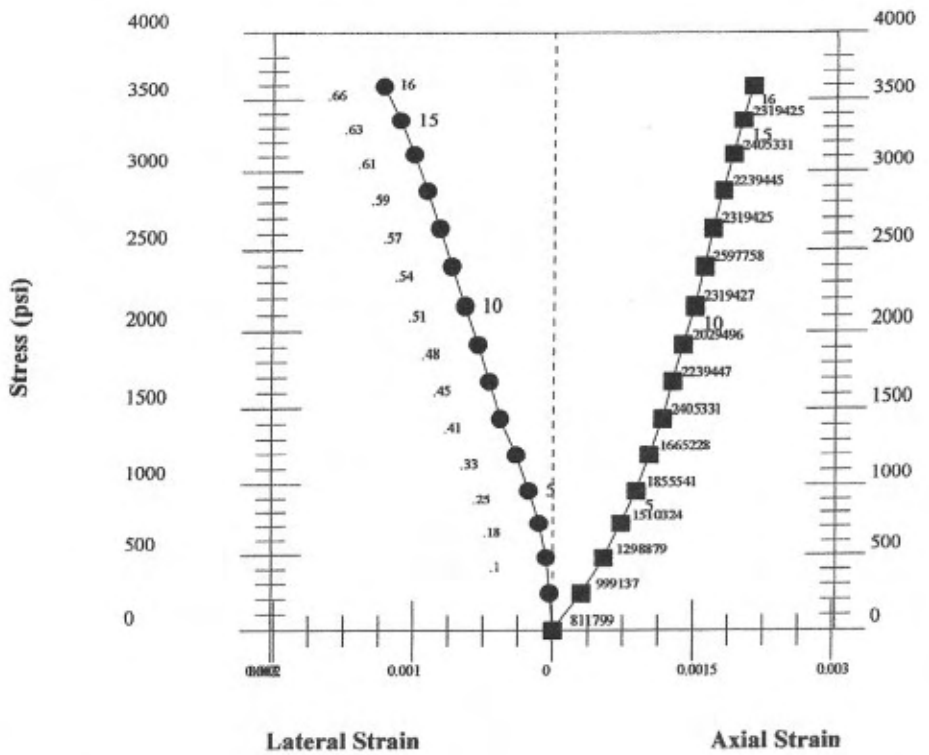
970/242-4220 • FAX 970/245-9234 • www.agapito.com

# UNCONFINED COMPRESSIVE STRENGTH AND DEFORMABILITY TEST

| | | | |
|---|---|---|---|
| **Client:** | Carbon Resources | | |
| **Job #:** | 555-55 | **Sample Date:** | na |
| **Hole #:** | CR-06-02 | **Testing Date:** | 06/15/2006 |
| **Sample #:** | 06-CR0602-5A/18-U-07 | **Sample Depth:** | 438.475 ft |
| **Length:** | 6.72 in | **Diameter:** | 3.247 in |
| **Area:** | 8.278 sq in | **Volume:** | 55.628 cu in |
| **Weight:** | 73.92 ounces | **Density:** | 143.5 lb/cubic ft |
| **Moisture Condition:** | As Received | | |
| **Material:** | Sandstone | | |
| **Failure Load:** | 57,930 lb | | |
| **Compressive Strength:** | 6,998.14 psi | | |

**Elastic Properties:**
Secant Modulus (Points 5 and 15 at 48.3% of UCS) = 2.17E+06 psi
Tangent Modulus (Mean of the slopes betweeen points 12 - 16) = 2.32E+06 psi
Poisson's Ratio (Secant between points 2 and 9) = 0.48

**Sample #:** 06-CR0602-5A/18-U-07 **Number of Points:** 16

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# ANALYSES REQUESTED AND CHAIN OF CUSTODY-ROCK MECHANICS

**Sample provided by:**
Rock Logic Consulting, LLC
PO Box 544
Cedaredge, CO 81413
Attn-Brad Lindsay 435 851-9044

**Sample sent to:**
Agapito Associates, Inc.
715 Horizon Drive Suite 340
Grand Junction, CO 81506
Attn-Albert Adu-Acheampong 970 242-4220

**Please Invoice:**
Carbon Resources, LLC
PO Box 11789
Albuquerque, NM 87192
Attn-Clay Wisdom 505 286-1253

**Drill Hole Number**
CR-06-01

| Sample ID | Sample Depth Interval From | Sample Depth Interval To | Lithology | Stratigraphic Unit | Sample Date | Length of Core (FT) | Core Diameter | Analyses Requested |
|---|---|---|---|---|---|---|---|---|
| 5B/4 | 66.7' | 67.15' | ss | 10' abv HIA | 2/14/2006 | 0.46 | 0.27 | UCS |
| 5B/5 | 75.6' | 76.4' | ss | roof of HIA | 2/14/2006 | 0.78 | 0.27 | UCS + Elastic |
| | | | | | | | | |

**Drill Hole Number**
CR-06-02

| Sample ID | Sample Depth Interval From | Sample Depth Interval To | Lithology | Stratigraphic Unit | Sample Date | Length of Core (FT) | Core Diameter | Analyses Requested |
|---|---|---|---|---|---|---|---|---|
| 2A/14 | 415.0' | 415.81' | ss | 13' abv HIA | 2/14/2006 | 0.83 | 0.27 | UCS |
| 1A/15 | 419.0' | 420.2' | slty ss | 9' abv HIA | 2/14/2006 | 1.1 | 0.27 | UCS |
| 2/16 | 425.2' | 426.0' | sndy slts | 2' abv HIA | 2/14/2006 | 0.8 | 0.27 | UCS |
| 1A/17 | 426.0' | 426.6' | ss | roof of HIA | 2/14/2006 | 0.8 | 0.27 | UCS + Elastic |
| 5A/18 | 438.15' | 438.8' | ss | floor of HIA | 2/14/2006 | 0.61 | 0.27 | UCS + Elastic |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Relinquished by BRAD LINDSAY Representing ROCK LOGIC CONSULTING
Signed Brad Lindsay Date 2 MAY 06 Time ~~2015~~ 17:00
Recieved By Signed Representing Agapito Assoc.
Date 5/2/06 Time 5:00 pm

Relinquished by _____ Representing _____
Signed _____ Date _____ Time _____
Recieved By _____ Representing _____
Signed _____ Date _____ Time _____

**Instructions**

1- Do not allow the samples to dry more than needed to perform the analyses.
2- Some samples will be chemically analyzed following these tests. Thus, it is imperative that the samples are not contaminated by other samples or other materials. Please ensure that the testing apparatus and the area that will contain the debris from testing are clean.
3- It is imperative that none of the sample is lost during testing. After analysis is complete, gather the remaining sample and sample debris and place the material in a durable sealed heavy plastic bag or container for storage. Retain the sample until picked up by Rock Logic.
4- Place the drill hole number, sample ID, and sample depth interval on the analysis sheet.
5- Be sure to use the correct confining liquid for triaxial tests stated in the analyses requested.
6- Contact Brad Lindsay when the samples are ready for pick-up.

**AGAPITO ASSOCIATES, INC.**
CONSULTING ENGINEERS

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303.273.1511

October 10, 2006 597-02

Mr. Brad Lindsay
Rock Logic Consulting, LLC
P. O. Box 544
Cedaredge, CO 81413

RE: **Carbon Resources, LLC—September 2006 Rock Mechanics Core Testing Results**

Dear Mr. Lindsay:

This letter provides a summary of the recent rock mechanics core testing performed by Agapito Associates, Inc. (AAI), on behalf of Rock Logic Consulting, LLC (RLC). RLC provided 3.0-inch-diameter core samples with lithologic descriptions for laboratory testing. The samples were selected by RLC, and the cores were from holes numbered CR-06-10, CR-06-09-BLW, CR-06-05, and CR-06-05-A.

Uniaxial compressive strength (UCS) tests were performed by AAI at ambient temperature according to the American Society for Testing and Materials (ASTM) specifications:

- Uniaxial compressive strength test with and without elastic properties: D2938-95[1]/ D3148-93[2]

Test results are summarized in Table 1. Per Mr. Lindsay's request, samples with length-to-diameter ratio less than 2 were tested.

The attached CD contains an electronic version of the Microsoft Excel test sheets, as well as UCS-with-elastic properties laboratory data sheets in Adobe Portable Document Format (PDF). Also attached is a chain of custody.

[1]American Society for Testing and Materials (ASTM), "Standard Test Method for Unconfined Compressive Strength of Intact Rock Core Specimens," Designation D2938-95 (Re-approved in 1992).
[2]American Society for Testing and Materials (ASTM), "Standard Test Method for Elastic Moduli of Intact Rock Core Specimens in Uniaxial Compression," Designation D3148-93.

Please contact me if you have any questions.

Sincerely,

Albert Adu-Acheampong
Project Engineer

AAA/smvf

Attachments (3): Table 1
Chain of Custody
CD containing complete testing data

**Table 1. Summary of UCS Test Results**

| Specimen No. | Hole ID | Depth (ft) | | Lithology | Weight | Average Diameter | Axial Length | Density | Failure Load | UCS | Young's Modulus | Poisson's Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | From | To | | (oz) | (in) | (in) | (pcf) | (lb) | (psi) | (× $10^6$ psi) | |
| 06-CR06-09-4/2-U-0 | R-06-09-BL | 981.7 | 982.25 | Siltstone | 31.77 | 3.00 | 6.05 | 80.5 | 90,160 | 12,793 | | |
| 6-CR06-10-12B/3-U- | CR-06-10 | 1213.65 | 1214.20 | Coal | 31.45 | 3.00 | 6.07 | 79.2 | 13,530 | 1,915 | | |
| 6-CR06-05A-8/2-U-0 | CR-06-05-A | 1042.30 | 1042.85 | Coal | 29.98 | 3.00 | 6.14 | 74.8 | 8,200 | 1,162 | | |
| 6-CR06-10-13A/3-U- | CR-06-10 | 1216.00 | 1216.60 | Coal | 31.57 | 2.99 | 6.14 | 78.9 | 8,640 | 1,228 | | |
| 6E-CR06-10-2/5-U-0 | CR-06-10 | 1229.45 | 1230.00 | Sandstone | 56.65 | 2.99 | 6.16 | 141.8 | 28,790 | 4,108 | 0.76 | 0.39 |
| 6-CR06-10-3/3-U-06 | CR-06-10 | 1204.05 | 1204.60 | Siltstone | 63.53 | 2.99 | 5.82 | 168.4 | 122,700 | 17,459 | | |
| 06-CR06-09-3/3-U-0 | R-06-09-BL | 998.75 | 999.35 | Coal | 30.71 | 2.99 | 6.12 | 77.0 | 8,090 | 1,150 | | |
| 6E-CR06-05-5/1-U-0 | CR-06-05 | 1047.50 | 1048.00 | Sandstone | 51.36 | 2.98 | 6.03 | 131.5 | 16,530 | 2,363 | 0.39 | 0.41 |
| 06-CR06-09-1/3-U-0 | R-06-09-BL | 996.90 | 997.45 | Coal | 30.60 | 3.00 | 5.96 | 78.6 | 10,410 | 1,474 | | |
| 6-CR06-10-9B/3-U-1 | CR-06-10 | 1210.70 | 1211.25 | Sandstone | 61.30 | 2.99 | 5.89 | 160.0 | 95,800 | 13,625 | 2.73 | 0.08 |
| 06-CR06-10-7/3-U-1 | CR-06-10 | 1207.70 | 1208.25 | Sandstone | 61.34 | 2.99 | 6.12 | 153.8 | 28,550 | 4,058 | | |
| 6-CR06-09-10/1-U-1 | R-06-09-BL | 975.45 | 976.00 | Sandstone | 63.08 | 2.98 | 6.06 | 160.7 | 103,130 | 14,742 | | |
| 6-CR06-05A-5/1-U-1 | CR-06-05-A | 1031.50 | 1031.90 | Mudstone | 43.28 | 2.98 | 4.21 | 158.6 | 40,850 | 5,561 | | |
| 6-CR06-05A-6/1-U-1 | CR-06-05-A | 1031.90 | 1032.40 | Sandstone | 48.97 | 2.99 | 4.77 | 157.8 | 79,850 | 11,033 | | |

* UCS values for samples with L/D<2.0 are corrected as per ASTM D2938-86.

# ANALYSES REQUESTED AND CHAIN OF CUSTODY-ROCK MECHANICS

**Sample provided by:**
Rock Logic Consulting, LLC
PO Box 544
Cedaredge, CO 81413
Attn-Brad Lindsay 435 851-9044

**Sample sent to:**
Agapito Associates, Inc.
715 Horizon Drive Suite 340
Grand Junction, CO 81506
Attn-Albert Adu-Acheampong 970 242-4220

**Please Invoice:**
Carbon Resources, LLC
PO Box 11789
Albuquerque, NM 87192
Attn-Clay Wisdom 505 286-1253

**Drill Hole Number**
CR-06-10

| Sample ID | Sample Depth Interval | | Lithology | Stratigraphic Unit | Sample Date | Length of Core (FT) | Diameter Core (FT) | Analyses Requested |
|---|---|---|---|---|---|---|---|---|
| | From | To | | | | | | |
| 3/3 | 1204.05 | 1204.60 | slts | 7' abv HIA | 7/23/2006 | 0.55 | 0.25 | UCS |
| 4/3 | 1204.60 | 1205.25 | ms | 7' abv HIA | 7/23/2006 | 0.65 | 0.25 | UCS |
| 7/3 | 1207.50 | 1208.30 | ss | 4' abv HIA | 7/23/2006 | 0.80 | 0.25 | UCS |
| 9B/3 | 1210.70 | 1211.25 | ss | roof of HIA | 7/23/2006 | 0.55 | 0.25 | UCS + Elastic |
| 12B/3 | 1213.55 | 1214.25 | coal | top of HIA | 7/23/2006 | 0.70 | 0.25 | UCS |
| 13A/3 | 1216.00 | 1216.60 | coal | middle of HIA | 7/23/2006 | 0.60 | 0.25 | UCS |
| 2/5 | 1229.00 | 1230.00 | ss | floor of HIA | 7/23/2006 | 1.00 | 0.25 | UCS + Elastic |

**Drill Hole Number**
CR-06-09-BLW

| Sample ID | Sample Depth Interval | | Lithology | Stratigraphic Unit | Sample Date | Length of Core (FT) | Diameter Core (FT) | Analyses Requested |
|---|---|---|---|---|---|---|---|---|
| | From | To | | | | | | |
| 10/1 | 975.40 | 976.10 | ss | 13' abv HIA | 8/6/2006 | 0.70 | 0.25 | UCS |
| 4/2 | 981.60 | 982.35 | slts | 7' abv HIA | 8/6/2006 | 0.75 | 0.25 | UCS |
| 9/2 | 988.75 | 989.40 | ms | roof of HIA | 8/6/2006 | 0.65 | 0.25 | USC +Elastic |
| 1/3 | 996.60 | 997.50 | coal | bottom of HIA | 8/6/2006 | 0.90 | 0.25 | UCS |
| 3/3 | 998.30 | 999.45 | coal | bottom of HIA | 8/6/2006 | 1.15 | 0.25 | UCS |
| | | | | | | | | |

**Drill Hole Number**
CR-06-05

| Sample ID | Sample Depth Interval | | Lithology | Stratigraphic Unit | Sample Date | Length of Core (FT) | Diameter Core (FT) | Analyses Requested |
|---|---|---|---|---|---|---|---|---|
| | From | To | | | | | | |
| 5/1 | 1046.5 | 1048.2 | ss | spring canyon | 9/7/2006 | 1.7 | 0.25 | USC + Elastic |
| | | | | | | | | |

**Drill Hole Number**
CR-06-05-A

| Sample ID | Sample Depth Interval | | Lithology | Stratigraphic Unit | Sample Date | Length of Core (FT) | Diameter Core (FT) | Analyses Requested |
|---|---|---|---|---|---|---|---|---|
| | From | To | | | | | | |
| 5/1 | 1030.5 | 1031.9 | ms | 4' abv HIA | 9/19/2006 | 1.4 | 0.25 | UCS |
| 6/1 | 1031.9 | 1033.7 | ss | 3' abv HIA | 9/19/2006 | 1.8 | 0.25 | UCS |
| 3/2 | 1036.8 | 1037.2 | coal | upper HIA | 9/19/2006 | 0.4 | 0.25 | UCS |
| 8/2 | 1042 | 1043 | coal | lower HIA | 9/19/2006 | 1 | 0.25 | UCS |
| 12/2 | 1045.75 | 1046.75 | ms | floor of HIA | 9/19/2006 | 1 | 0.25 | UCS + Elastic |
| | | | | | | | | |

Relinquished by BRAD LINDSAY Representing CARBON RESOURCES
Signed _____ Date 26 SEPT 06 Time _____

Recieved By Jim Representing _____
Signed _____ Date 9/26/06 Time 1420

**Instructions**

1- Do not allow the samples to dry more than needed to perform the analyses.
2- Some samples will be chemically analyzed following these tests. Thus, it is imperative that the samples are not contaminated by other samples or other materials. Please ensure that the testing apparatus and the area that will contain the debris from testing are clean.
3- It is imperative that none of the sample is lost during testing. After analysis is complete, gather the remaining sample and sample debris and place the material in a durable sealed heavy plastic bag or container for storage. Retain the sample until picked up by Rock Logic.
4- Place the drill hole number, sample ID, and sample depth interval on the analysis sheet.
5- Be sure to use the correct confining liquid for triaxial tests stated in the analyses requested.
6- Contact Brad Lindsay when the samples are ready for pick-up.

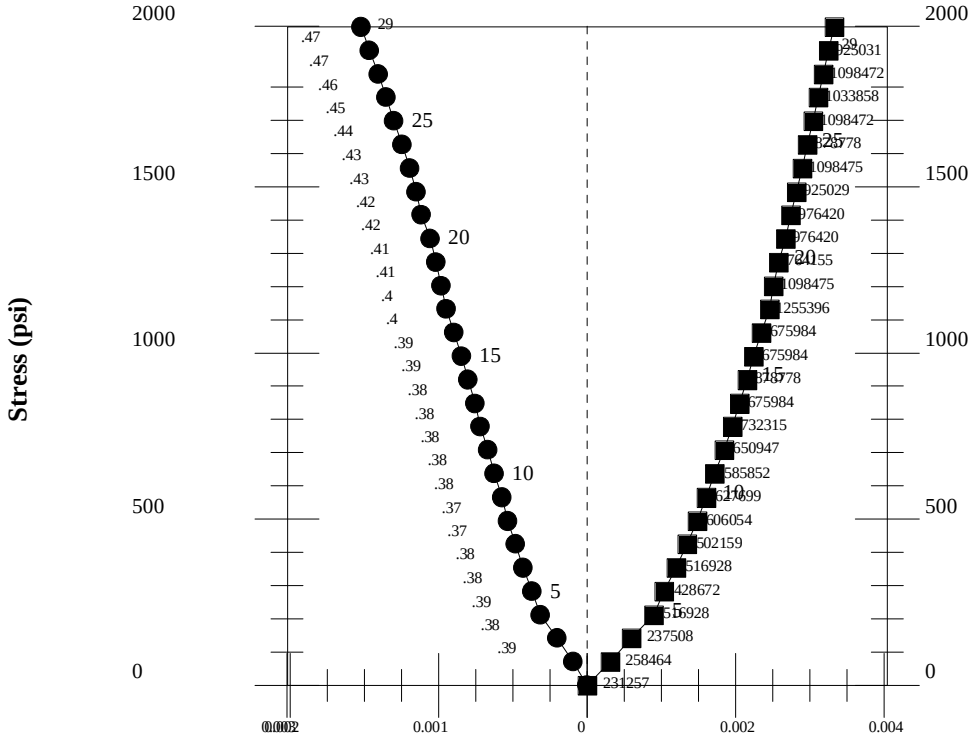
# UNCONFINED COMPRESSIVE STRENGTH AND DEFORMABILITY TEST

**Client:** Carbon Resources

| | | | |
|---|---|---|---|
| **Job #:** | 597-01 | **Sample Date:** | na |
| **Hole #:** | CR-06-10 | **Testing Date:** | 10/05/2006 |
| **Sample #:** | 06-CR0610-2/5-U-05 | **Sample Depth:** | 1229.725 ft |
| **Length:** | 6.158 in | **Diameter:** | 2.987 in |
| **Area:** | 7.007 sq in | **Volume:** | 43.152 cu in |
| **Weight:** | 56.65 ounces | **Density:** | 141.8 lb/cubic ft |
| **Moisture Condition:** | As Received | | |
| **Material:** | Sandstone | | |
| **Failure Load:** | 28,790 lb | | |
| **Compressive Strength:** | 4,108.48 psi | | |

**Elastic Properties:**
Secant Modulus (Points 5 and 29 at 48.6% of UCS) = 7.56E+05 psi
Tangent Modulus (Mean of the slopes betweeen points 25 - 29) = 1.04E+06 psi
Poisson's Ratio (Secant between points 2 and 15) = 0.39

**Sample #:** 06-CR0610-2/5-U-05 **Number of Points:** 29




AGAPITO ASSOCIATES, INC.
715 Horizon Dr., Ste. 340, Grand Junction, CO 81506
970/242-4220 • FAX 970/245-9234 • www.agapito.com

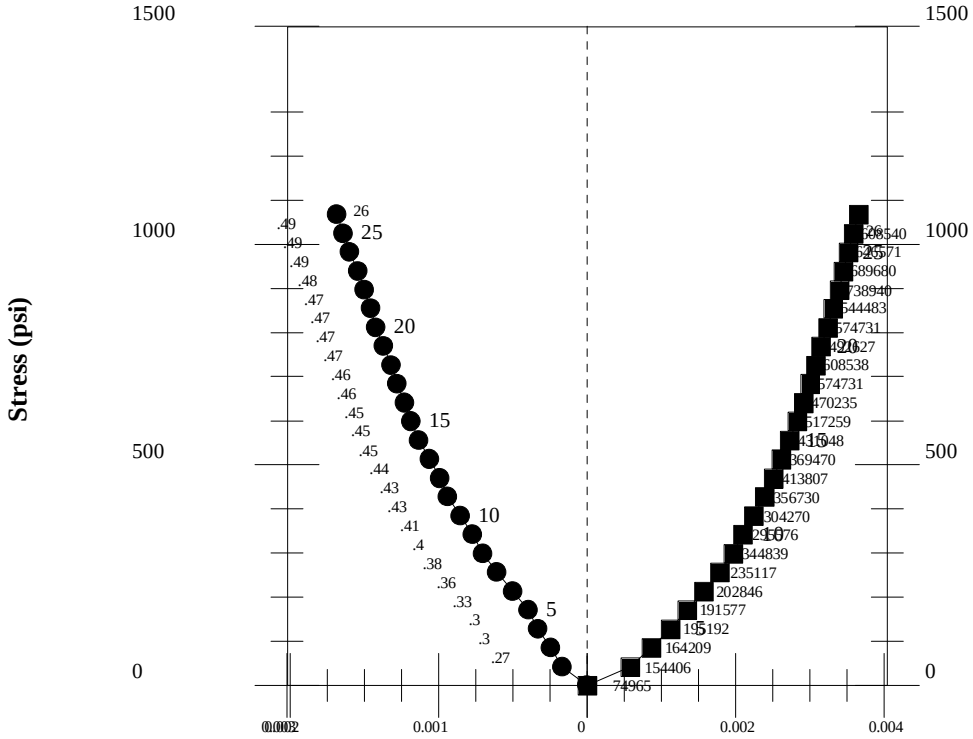
# UNCONFINED COMPRESSIVE STRENGTH AND DEFORMABILITY TEST

**Client:** Carbon Resources

| | | | |
|---|---|---|---|
| **Job #:** | 597-01 | **Sample Date:** | na |
| **Hole #:** | CR-06-05 | **Testing Date:** | 10/05/2006 |
| **Sample #:** | 06-CR0605-5/1-U-08 | **Sample Depth:** | 1047.75 ft |
| **Length:** | 6.031 in | **Diameter:** | 2.984 in |
| **Area:** | 6.996 sq in | **Volume:** | 42.191 cu in |
| **Weight:** | 51.36 ounces | **Density:** | 131.5 lb/cubic ft |
| **Moisture Condition:** | As Received | | |
| **Material:** | Sandstone | | |
| **Failure Load:** | 16,530 lb | | |
| **Compressive Strength:** | 2,362.87 psi | | |

**Elastic Properties:**
Secant Modulus (Points 5 and 26 at 45.4% of UCS) = 3.94E+05 psi
Tangent Modulus (Mean of the slopes betweeen points 22 - 26) = 6.71E+05 psi
Poisson's Ratio (Secant between points 2 and 10) = 0.41

**Sample #:** 06-CR0605-5/1-U-08 **Number of Points:** 26

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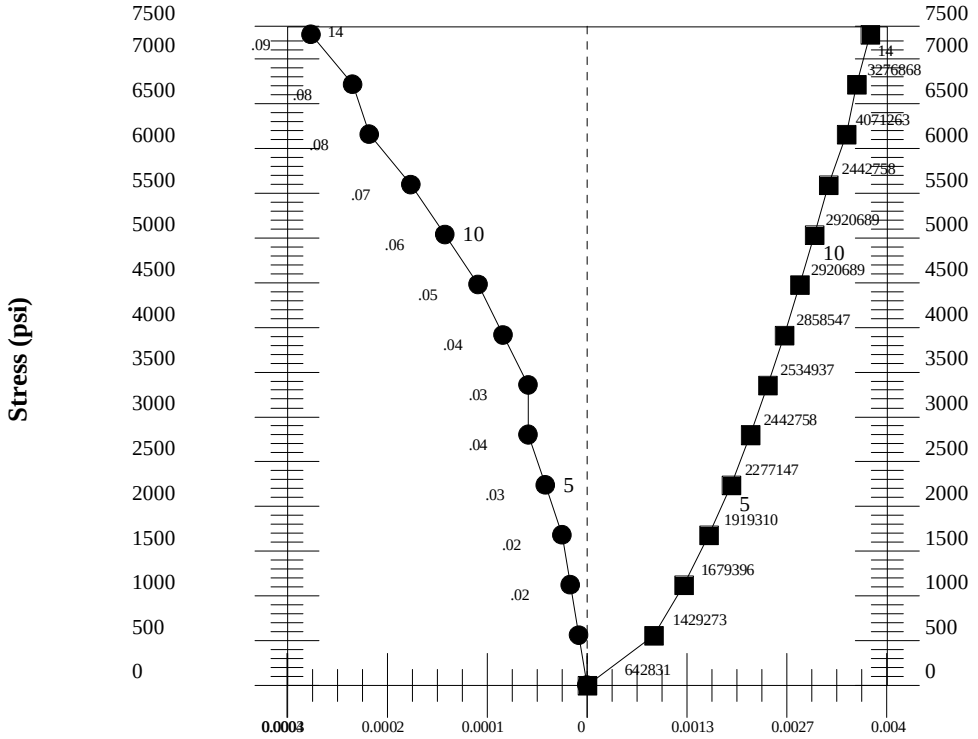
# UNCONFINED COMPRESSIVE STRENGTH AND DEFORMABILITY TEST

**Client:** Carbon Resources

| | | | |
|---|---|---|---|
| **Job #:** | 597-01 | **Sample Date:** | na |
| **Hole #:** | CR-06-10 | **Testing Date:** | 10/05/2006 |
| **Sample #:** | 06-CR0610-9B/3-U-10 | **Sample Depth:** | 1210.975 ft |
| **Length:** | 5.894 in | **Diameter:** | 2.99 in |
| **Area:** | 7.019 sq in | **Volume:** | 41.371 cu in |
| **Weight:** | 61.29 ounces | **Density:** | 160 lb/cubic ft |
| **Moisture Condition:** | As Received | | |
| **Material:** | Sandstone | | |
| **Failure Load:** | 95,800 lb | | |
| **Compressive Strength:** | 13,648.30 psi | | |
| **Length/(2 X Diameter):** | 0.986 | **Corrected UCS:** | 13624.72 psi |

**Elastic Properties:**
Secant Modulus (Points 5 and 13 at 50.1% of UCS) = 2.73E+06 psi
Tangent Modulus (Mean of the slopes betweeen points 10 - 14) = 3.18E+06 psi
Poisson's Ratio (Secant between points 2 and 13) = 0.08

**Sample #:** 06-CR0610-9B/3-U-10 **Number of Points:** 14

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# Exhibit 20

# Ephemeral Drainage Determination

# EPHEMERAL DRAINIAGE DETERMINATION

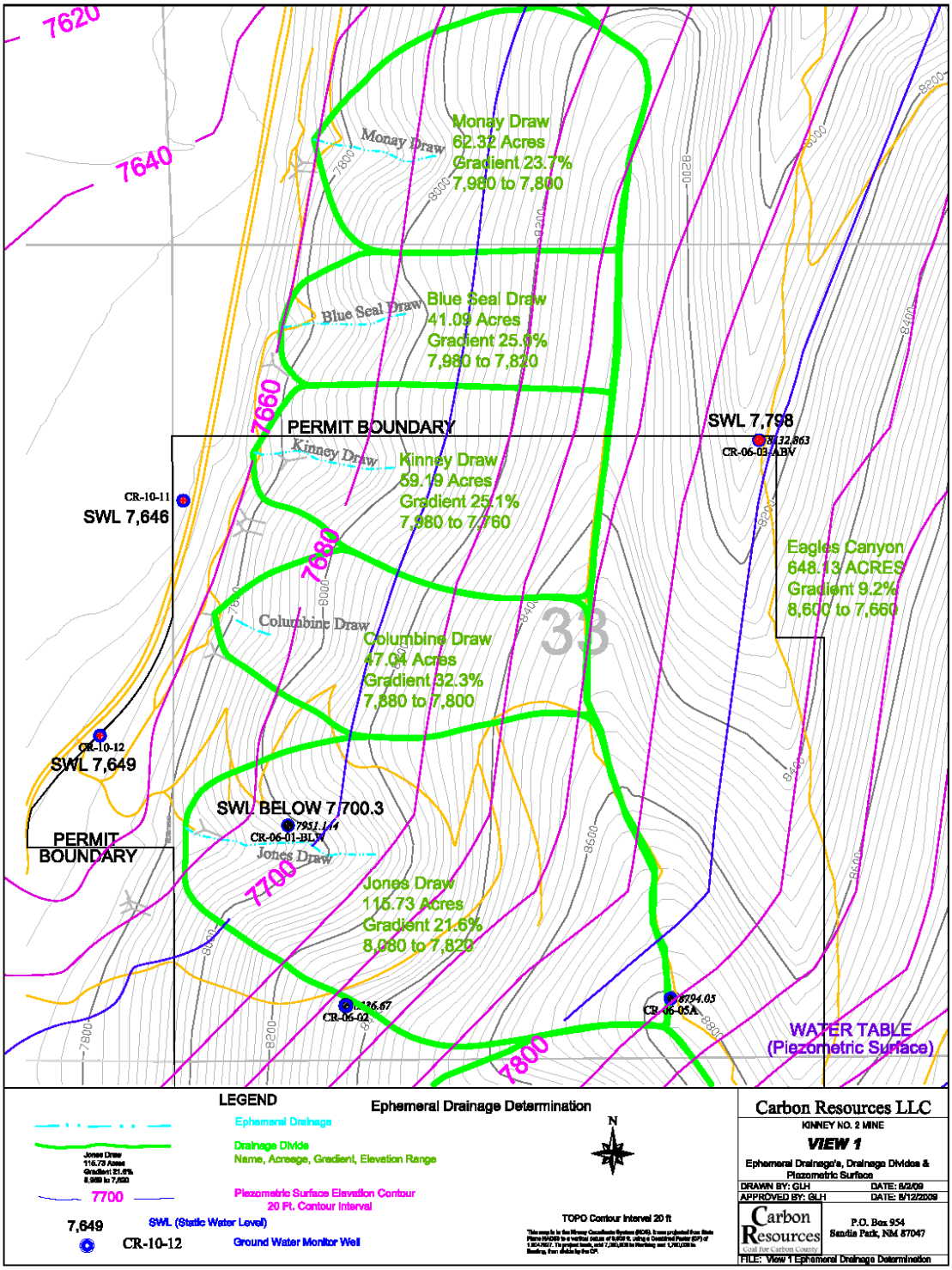
(Updated May 2011)

The USGS 7.5 minute Scofield Quadrangle Map depicts perennial, and intermittent, streams with a dark blue drainage line while ephemeral drainages are shown with a light blue dashed-line, or simply as a topographic v-notch without a drainage marking line altogether. There are five short, straight, E-W drainages within and or immediately north of the permit boundary shown on the Scofield USGS 7.5 Minute Quad as ephemeral drainages because they are represented by a v-notch in the topo contours only and lack any kind of drainage marking line. For purposes of this work, those five drainages have been named, from North to South, Monay Draw, Blue Seal Draw, Kinney Draw, Columbine Draw, and Jones Draw, and are marked with a dash-dot light blue line marking the likely course of each drainage, View 1, (Ephemeral Drainages, Drainage Divides, and Piezometric Surface). A light blue ephemeral drainage dashed line has been added to the map for consistency in designation. Two additional drainages, Eagles Canyon and UP Canyon, are both shown as ephemeral drainages on the USGS 7.5 minute Scofield Quadrangle with the light blue dashed line. Mud Creek and the lower reach of Miller Creek are the only Perennial Streams near the Permit Boundary and are shown with a dark blue solid line on the Scofield Quadrangle. Baseline data have been collected from these two Perennial Streams, View 2(Ephemeral Drainage Determination).

The seven ephemeral drainages described above together with the groundwater table are the subjects of this discussion due to concern that baseline data were not collected from them those seven drainages. The argument is “absent baseline water samples from the seven drainages how can we be certain they are ephemeral?”

Baseline data were collected on the ephemeral drainages beginning with Photographs taken of the four drainages that are actually located within the Permit Boundary (Eagles Canyon, Kinney Draw, Columbine Draw, and Jones Draw) during the baseline monitoring period that demonstrate the absence of water (Appendix 1, Drainage Photos). Not only do these photographs document the absence of water, when they were taken, but also document the lack of alluvium and the lack of vegetative differences across the drainage bottom. Additional baseline data were collected during 21 field visits documented below.

The documented lack of running water alone, at any point in the year, disqualifies all four of these drainages from being classified as Perennial; a stream that flows year round. Therefore the only question is, are these four drainages ephemeral or intermittent? The same question is directed to the other three E-W drainages, Monay Draw and Blue Seal Draw, and Up Canyon. Photo aspects are shown on View 3, Appendix 1.


Monay Draw
62.32 Acres
Gradient 23.7%
7,980 to 7,800
Blue Seal Draw
41.09 Acres
Gradient 25.8%
7,980 to 7,820
PERMIT BOUNDARY
Kinney Draw
59.19 Acres
Gradient 25.1%
7,980 to 7,760
CR-10-11
SWL 7,646
SWL 7,798
CR-06-03-ABV
Eagles Canyon
648.13 ACRES
Gradient 9.2%
8,600 to 7,660
Columbine Draw
47.04 Acres
Gradient 32.3%
7,880 to 7,800
33
CR-10-12
SWL 7,649
SWL BELOW 7,700.3
CR-06-01-BLW
PERMIT BOUNDARY
Jones Draw
115.73 Acres
Gradient 21.6%
8,080 to 7,820
CR-06-05A
WATER TABLE
(Piezometric Surface)
7620
7640
7660
7680
7700
7800
LEGEND
Ephemeral Drainage Determination
Ephemeral Drainage
Drainage Divide
Name, Acreage, Gradient, Elevation Range
Piezometric Surface Elevation Contour
20 Ft. Contour Interval
SWL (Static Water Level)
Ground Water Monitor Well
TOPO Contour Interval 20 ft
Carbon Resources LLC
KINNEY NO. 2 MINE
VIEW 1
Ephemeral Drainage's, Drainage Divides & Piezometric Surface
DRAWN BY: GLH
DATE: 8/2/09
APPROVED BY: GLH
DATE: 8/12/2009
Carbon Resources
Coal for Carbon County
P.O. Box 954
Sandia Park, NM 87047
FILE: View 1 Ephemeral Drainage Determination

## DEFINITIONS

A search of the literature on the internet was conducted to establish a working definition of ephemeral and intermittent streams. There appears to be a legal definition held by most government agencies, including UDOGM, and then a more robust but not settled academic definition(s). Below are a few of the many definitions of ephemeral and intermittent streams (drainages) and below them is a summary of the salient aspects of all the definitions.

## Ephemeral Stream Definitions:

OXFORD UNIVERSITY PRESS Ephemeral stream

A Dictionary of Earth Sciences; AILSA ALLABY and MICHAEL ALLABY; 22 words... **ephemeral stream** A stream which flows only after rain or snow-melt and has no **baseflow component**. A desert wadi may form an **ephemeral stream**.

DETROIT DISTRICT
United States Army Corps of Engineers REGULATORY OFFICE

# GLOSSARY OF TERMS

**The following glossary of terms where taken verbatim from the *Federal Register, Vol.65, No.47,* dated March 9, 2000, pages 12897 - 12899.**

EPHEMERAL STREAM: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Run-off from rainfall is the primary source of water for stream flow.

INTERMITTENT STREAM: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

The South Carolina General Assembly 116th Session, 2005-2006 officially adopted the Corps of Engineers Definition of Ephemeral Stream for use in wetlands cases. (See Reference)

# Types of Water Resources Common to Forestry

It is important to understand what kind of stream or other surface water is on-site whenever forestry activities are planned or conducted. Applying the wrong stream classification may result in compliance issues related to FPGs, stream/ditch obstruction laws and/or DWQ Riparian Buffer Rules.

**Protection of Streams and Waterbodies**
Intermittent and perennial waterbodies, such as ponds or lakes, must be treated with the same protection as streams when complying with the FPGs and DWQ Riparian Buffer Rules. In the FPGs, a "waterbody" is a natural or man-made basin that stores water, but does not include jurisdictional wetlands or beaver ponds.

**Stream Classifications for FPG Compliance**
The FPGs define a stream as "a body of concentrated flowing water in a natural low area of the land surface" (15A NCAC .01I .0101-.0209). The FPGs further define three types of streams as follows.

**Ephemeral Stream**
An ephemeral stream is defined as "a stream that flows only during and for short periods following precipitation and flows in low areas that may or may not have a well-defined channel." Some common names for ephemeral streams include: drain, swale, gully, slough (pronounced 'slew') or hollow. Ephemeral streams do not require a SMZ. However, it is strongly encouraged that skid trails, roads, site-prep and other soil-disturbing activities be minimized in the ephemeral streams to avoid erosion and sedimentation of runoff that can flow from the ephemeral into other streams or waterbodies.

**Intermittent Stream**
An intermittent stream is defined as "a stream that flows only during wet periods of the year (30% - 90% of the time) and flows in a continuous well-defined channel." During dry periods, especially in spring and summer months, intermittent streams may appear as only a trickle of water or may seem to be totally dry, when in fact there is water retained within the stream bottom or "stream substrate". This water retention below the soil surface is usually caused by seasonal changes of the local water table.

American Geophysical Union, Fall Meeting 2006, abstract #H13A-1368

“In order to classify recharge potential (RCP) in ephemeral-stream channels, a method was developed that incorporates information about channel geometry, vegetation characteristics, and bed-sediment apparent electrical conductivity ('a)….”

This work includes channel geometry, vegetation and bed-sediment apparent conductivity in the definition. Some of the concepts apply to the Scofield Drainages.



## Glossary of Water Terms

**EPHEMERAL STREAM**

A stream or reach of a stream that flows briefly only in direct response to precipitation in the immediate locality and whose channel is at all times higher than the water table.

**INTERMITTENT STREAM**

A stream that ceases to flow occasionally or seasonally because evaporation and leakage to ground water exceed the available water supply.

A rather exhaustive list of ephemeral stream references can be found in Appendix(__)

## Intermittent Stream Definitions:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

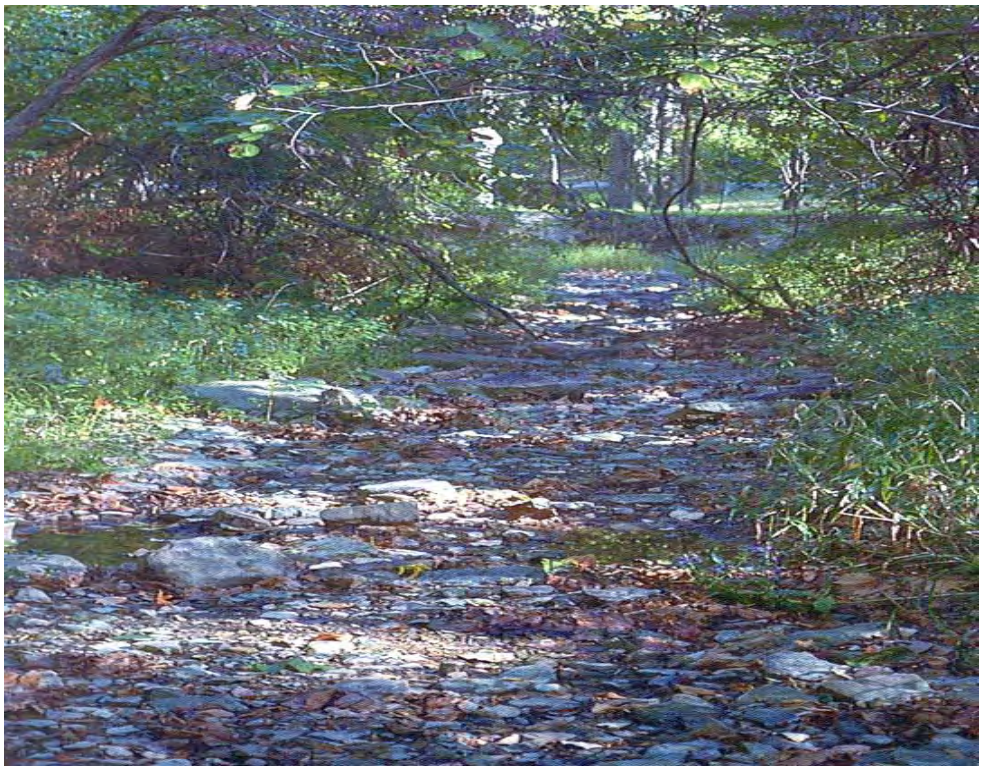
Home Browse Terms Help

First Edition Preface Second Edition Preface Acknowledgments

**Intermittent stream**—A stream that carries water a considerable portion of the time, but that ceases to flow occasionally or seasonally because bed seepage and evapotranspiration exceed the available water supply.
*Compare* ephemeral stream, perennial stream.

**INTERMITTENT STREAM**

*R4SBF, R4SBC



In this wetland type, the channel contains flowing water for only a portion of the year. When not flowing, the water may remain in isolated pools, or surface water may be absent.

The substrate consists of organic deposits, sand, gravel, cobble, rubble, bedrock, or pioneering plants. There are generally no named soils in this community, although some areas may be listed as mixed alluvial land.

Vegetation is dependent on the length of inundation, as well as the substrate type. In many cases, streambeds are not vegetated because of the scouring effect of the moving water, but occasionally" pioneering" annuals or perennials may colonize the area during low flow. Many small drainage ditches are included with this type.

*dnr.state.il.us/Wetlands/**intermittent**.htm - 3k*

*Used throughout the community descriptions to indicate the most commonly occurring code in Illinois

**Intermittent Stream Definition:**

A stream that goes dry at certain times of the year. Intermittent streams flow during seasons of the year when runoff and/or ground water contributions sustain the flow of the stream. They stop flowing during dry seasons when precipitation is low and the water table drops below the bed of the stream.

UDOGM's own revised definition of Intermittent Stream.

**Utah Division of Oil, Gas & Mining**
**Informal Rulemaking Process**
**UMA Topic #5: Intermittent Stream**
**Proposed Coal Draft Rule from UMA, DOGM Received 11/7/07**
**Including DOGM Nonsubstantive Edits 11/21/07**

**Proposed Rule Change in part of R645-100-200.:**

"Intermittent Stream" means ~~(a) a stream, or reach of a stream, that drains a watershed of at least one square mile, or (b)~~ a stream, or reach of a stream, that is below the local water table for at least some part of the year and obtains its flow from both surface runoff and groundwater discharge.

**Legal "consensus definitions" for stream classifications are:**

Ephemeral Streams flow water only in response to precipitation and the water table is always below the stream base. Intermittent Streams flow water much of the year and the water table is above the base of the stream much of the year contributing to their flow. This definition includes the revised UDOGM definitions (above).

**Characterization of Drainages**

Using the criteria in the Legal Consensus definition alone it is easy to demonstrate that the seven drainages within and adjacent to the permit boundary are clearly ephemeral. First, however, a discussion of the local water table is required.

Baseline static water level data from monitor wells CR-10-11, CR-10-12, CR-06-03, and CR-06-09 were integrated with elevation intercepts from the perennial Mud Creek and the perennial lower reach of Miller Canyon/Long Canyon, and Scofield Reservoir to construct a peizometric surface model using SURV-CAD and is presented on View 1. These data provide consist support for the presence of a regional, or semi-regional, water table (piezometric surface) beneath the permit area (Maps 7A and 7B, X-Section A-A' and C-C', Chapter 7, Hydrology).

Topographic contours shown in gray with semi-regional water table (piezometric surface) contours shown in light blue, beneath the topography, clearly demonstrate that

all of the seven drainages shown as ephemeral (Eagles Canyon, Monay Draw, Blue Seal Draw, Kinney Draw, Columbine Draw, Jones Draw, UP Canyon) are above the water table throughout their entire length. Bold letters “A” through “G” on View 2 post the differences in elevation between the bottom of each drainage and the peizometric surface (depth to the water table) at the westernmost location within each respective drainage basin where the elevation difference is the smallest. That is, the difference between the bottom of each drainage and the peizometric surface is smallest down-gradient, closer to base level represented by Scofield Reservoir and increases significantly eastward or upstream on each drainage.

Constraints on the elevation and gradient of the water table also explain the observed intermittent nature of the Long Canyon portion (upper reach) of the Miller Canyon Stream.

Geometric properties (area, length, elevation and average slope) of the seven ephemeral drainages together with those of the two perennial streams are summarized below in TABLE 1.

**TABLE 1**

**Drainages Arranged North to South**

| Kinney Drainage Basin Areas | | | Kinney Drainage Average Gradient (Slope) | | | | |
|---|---|---|---|---|---|---|---|
| Drainage | SQ FT. | Acres | Top Elev | Base Elev | Elev Drop | Length | Avg Slope |
| Miller Canyon | 224,900,115.77 | 5,163.00 | 9,100.0 | 7,660.0 | 1,440.0 | 33,275.8 | 4.3% |
| Eagles Canyon | 28,232,397.56 | 648.13 | 8,600.0 | 7,660.0 | 940.0 | 10,182.1 | 9.2% |
| Monay Draw | 2,714,510.69 | 62.32 | 7,980.0 | 7,800.0 | 180.0 | 760.0 | 23.7% |
| Blue Seal Draw | 1,789,775.88 | 41.09 | 7,980.0 | 7,820.0 | 160.0 | 641.0 | 25.0% |
| Kinney Draw | 2,578,528.62 | 59.19 | 7,980.0 | 7,760.0 | 220.0 | 875.4 | 25.1% |
| Columbine Draw | 2,049,214.37 | 47.04 | 7,880.0 | 7,800.0 | 80.0 | 248.0 | 32.3% |
| Jones Draw | 5,041,158.90 | 115.73 | 8,080.0 | 7,820.0 | 260.0 | 1,202.1 | 21.6% |
| UP Canyon | 36,746,615.67 | 843.59 | 8,500.0 | 7,800.0 | 700.0 | 6,279.0 | 11.1% |

Groundwater Monitoring Data for Monitor Wells CR-06-01-BLW, CR-06-02, CR-06-05A, CR-10-11, and CR-10-12 are shown on Exhibit 10 (Surface and Ground Water Field Measurements) and graphically depicted on Maps 7, 7A,7B. Data in Exhibit 10 document, for a duration of four years (2006-20010), the upper limit of the static water level beneath Monay Draw, Blue Seal Draw, Kinney Draw, Columbine Draw, Jones Draw, UP Canyon, as positioned a minimum of fifty two (52) feet below the lowest point in the bottom of the lowest of these drainages.CR-06-01-BLW is actually located in Jones Draw providing absolute site specific data. The groundwater surface (piezometric) clearly is lower near the Scofield Reservoir where the lowest portions of the drainages terminate.

In addition to the four year data set documenting the position of the groundwater table in the local area, the following twenty two (21) visits to Scofield by Ben Grimes, over the course of roughly the same four years (5-26-06 through 10-20-10), where he was surveying in the area and can testify it was not raining and observed no water running in any of the eight drainages listed above, except Miller Canyon which is perennial, as he passed by them: (5-26-06,10-16-06,10-27-06,5-8-07,9-20-07,9-21-07,10-27-07,9-22-09,9-23-09,9-28-09,9-29-09,9-30-09,10-1-09,4-26-10,4-27-10,7-3-10,8-19-10,9-7-10,9-14-10,9-16-10,9-30-09,10-20-10).

**The data presented above clearly demonstrate several things:**

1. There **is** a semi-regional peizometric surface in the permit area.
    a. Evidence for this surface includes the consistency of data which is taken to be the elevation of the two perennial streams (Mud Creek, & Miller Creek/Long Canyon), along their apparent effluent reaches, and the intercepts of the five monitor wells.
    b. Even though the faults are not shown on the maps Views 1 & 2), the existing data suggest that the faults **do not significantly partition the water flow along the peizometric surface in the saturated zone**. The peizometric surface shown on the maps above is very smooth due to the paucity of data, however, it is fully expected that the surface has some ridges and valleys, very likely caused by the local down-gradient retarding or damming effect (instead of the partitioning effect) of the larger faults. This is likely represented by the apparent anomaly of Monitor Well CR-06-05A that has never shown a static water level.
2. The local recharge area is obviously Jump Creek, Long Canyon and to a lesser extent Eagles Canyon.
3. The seven drainages (Eagles Canyon, Monay Draw, Blue Seal Draw, Kinney Draw, Columbine Draw, Jones Draw, Up Canyon) adjacent to or passing over the permit area are;
    a. a single straight reach (lacking meanders, low sinuosity) except for Eagles and UP Canyons, whose courses are controlled by faulting.
    b. steeply inclined to the west (also note elevations in Table 1)
    c. small catchment (drainage basin) areas
        i. average rainfall collected over the small catchment areas does not, on its own, support perennial flow Table 2.
    d. above the water table (peizometric surface) along their entire length (View 2).

**TABLE 2**

| **Water Calculations** | **Basin** | **Annual Precipitation** | | **Annual Flow** | | |
|---|---|---|---|---|---|---|
| Drainage | Acres | Inches | Gallons | AVG gpm | Gallons | as % of Annual Precipitation |
| Miller Canyon | 5,163.0 | 17.2 | 2,414,200,360 | 175.0 | 99,713,250 | 4.13028% |
| Eagles Canyon | 648.1 | 17.2 | 303,061,935 | 22.0 | 12,535,380 | 4.13624% |
| Monay Draw | 62.3 | 17.2 | 29,139,037 | 2.1 | 1,196,559 | 4.10638% |
| Blue Seal Draw | 41.1 | 17.2 | 19,212,429 | 1.4 | 797,706 | 4.15203% |
| Kinney Draw | 59.2 | 17.2 | 27,679,331 | 2.0 | 1,139,580 | 4.11708% |
| Columbine Draw | 47.0 | 17.2 | 21,997,383 | 1.6 | 911,664 | 4.14442% |
| Jones Draw | 115.7 | 17.2 | 54,114,546 | 3.9 | 2,222,181 | 4.10644% |
| UP Canyon | 843.6 | 17.2 | 394,458,191 | 28.5 | 16,239,015 | 4.11679% |
| | | | | Hypothetical Flow | | |

Miller Canyon is the only perennial stream on Table 2 and is used as an example of average flow as a percentage of annual precipitation. That is, Miller Canyon averages 175 gpm annually which is approximately 4.1 percent of precipitation in its catchment basin. The similarities in geology, vegetative ground cover, and elevations are expected to yield a roughly similar ratio of flow as a percentage of precipitation. Hypothetical flows that would result in the approximate same ratio were inserted into the calculations and are shown to be extremely low.

Data presented above, taken in its entirety, make it impossible to characterize the seven subject drainages as perennial or as intermittent. **The inescapable conclusion is that these seven drainages are ephemeral.**

**In addition to the legal definition of ephemeral and intermittent streams cited above, the quoted definitions also include more in-depth academic definitions summarized below that provide additional parameters by which to judge the seven subject drainages.**

**Ephemeral Stream (Drainage):**

- Flow water only after rain fall or snow melt. (In direct response to precipitation)
    - Carries water less then 30% of year
- Above water table year round
    - Ground water is not a source of water for the stream
- No base-flow component
    - No or minimal bank and bed-storage capacity
    - Minimal or no springs in drainage basin
        - Perched aquifer springs only
- May not have a well defined channel
- Very Low Sinuosity
- May or man not have water flow generated alluvium in stream bed
- A high roughness coefficient (Manning's Equation)
    - Suggests steeper vertical profiles
- Relatively low bed sediment conductivity
- Very-low to low aquatic taxa

**Intermittent Stream (Drainage):**

- Carries water a considerable portion of the time
    - Flows water 30 to 90% of year
    - Ceases to flow occasionally or seasonally because bed seepage and evapotranspiration exceed available water supply
- Below water table for at least some part of the year
    - Obtains flow from both surface runoff and groundwater
    - Has a base flow component
        - Typically has bank and bed-storage capacity
- May have springs in drainage basin
- Has a well defined channel
- Has flow generated alluvium in stream bed

- Low Sinuosity
- A lower roughness coefficient than ephemeral (Manning's Equation)
    - Generally less steep vertical profiles than ephemeral
- Relatively low bed sediment conductivity
- Moderate to high aquatic taxa

**These "academic definitions" might not be exhaustive but are useful anyway. Major common threads between the definitions are:**

1. Use of a water table to differentiate between ephemeral and intermittent streams. As with the Legal Definition.
2. The presence of **bank and or bed storage capacity** as a part of the "base flow component" as defining intermittent streams but are lacking in ephemeral Streams.
    a. Bank and bed storage requires, among other things, presence of alluvium**,** highly fractured bedrock, or abandoned meanders or abandoned channel segments leaving permeable stream level terraces.

The general correlation between higher sinuosity and a higher likelihood of bank and bed storage capacity forwards the idea that streams with higher sinuosity are more likely to have a component of "base flow" issuing from bank and bed storage and are therefore not likely to be ephemeral.

The discussion of bank and bed storage also has relevance to the discussion of vados zone springs addressed in Chapter 6, Geological Information.

3. **Intermittent streams always have alluvium**; ephemeral streams may or may not have alluvium.
4. **Ephemeral streams tend to have steeper gradients than do intermittent streams** as expressed as a component of the Manning Equations roughness coefficient. Ephemeral streams have a higher roughness coefficient than intermittent streams. This is also reflected in sinuosity; steeper gradient streams display less sinuosity than lower gradient streams.
5. **Intermittent streams always have a well defined channel. Ephemeral streams may or may not have a well defined channel.**

**Applying the "academic definition common threads" to the four streams that pass through the permit boundary provides further weight to the argument that they are in fact ephemeral.**

The commonalities of the four drainages that support an ephemeral classification are:

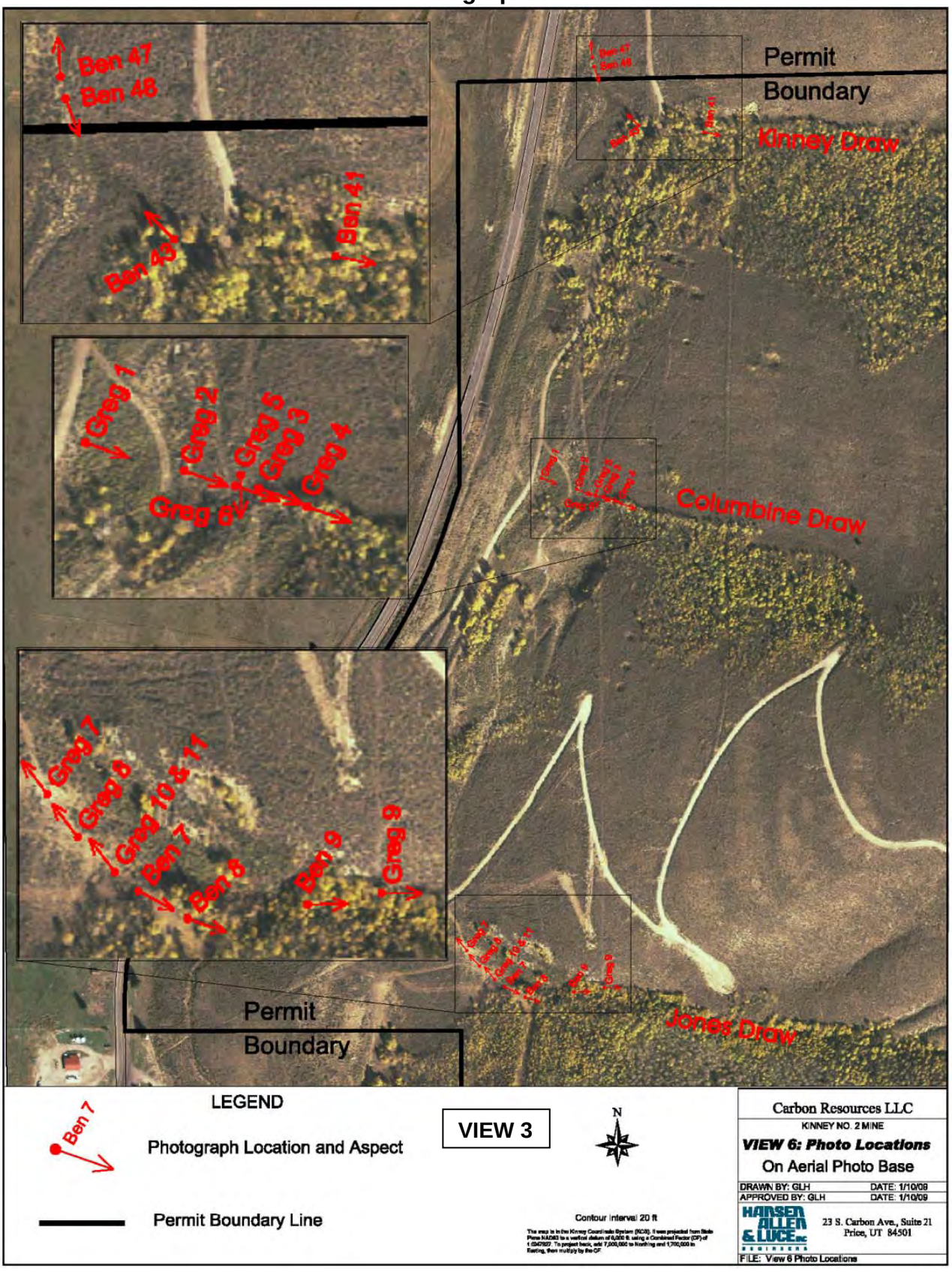
- Small Drainage Basin
- Elevated and steeply inclined
- Low sinuosity
- Absent or poorly defined channel
- Virtual absence of alluvium in the channel
- No noticeable difference in vegetation between channel and drainage basin

- Virtual absence of bank and bed storage material. Together these features describe drainages that are small, steeply inclined basins, high and dry above the regional water table, completely lacking the ability to catch and retain sufficient water to create sufficient bank or bed storage to support a flow that persists for more than hours following a rain storm or for days after the snow pack has melted. **This describes ephemeral streams**.

The key legal issue that disqualifies all seven of the streams described above from being classified as intermittent streams is the absence of flow from the water table for any portion of the year. A stream that is physically located tens to hundreds of feet above the well documented local water table cannot receive any water from the ground water table and therefore cannot be classified as an intermittent stream.

There is no question that the seven drainages in an adjacent to the permit area (Eagles Canyon, Monay Draw, Blue Seal Draw, Kinney Draw, Columbine Draw, Jones Draw, and UP Canyon) **are in fact Ephemeral.**

## APPENDIX 1: Drainage Photographs



**Ben 41: View East in Kinney Draw, Oct. 2007. Note no defined channel**

**Ben 43: View NW bottom of Kinney Draw, Oct. 2007. Note remnant of snow in bottom of drainage.**

**Ben 47: View N N-W @ old diversion North of Kinney Draw, Oct. 2007**

**Ben 48: View S-E @ old diversion North of Kinney Draw, Oct. 2007**

**Greg 1: Columbine Draw 10-29-08 View East up draw from road**

**Greg 2: Columbine Draw 10-29-08: @ East easement fence view E @ drainage bottom**

**Greg 3: Columbine Draw 10-29-08: View E @ drainage bottom from immediately E of E fence**

**Greg 4: Columbine Draw 10-29-08: View E @ drainage bottom from ~ 50 ft. E of E fence**

**Greg 5: Columbine Draw 10-29-08: Close up of drainage bottom immediately W of East fence. Note lack of rounded alluvium.**

**Greg 6: Columbine Draw 10-29-08: Bottom of drainage immediately W of East Fence, View E**

**Greg 7: Jones Draw 10-29-08: Jones Draw View NW from ~ mid drainage**

**Greg 8: Jones Draw 10-29-08: View W from ~ mid drainage**

**Greg 9: Jones Draw 10-29-08: View E from ~ E easement boundary**

**Greg 10: Jones Draw 10-29-08: View W N-W @ down mouth**

**Greg 11: Jones Draw 10-29-08: View W N-W @ drainage bottom from ~ mid drainage**

**Ben 7: View East in Jones Draw, Oct. 2007**

**Ben 8: View East in Jones Draw, Oct. 2007**

**Ben 9: View East in Jones Draw, Oct. 2007**

**Greg 25: View West across drainage bottom of Eagles Canyon at livestock watering tank fed by Angle Spring , 4 September 2007. Note the absence of well defined drainage and absence of running water even out of the spring fed stock tank overflow.**

**Greg 26: Close-up, View South at the same stock tank shown in the above photo, 4 September 2007. Note the very small drizzle of water entering the trough through the white PVC pipe that brings water from Angle Spring. The flow is so small cows were barley able to get a drink. As can be seen, there was no water overflowing the tank. Rancher indicated this drizzle completely dried up on or about 20 September 2007.**

**NOTE: THE LOCATION OF THESE TWO PHOTOS IN EAGLES CANYON ARE IS NOT SHOWN ON VIEW 3: REFERR TO VIEW 2 AND MAP 7 FOR LOCATION OF EAGLES CANYON AND ANGLE SPRING.**

# Exhibit 21

# Permit Documentation

## SHPO Decision of No Adverse Effect

## UDOGM Decision of No Adverse Effect

## Montgomery Archaeological Consultants Informational Letter

C/007/047 Incoming

#3646 cc: Joe


**State of Utah**

GARY R. HERBERT
*Governor*

GREG BELL
*Lieutenant Governor*

**Department of Community and Culture**

PALMER DePAULIS
*Executive Director*

**State History**

PHILIP F. NOTARIANNI
*Division Director*


October 13, 2010

Daron R. Haddock
Permit Supervisor
Division of Oil, Gas & Mining
1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City Utah 841148-5801

RE: Kinney #2 Mine, C/007/0047, Carbon County, Utah

In Reply Please Refer to Case No. 05-1843

Dear Mr. Haddock:

The Utah State Historic Preservation Office received your request for our comment on the above-referenced project on September 30, 2010.

USHPO recommends a determination of No Adverse Effect for the undertaking.

This letter serves as our comment on the determinations you have made, within the consultation process specified in §36CFR800.4. If you have questions, please contact me at 801-533-3555 or Lhunsaker@utah.gov or contact Jim Dykmann at 801-533-3523 or Jdykman@utah.gov

Sincerely,

Lori Hunsaker
Deputy State Historic Preservation Officer
Archaeology


UTAH STATE HISTORY

UTAH STATE HISTORICAL SOCIETY
ANTIQUITIES
HISTORIC PRESERVATION
RESEARCH CENTER & COLLECTIONS

300 S. RIO GRANDE STREET, SALT LAKE CITY, UT 84101-1182 · TELEPHONE 801 533-3500 · FACSIMILE 801 533-3503 · HISTORY.UTAH.GOV



OCT 13 2010

Outgoing
C0070047

JON M. HUNTSMAN, JR.
*Governor*
GARY R. HERBERT
*Lieutenant Governor*

# State of Utah
## DEPARTMENT OF NATURAL RESOURCES
### Division of Oil, Gas & Mining

MICHAEL R. STYLER
*Executive Director*
JOHN R. BAZA
*Division Director*

September 23, 2010

Ms. Lori Hunsaker
Deputy State Historic Preservation Officer
Division of State History
300 S. Rio Grande Street
Salt Lake City, Utah 84101

Subject: Decision on No Adverse Effect to Historic Properties, Carbon Resources, Kinney #2 Mine, C/007/0047, Carbon County, Utah, Outgoing File

Dear Ms. Hunsaker:

After the telephone conference held on September 14, 2010, the Division has revised it's determination of Archeological clearance for the above-referenced mine. Please find enclosed a letter and map from Montgomery Archaeological Consultants, (MOAC), prepared by Jody Patterson.

The letter and map provide additional information and clarification about the three eligible sites, (42cb477, 42cb479 and 42cb1032), at the proposed Kinney #2 mine location. Previously a file search was conducted on May 15, 2007 and a class three pedestrian survey identifying these eligible sites was conducted by MOAC between May 16 and 25, 2007.

According to the additional information, **Site 42cb477** will be avoided although fencing is recommended. **Site 42cb479**, the original Kinney mine opened in 1920, contains 12 features. All but one of these features will be avoided. Only feature 12, thought to be a tipple area, may be potentially affected by the footprint of the disturbed area. The feature is 7 to 10 feet away from the disturbance area and only 4% of the site may be encroached upon by the proposed mine. **Site 42cb1032** is a minor spur of the Utah and Pleasant Valley Railway. In as much as the adjoining rail system has been continually upgraded and maintained into the 1970's, two minor impacts to the spur would not have an adverse impact on the railroad grade.

MOAC has recommended a "no historic properties adversely affected" determination for the three sites as discussed in the additional information and site map provided.

The Division agrees with MOAC's recommendation and makes a determination of no adverse effect to historic properties. We seek your concurrence with this determination. Please provide your concurrence at your earliest convenience.

Thank you for your comments on this case. Should you have any further questions, please contact me at (801) 538-5325 or Joe Helfrich at (801) 538-5290.

Sincerely,

Daron R. Haddock
Permit Supervisor

DRH/JCH/sqs
Enclosures:
O:\007047.KN2\SHPO concurrence ltr.doc

MONTGOMERY
ARCHAEOLOGICAL
CONSULTANTS
Box 219, 322 East 100 South, Moab, Utah 84532 (435) 259-5764 Fax (435) 259-5608

Greg Hunt
Carbon Resources, LLC.
16577 Columbine Lane
Cedaredge, Co. 81413

20 September 2010

Dear Mr. Hunt,

As per your request, I have reviewed the site and GIS data to determine potential impacts to sites 42Cb447, 42Cb449, and 42Cb1032 and whether any impacts could be considered as an adverse effect on these sites.

Site 42Cb447 is the old Jones Mine located on the southern end of the Kinney 2 Mine. Originally the site had five features, four of which were destroyed during mine reclamation. All five features, including a hopper, a tipple, a wood frame building, a fan house, and the mine portal, were documented prior to reclamation. The HABS/HAER documentation for the Jones Mine can be found online at http://memory.loc.gov/cgi-bin/query/D?hh:1:./temp/~ammem_jaB5::. The one remaining standing structure, a fan house, is located 40-45 feet south of the nearest disturbance area. Although the feature is avoided, you may want to consider placing environmental fencing at the edge of the proposed disturbance as a safety and avoidance measure. Since the site has been well documented and reclaimed and the only remaining structure is avoided by the undertaking, MOAC recommends a "no historic properties adversely affected" determination for site 42Cb477 pursuant to Section 106, CFR 800.

Site 42Cb479 is the original Kinney Mine opened in 1920. The site consists of 12 features including eight retaining walls, two concrete foundations, and one standing structure, believed to be a powder house. All but one of these features are avoided by the proposed disturbance footprint for the undertaking. The powder house is approximately 50 feet east of the disturbance area. The retaining walls are avoided by a minium of 45 feet and some by as much as 122 feet. One of the two concrete foundations, thought to represent the remains of a truck scale, is over 100 feet from the nearest disturbance. Only Feature 12, which may be related to the mine's tipple, could be potentially impacted by the undertaking. The feature is only 7 to 10 feet away from the disturbance area. The proposed mine footprint encroaches on approximately 4% of the surface area of 42Cb479. Given the minor amount of disturbance to the existing features at the site and the limited amount of new surface disturbance within the site boundary, MOAC recommends a "no historic properties adversely affected" determination for site 42Cb479 pursuant to Section 106, CFR 800.

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Site 42Cb1032 is a minor spur of the Utah and Pleasant Valley Railway that served the Jones, Kinney, and Columbine Mines, as well as several prospects in U P canyon. The spur left the main line a mile north of Scofield and paralleled the east edge of the valley, passing east of the the Scofield Cemetery and ending in U P canyon. As recorded by MOAC in 2007, the spur has been abandoned since the 1970s. Although some portions still retain ties and rail, most of the segment consists of just the railroad bed. Two small portions of the spur will be impacted by the new mine. Given that the site is a minor spur on a large rail system, has been continually upgraded and maintained into the 1970s, the minor impacts to the railroad grade will not have an adverse effect on the site. A "no historic properties adversely affected" determination is recommended for this segment of 42Cb1032.

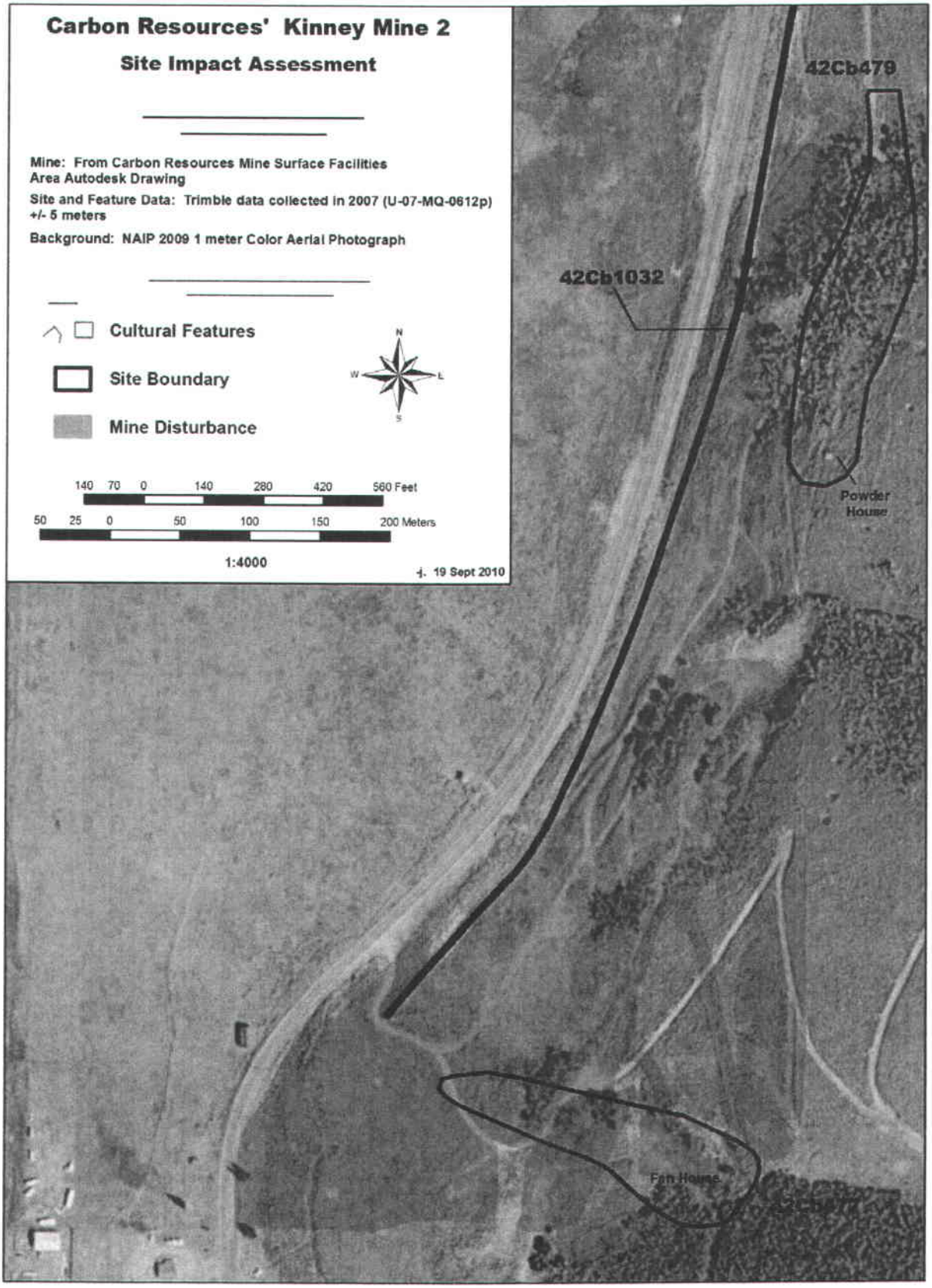
Overall, the impacts of the proposed undertaking on eligible cultural resource are negligible and a determination of "no historic properties adversely affected" is recommend for this undertaking.

Based on the telephone conference last week, Ms. Hunsaker is willing to re-examine the determination of effect for this project, but DOGM would have to resubmit a consultation letter. However, it is unclear what DOGM needs from us to be able to do this. I hope this letter may serve as an addendum to our initial recommendations made in the U-07-MQ-0612 report. One item Ms Hunsaker did ask for was a map showing the disturbance area of the mine in relationship to the sites and features. I have attached this map to this letter.

If you or DOGM need additional information or documentation concerning our recommendations, please feel free to contact me at your convenience.

Sincerely,

Jody J. Patterson


Carbon Resources' Kinney Mine 2
Site Impact Assessment
Mine: From Carbon Resources Mine Surface Facilities Area Autodesk Drawing
Site and Feature Data: Trimble data collected in 2007 (U-07-MQ-0612p) +/- 5 meters
Background: NAIP 2009 1 meter Color Aerial Photograph
Cultural Features
Site Boundary
Mine Disturbance
N
W
E
S
140 70 0 140 280 420 560 Feet
50 25 0 50 100 150 200 Meters
1:4000
j. 19 Sept 2010
42Cb479
42Cb1032
Powder House
Fan House